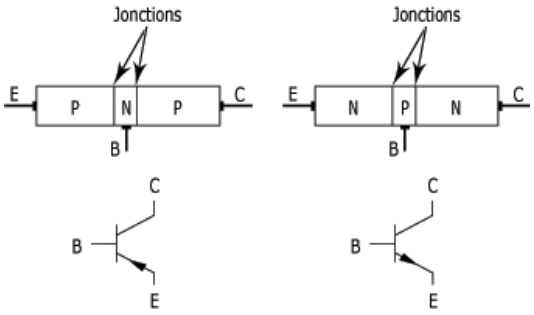
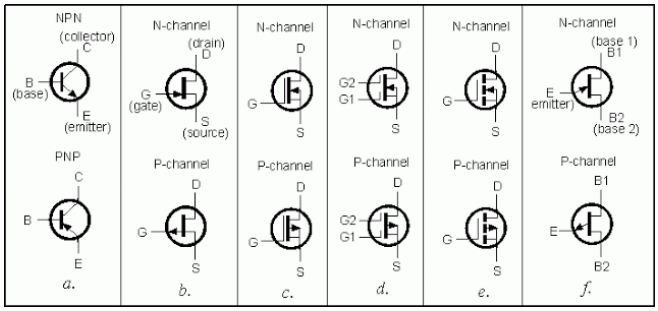
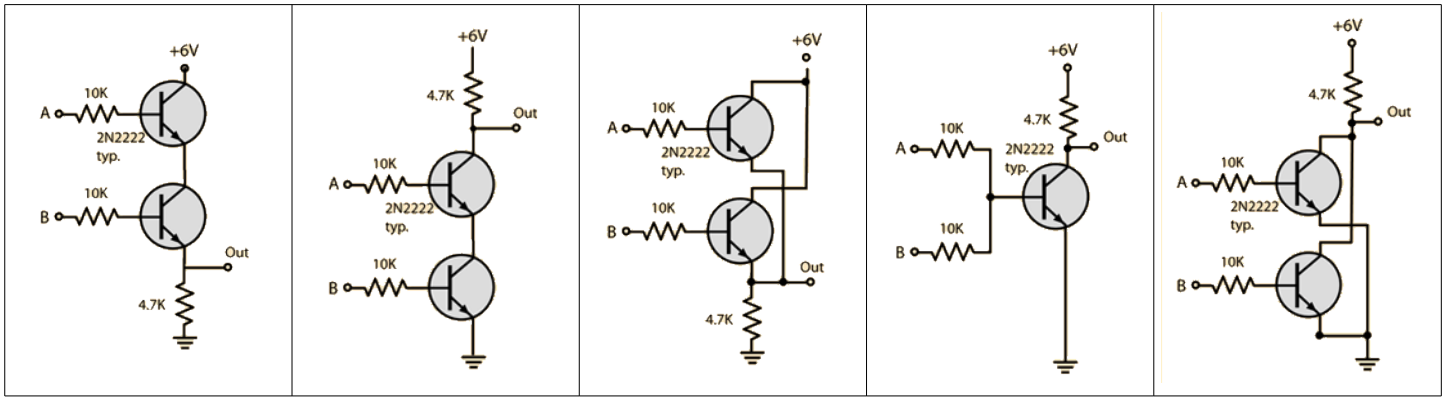
Tout Ou Rien : Du presque rien au presque tout...

1) Au départ : le transistor...



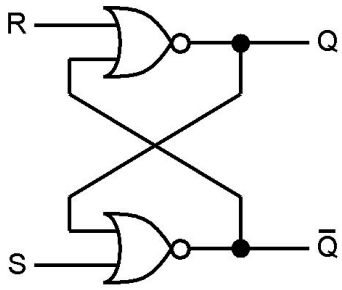


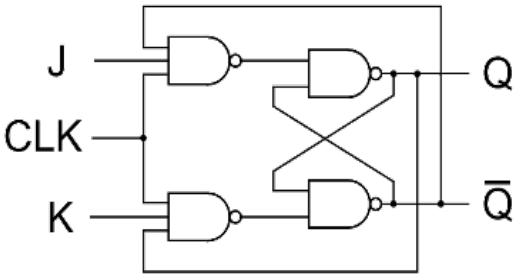
2) ... qui crée la fonction logique...



