

26.10.2024

Computational logic Homework 1

Q: Ex 3.4

Using truth table method, check if this logical consequence holds:

$$p \rightarrow q \models (q \rightarrow r) \rightarrow (p \rightarrow (q \vee r))$$

	p	q	r	$p \rightarrow q$	$q \rightarrow r$	$p \rightarrow (q \vee r)$	$(q \rightarrow r) \rightarrow (p \rightarrow (q \vee r))$
1.	T	T	T	T	T	T	T
2.	T	T	F	T	F	T	T
3.	T	F	T	F	T	T	T
4.	T	F	F	F	T	F	F
5.	F	T	T	T	T	T	T
6.	F	T	F	T	F	T	T
7.	F	F	T	T	T	T	T
8.	F	F	F	T	T	T	T

Whenever $p \rightarrow q$ is true, $(q \rightarrow r) \rightarrow (p \rightarrow (q \vee r))$ is also true \Rightarrow the logical consequence holds.