

# Satisfiability

Some logical expressions can never be true, some are always true, and some depend on the values of their variables. **T** and **F** refer to the logical constants True and False, respectively. Examples:

1.  $A \vee \neg A$  (always true)
2.  $A \wedge \neg A$  (never true)
3.  $A \vee B$  (sometimes true and sometimes false, depends on  $A$  and  $B$ )
4.  $A \wedge F$  (never true)

Statements that are always true are called *tautologies*. Statements that can be true (or are always true) are said to be *satisfiable*, and otherwise they are said to be *unsatisfiable*.