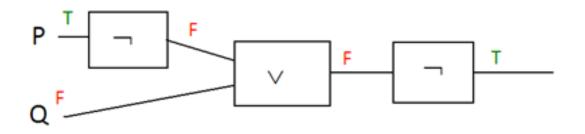
## Circuit Diagrams and Truth Tables



Р	Q	<b>¬</b> (	¬ P	∨ Q )
Т	Т	F	F	Т
Т	F	Т	F	F
F	Т	F	Т	Т
F	F	F	Т	Т

## Syntax of the Boolean operators

$$\begin{array}{c|c} P & \\ \hline Q & \\ \end{array}$$
 \( - (P \times Q) \) Conjunction

$$P - \neg P$$
 Negation

## E.g. write the sentences below in FOL.

Cube(a) 
$$\nearrow$$
  $\nearrow$   $\lnot$  (Cube(a)  $\land$  Cube(b)) (A negation sentence)

Cube(a)  $\nearrow$   $\lnot$   $\lnot$  Cube(a)  $\land$  Cube(b) Cube(b)  $\char$  (A conjunction sentence)

• The **type** of sentence (negation, conjunction or disjunction) is always the last operator applied in forming the sentence.

## Draw the circuit diagram

Sentence types?

negation

$$(P \land \neg Q) \lor \neg R$$

