LOAL - Blackboard Examples: Introduction To Propositional Logic

DSAI - Dietmar Steiner based on material of Karpowicz Michal

Implication

" When a student learns, he/she will pass the exam. "

L	P	Am I Lying?
T	T	
T	F	
F	T	
F	F	

Truth Table: Equivalence

$$\neg(P \implies Q) \equiv P \land \neg Q$$

P	Q	$\neg(P \implies Q)$	$P \land \neg Q$
T	T		
T	F		
F	T		
F	F		

Truth Table: Exclusive OR

Compute the truth table of $(F \vee G) \wedge \neg(F \wedge G)$.

F	G	$(F \vee G) \wedge \neg(F \wedge G)$
T	T	
T	F	
F	T	
F	F	

Translation: Hard But Not Hopeless

" The situation is hard, but not hopeless. "

Translation: Warning System For Cars

A warning system for cars consists of the following two rules:

- An audio warning sounds if somebody is in the driver's seat, the key is on ignition and the seat belt is not fastened.
- An audio warning sounds if the driver's seat is empty and the key is on ignition

Translation: Bundesliga

" Wenn die Bayern alle Spiele gewinnen, dann werden sie von allen gehasst, aber wenn sie nicht alle Spiele gewinnen, werden sie von niemandem geliebt."