Statement Classification and Truth Tables

Dr. Stan Hartzler Archer City High School

Simple statements:

p: You made good grades.
q: Your parents bought your Porsche.

Negations: ("It is false that…")

~*p*: You didn't make good grades.
~*q*: Your parents didn't buy your Porsche.

Compound Statements

Conjunction: $p \wedge q$ You made grades and your parents bought your Porsche.
Disjunction: $p \vee q$ You made grades or your parents bought your Porsche.

Conditional Statements:

Implication: $p \rightarrow q$ If you make grades, then parents will buy your Porsche.
Double implication: $p \leftrightarrow q$ You make grades if and only if your parents buy your Porsche.

Truth Values

p	***q***	***~p***	***~q***	***p ^ q***	***p ∨ q***	***p → q***	***p ↔ q***
T	T	F	F	T	T	T	T
T	F	F	T	F	T	F	F
F	T	T	F	F	T	T*	F
F	F	T	T	F	F	T**	T

* You didn't make good grades, but your parents bought you the car anyway. The rule is not broken.
** Again, the rule is not broken.