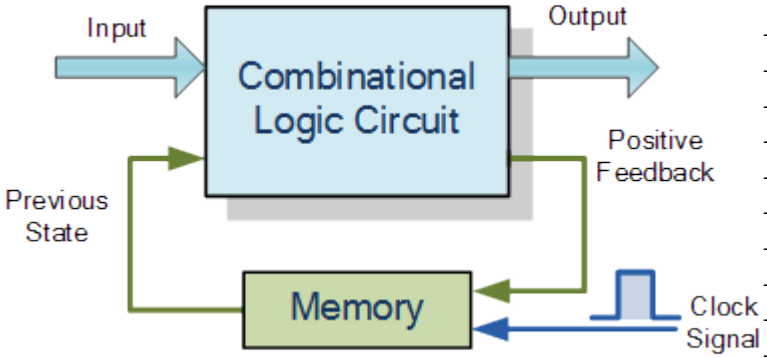
Opérateur	équation logique	symbole AFNOR	symbole ASGS	table de vérité	schéma à contact
OUI	$S = a$	a — 1 — S	a — S	a S 0 0 1 1	
NON	$S = \overline{a}$	a — 1 ○ — S	a — ○ S	a S 0 1 1 0	
OU	$S = a + b$	a, b — ≥1 — S	a, b — S	a b S 0 0 0 0 1 1 1 0 1 1 1 1	
ET	$S = a.b$	a, b — & — S	a, b — S	a b S 0 0 0 0 1 0 1 0 0 1 1 1	
INHIBITION	$S = \overline{a}.b$	a ○, b — & — S	a ○, b — S	a b S 0 0 0 0 1 1 1 0 0 1 1 0	
NAND (NON ET)	$S = \overline{a.b} = \overline{a} + \overline{b}$	a, b — & ○ — S	a, b — ○ S	a b S 0 0 1 0 1 1 1 0 1 1 1 0	
NOR (NON OU)	$S = \overline{a + b} = \overline{a}.\overline{b}$	a, b — ≥1 ○ — S	a, b — ○ S	a b S 0 0 1 0 1 0 1 0 0 1 1 0	
OU EXCLUSIF	$S = a \oplus b$	a, b — =1 — S	a, b — S	a b S 0 0 0 0 1 1 1 0 1 1 1 0	
IDENTITE	$S = \overline{a \oplus b}$	a, b — = — S	a, b — ○ S	a b S 0 0 1 0 1 0 1 0 0 1 1 1	

3) …qui engendre la mémoire…

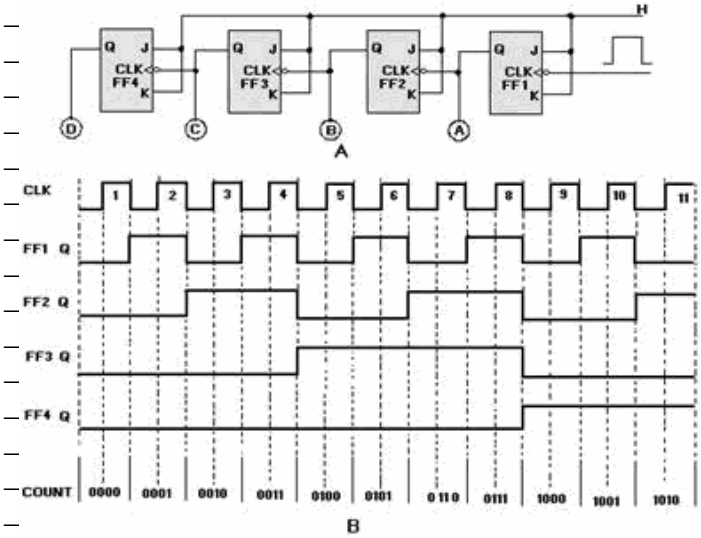




4) …pour aboutir aux algorithmes…



5) … et apprendre à compter….

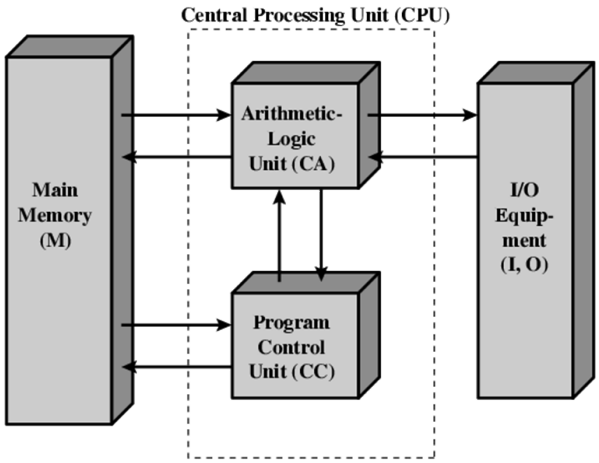


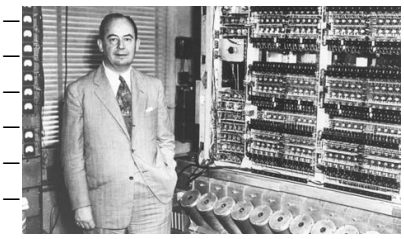
6) ...en binaire...

