

Individual Homework - Propositional Logic

Center Dan

Exercise 3

Using the truth table method, check whether the following sentence holds:

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

Theoretical results:

$U \models V$ (V is a logical consequence of U) if and only if all the models of U are also models of V

	p	q	r	$U = p \rightarrow q$	$q \rightarrow r$	$p \rightarrow r$	$V = (q \rightarrow r) \rightarrow (p \rightarrow r)$
i1	T	T	T	T	T	T	T
i2	T	T	F	T	F	F	T
i3	T	F	T	F	T	T	T
i4	T	F	F	F	T	F	F
i5	F	T	T	T	T	T	T
i6	F	T	F	T	F	T	T
i7	F	F	T	T	T	T	T
i8	F	F	F	T	T	T	T

Conclusion:

All the models of U (i1, i2, i5, i6, i7, i8) are also models of V ! So, $U \models V$