

MA-236: Homework 2

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I pledge my honor that I have abided by the Stevens Honor System.

1.18 Problems

(3) Show that the following argument is valid:

$A \vee B, A \rightarrow C, B \rightarrow C$, so C

To compute this efficiently, we find try to find a counter example such that all the premises are true and the conclusion is false. We can cut the table down to premises we know that can possibly produce counter examples:

A	B	C	$A \vee B$	$A \rightarrow C$	$B \rightarrow C$	C
t	t	f	t	f	f	f
t	f	f	t	f	t	f
f	t	f	t	t	f	f
f	f	f	f	t	t	f

Full computation:

A	B	C	$A \vee B$	$A \rightarrow C$	$B \rightarrow C$	C
t	t	t	t	t	t	t
t	t	f	t	f	f	f
t	f	t	t	t	t	t
t	f	f	t	f	t	f
f	t	t	t	t	t	t
f	t	f	t	t	f	f
f	f	t	f	t	t	t
f	f	f	f	t	t	f

Since we cannot find a counter example, the argument is valid.