

Philosophy 60  
Test 3 solution

Instructions: There is one argument on the front of this page and one on the back. Determine whether each is valid or invalid using the refutation tree method. The second problem involves translation, and your translation must be correct in order to get credit for the refutation tree. Explain your result for each tree.

1.  $\sim(P \leftrightarrow (S \ \& \ R)), S \rightarrow P, R \rightarrow P \vdash \sim S \vee \sim R$  (5pts.)

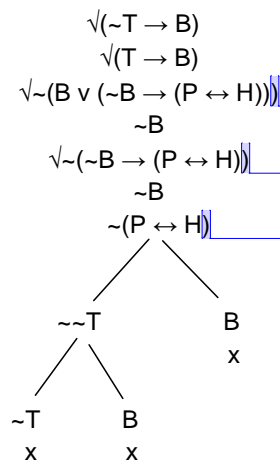
This problem is from video lecture 6a.

2. Translate: If Tom is not true then Betty is blue. If Tom is true then Betty is blue.  
 Therefore: Either Betty is blue **or** if Betty is not blue then, Pedro is pumped if and only if  
 Harriet is hot. (3 pts.)

Note: The bold faced 'or' indicates that it is the main connective. Comma after 'then' indicates that the  
 following clause should be grouped together between parentheses.

$$(\sim T \rightarrow B), (T \rightarrow B) \vdash B \vee (\sim B \rightarrow (P \leftrightarrow H))$$

3. Determine whether the argument above is valid using the truth tree method. (7pts.)



**Comment [m1]:** Operated on first because non branching.

**Comment [m2]:** Operated on second because non branching product of first operation.

**Comment [m3]:** Note that it was not necessary to operate on the negated biconditional. All branches closed without it.

Valid, all branches close.