

1 Logical Operators:

1. \neg Negation
2. \wedge Conjunction
($p \wedge q$) when both p and q are true.
3. \vee Disjunction
($p \vee q$) is false when both p and q are false.
4. \oplus Exclusive
($p \oplus q$) is true when exactly 1 of p, q is true.
5. \rightarrow Conditional
($p \rightarrow q$) is false when p is true and q is false.

The correct way to think about this is: p only if q. This means that p is true if and only if q.

The incorrect way is: q unless $\neg p$. This means that q is true unless p is false.

But, ($p \rightarrow q$) is true whenever q is true. Hence, q unless $\neg p$ is not logically equivalent.

6. \leftrightarrow Biconditional
($p \leftrightarrow q$) is p if and only if q.

2 Tables

Precedence	Operator
1	\neg
2	\wedge
3	\vee
4	\rightarrow
5	\leftrightarrow

3 Converse, Contrapositive, and Inverse

For ($p \rightarrow q$):

1. Converse: $q \rightarrow p$
2. Contrapositive: $\neg q \rightarrow \neg p$
This is equivalent to conditional statements.
3. Inverse: $\neg p \rightarrow \neg q$