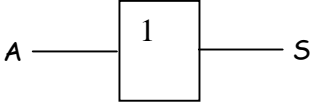
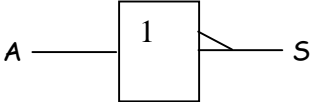


La numération
Les fonctions logiques

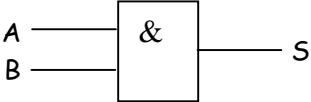
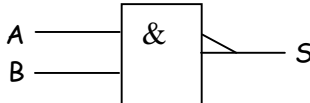
Les fonctions logiques sont utilisées dans des montages électroniques numériques.

Représentation des fonctions logiques :

Il existe des fonctions à une seule entrée :

<p>OUI (YES)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><th>A</th><th>S</th></tr> <tr><td>0</td><td>0</td></tr> <tr><td>1</td><td>1</td></tr> </table> <p>$S = A$</p> 	A	S	0	0	1	1	<p>NON (NOT)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><th>A</th><th>S</th></tr> <tr><td>0</td><td>1</td></tr> <tr><td>1</td><td>0</td></tr> </table> <p>$S = \overline{A}$</p> 	A	S	0	1	1	0
A	S												
0	0												
1	1												
A	S												
0	1												
1	0												

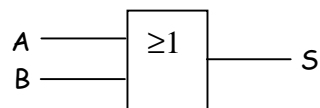
Il existe des fonctions à deux entrées :

<p>ET (AND)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><th>A</th><th>B</th><th>S</th></tr> <tr><td>0</td><td>0</td><td>0</td></tr> <tr><td>0</td><td>1</td><td>0</td></tr> <tr><td>1</td><td>0</td><td>0</td></tr> <tr><td>1</td><td>1</td><td>1</td></tr> </table> <p>$S = A \cdot B$</p> 	A	B	S	0	0	0	0	1	0	1	0	0	1	1	1	<p>NON ET (NAND)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><th>A</th><th>B</th><th>S</th></tr> <tr><td>0</td><td>0</td><td>1</td></tr> <tr><td>0</td><td>1</td><td>1</td></tr> <tr><td>1</td><td>0</td><td>1</td></tr> <tr><td>1</td><td>1</td><td>0</td></tr> </table> <p>$S = \overline{A \cdot B}$</p> 	A	B	S	0	0	1	0	1	1	1	0	1	1	1	0
A	B	S																													
0	0	0																													
0	1	0																													
1	0	0																													
1	1	1																													
A	B	S																													
0	0	1																													
0	1	1																													
1	0	1																													
1	1	0																													

OU (OR)

A	B	S
0	0	0
0	1	1
1	0	1
1	1	1

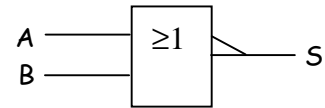
$$S = A + B$$



NON OU (NOR)

A	B	S
0	0	1
0	1	0
1	0	0
1	1	0

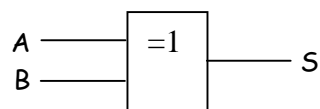
$$S = \overline{A + B}$$



OU Exclusif (XOR)

A	B	S
0	0	0
0	1	1
1	0	1
1	1	0

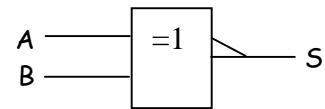
$$S = A \oplus B$$



NON OU Exclusif (Non-XOR)

A	B	S
0	0	1
0	1	0
1	0	0
1	1	1

$$S = \overline{A \oplus B}$$

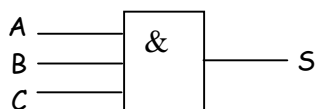


Il est possible de rencontrer des fonctions logiques plus complexes à 3 entrées comme par exemple :

ET - 3 entrées (AND 3 inputs)

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

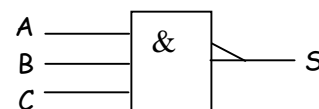
$$S = A \cdot B \cdot C$$



NON ET - 3 entrées (NAND 3 inputs)

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

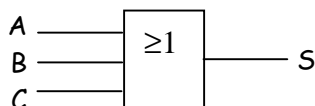
$$S = \overline{A \cdot B \cdot C}$$



OU - 3 entrées (OR 3 inputs)

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

$$S = A + B + C$$



NON OU exclusif - 3 entrées
(Non-XOR 3 inputs)

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

$$S = \overline{A \oplus B \oplus C}$$

