

Start Learning Logic - Part 1

Logical statement (proposition): statement that is either True or False

- Examples:
- (a) Mars is a planet (True logical statement)
 - (b) Pluto is a planet (False logical statement)
 - (c) $1 + 1 = 2$ (True logical statement)
 - (d) The number 5 is smaller than the number 2 (False logical statement)
 - (e) Good morning! (Not a logical statement)
 - (f) $x + 1 = 1$ (Not a logical statement) \rightsquigarrow predicate

Logical operations:

Negation: For a logical statement A ,
 $\neg A$ denotes the negation.

Truth table

A	$\neg A$
T	F
F	T

Examples: (a) $A =$ The wine bottle is full
 $\neg A =$ The wine bottle is not full

(b) $A = 2 + 2 = 5$
 $\neg A = 2 + 2 \neq 5$

Conjunction: For two logical statements A, B ,
 $A \wedge B$ denotes the conjunction.

Truth table

A	B	$A \wedge B$
T	T	T
T	F	F
F	T	F
F	F	F