Binary Evaluate	2^4	2^3	2^2	2^1	2^0			Decimal
Decimal Value	16	8	4	2	1		Value	Number
					0	>	0	0
					1	>	1	1
			1	1	0	>	4+2+0	6
		1	0	1	0	>	8+0+2+0	10
	1	0	1	1	0	>	16+0+4+2+0	22
	1	1	0	0	1	>	16+8+0+0+1	25
	1	1	1	1	1	>	16+8+4+2+1	31

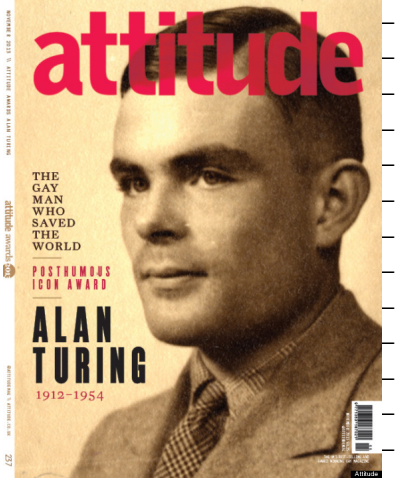
7) Naissance de l'informatique : machine de Von Neumann

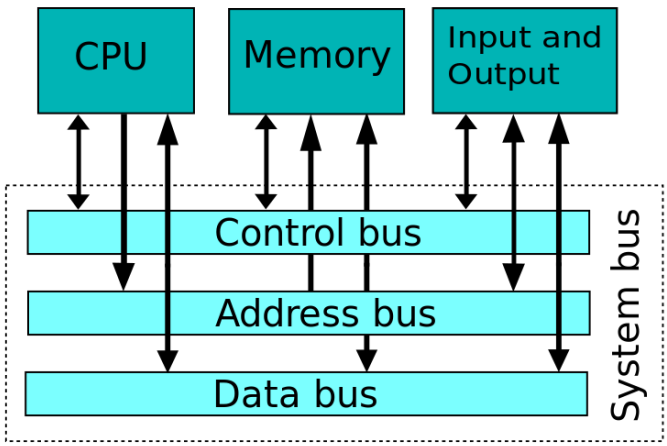
Structure of von Neumann machine





8) En route vers l'Intelligence Artificielle...

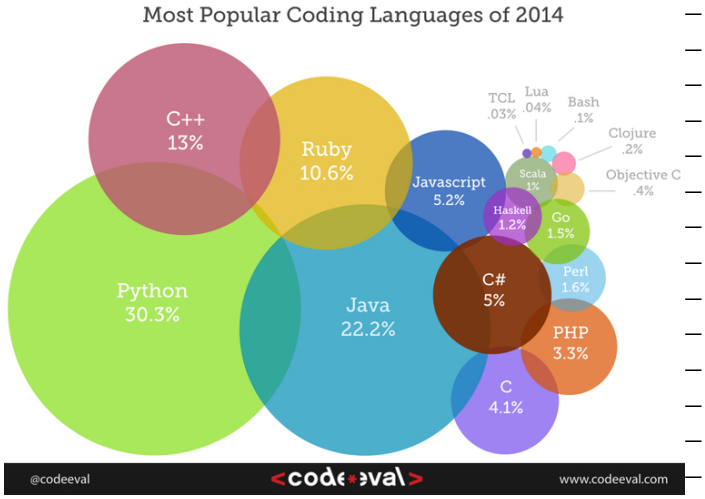




9) ...grâce aux langages...

Assembly Language	Machine Code
add $t1, t2, $t3	04CB: 0000 0100 1100 1011
addi $t2, $t3, 60	16BC: 0001 0110 1011 1100
and $t3, $t1, $t2	0299: 0000 0010 1001 1001
andi $t3, $t1, 5	22C5: 0010 0010 1100 0101
beq $t1, $t2, 4	3444: 0011 0100 0100 0100
bne $t1, $t2, 4	4444: 0100 0100 0100 0100
j 0x50	F032: 1111 0000 0011 0010
lw $t1, 16($s1)	5A50: 0101 1010 0101 0000
nop	0005: 0000 0000 0000 0101
nor $t3, $t1, $t2	029E: 0000 0010 1001 1110
or $t3, $t1, $t2	029A: 0000 0010 1001 1010
ori $t3, $t1, 10	62CA: 0110 0010 1100 1010
ssl $t2, $t1, 2	0455: 0000 0100 0101 0101
srl $t2, $t1, 1	0457: 0000 0100 0101 0111
sw $t1, 16($t0)	7050: 0111 0000 0101 0000
sub $t2, $t1, $t0	0214: 0000 0010 0001 0100

10) ... de plus en plus évolués...



11) ...et des systèmes d'exploitation intuitifs