- Digital Logic

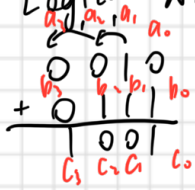
- Turing Machine

① Arith $+ \equiv (-, \times, \div)$

② $+ \equiv$ AND, ...

③ Logical And / OR / NOT can do everything

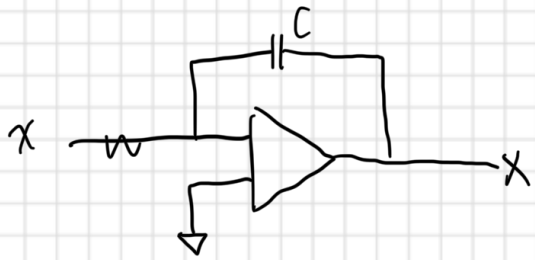
eXclusive OR



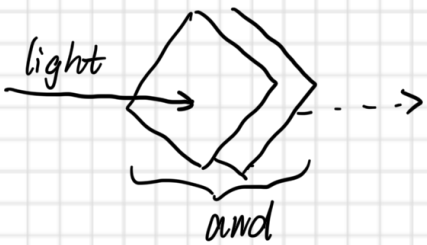
$C_0 = a_0 + b_0 \equiv a_0 \text{ XOR } b_0$

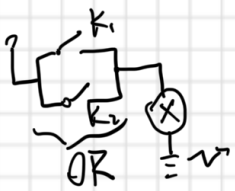
$C_1 = a_1 + b_1 \equiv a_1 \text{ XOR } b_1 = 0$

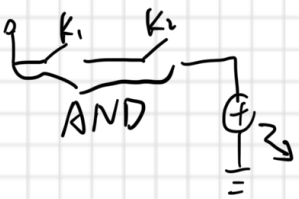
$\text{Carry}_1 = a_1 \text{ AND } b_1 = 1$



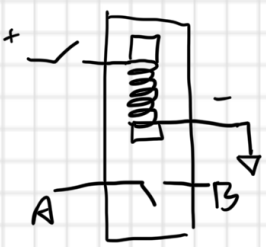
Logic: AND, OR, NOT







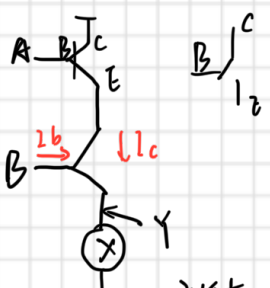
Relay



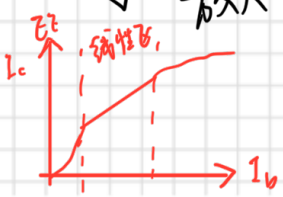
① $Y = A \cdot B$ (AND)

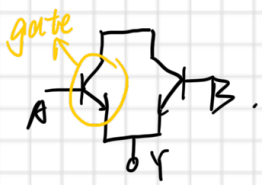
② $Y = A + B$ (OR)

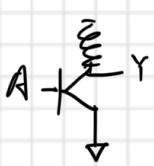
③ $Y = \bar{A}$

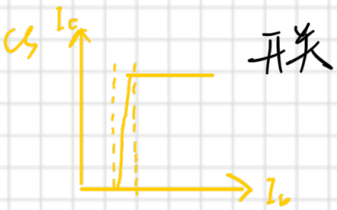


放大









开关

Mem Tech

Combination logic vs stateful logic

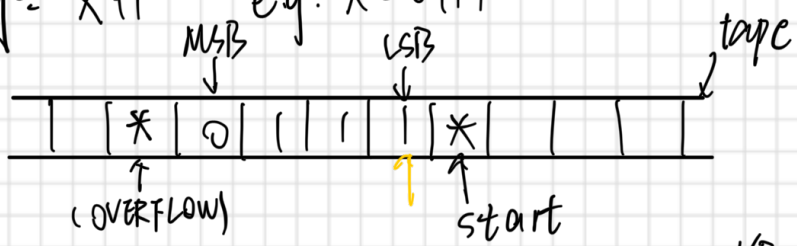
AND ...

Volatile (C)

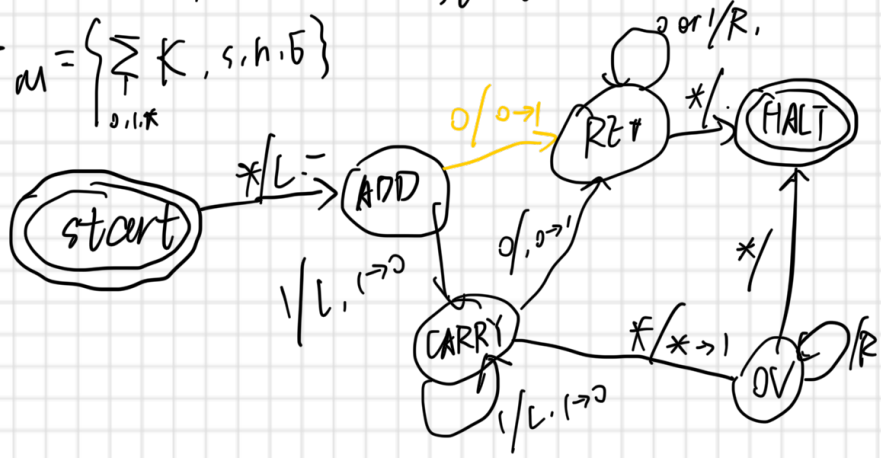
Volatile int x;

size ↖ uniq address

y = x+1 e.g. x = 0111



$T_M = \{\sum_{0,1,*} K, s, h, 6\}$



Cur State	input	write (x→0/1, 0→1, 1→0, 0/1→*)	shift (L-R or..)
ADD	0 / 1 / 2		
RET			
CARRY			
OV			