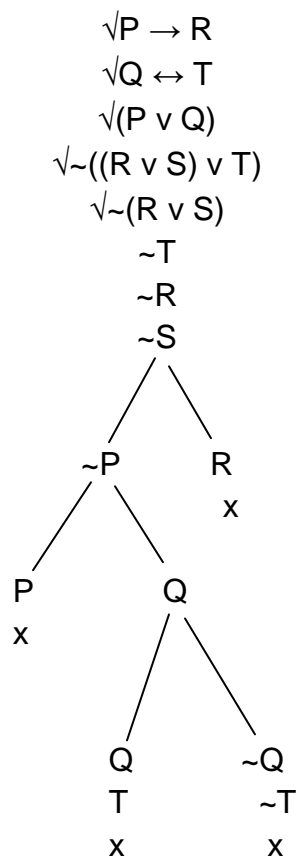


Philosophy 60
Test 5 Solution

Instructions: Use the refutation tree method to show that the following argument is valid. Then prove it using the propositional calculus on the back. You may use any of the first 8 inference rules for the latter task as well as $\rightarrow I$

Refutation tree (5pts): $P \rightarrow R, Q \leftrightarrow T, (P \vee Q) \vdash (R \vee S) \vee T$



Philosophy 60
Test 5 Solution

Prove (10 pts.) $P \rightarrow R, Q \leftrightarrow T, (P \vee Q) \vdash (R \vee S) \vee (T \vee M)$

1.	$P \rightarrow R$	A
2.	$Q \leftrightarrow T$	A
3.	$(P \vee Q)$	A
4.	P	H
5.	R	1,4 \rightarrow E
6.	$R \vee S$	5, \vee I
7.	$(R \vee S) \vee (T \vee M)$	6, \vee I
8.	$P \rightarrow ((R \vee S) \vee (T \vee M))$	4-7 \rightarrow I
9.	Q	H
10.	$Q \rightarrow T$	2, \leftrightarrow I
11.	T	9,10 \rightarrow E
12.	$T \vee M$	11, \vee I
13.	$(T \vee M) \vee (R \vee S)$	12, \vee I
14.	$Q \rightarrow ((R \vee S) \vee (T \vee M))$	9-13, \rightarrow I
15.	$(R \vee S) \vee (T \vee M)$	3,8, 14 \vee E