Philosophy 220

Truth Trees 2

Conditional Decomposition (⊃D)

- Note that a conditional is true whenever either the antecedent is false or the consequent is true, which is why the material conditional is equivalent to '~P v Q'.

- M. P ⊃ Q

- N. ~P   Q

Negated Conditional Decomposition (~⊃D)

- A conditional is only false when the antecedent is true while the consequent is false. That is why negated conditional decomposition is a non-branching rule.

- M. ~(P ⊃ Q)

- N. P

- N+1. ~Q

Biconditional Decomposition (≡D)

- A biconditional is true when each of its members has the same truth value. This value could be T or could be F, so biconditional decomposition is a branching rule.
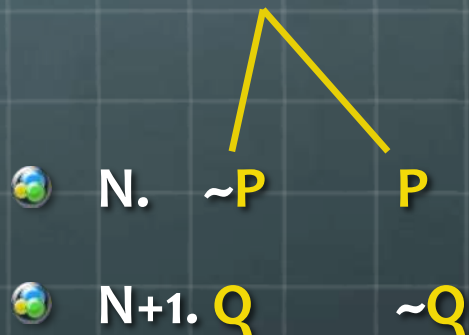
- M. **P ≡ Q**

- N.   **P**   **~P**

- N+1. **Q**   **~Q**

Negated Biconditional Decomposition (~≡D)

- Biconditionals are false when their members do not have the same truth value. This could either be because the left half is false or because the right half is false, which is why negated biconditional decomposition is also a branching rule.

- M. ~(P ≡ Q)

- N.   ~P   P

- N+1. Q   ~Q

The full set of rules:

- See p. 132 for a table with all of the branching rules for SL.

- See also the back flap of the text.

- Do not rely on being able to look these up. Look them up only until you internalize them.

- Internalization is more than memorization. Memorizing the tree rules allows you to do the tree, understanding why the rules are the way they are allows you to understand why you are doing what you are doing.

The strategies:

- First, decompose sentences that do not branch. It will not change the result, but will save time and space.

- Second, decompose sentences that will close one or more branches.

- Stop when you have the information that you were looking for. Sometimes even incomplete trees supply the information you wanted.

- If the above three steps do not apply, decompose the sentence with the most connectives first.