Philosophy 12A Homework Assignment #3

February 18, 2010

Six Validity Testing Problems (Truth-Table Methods)

Use a truth-table method (either the exhaustive method, or the "short" method) to determine whether each of the following three (3) LSL arguments/sequents is valid or invalid. For the "short" method, follow the guidelines discussed in lecture for presenting answers (*viz.*, see my handout with 3 examples).

1. $A \rightarrow C$
   $B \rightarrow C$
   $A \vee B$
   $\therefore C$

2. $I \rightarrow N$
   $(\sim K \vee D) \leftrightarrow N$
   $D \rightarrow \sim I$
   $\therefore \sim I \rightarrow (N \rightarrow K)$

3. $(\sim O \rightarrow \sim S) \,\&\, (O \rightarrow (M \,\&\, \sim I))$
   $\sim I \rightarrow \sim M$
   $\therefore \sim S$

For the next three, follow the directions in the text (*i.e.*, use the "short" method).

4. Page 66, I: #1
5. Page 66, I: #5
6. Page 66, I: #8

Since some people have an old printing of the textbook, I've included the salient part of the latest (4th) printing of the textbook below:

❑ Exercises

I Use the method of constructing interpretations to determine whether the following statements are correct. Explain your reasoning in the same way as in the worked examples, and if you claim a sequent is incorrect, exhibit an interpretation which establishes this.

(1) A → B, B → (C ∨ D), ~D ⊨ A → C
(2) (A & B) → C, B → D, C → ~D ⊨ ~A
(3) A → (C ∨ E), B → D ⊨ (A ∨ B) → (C → (D ∨ E))
*(4) A → (B & C), D → (B ∨ A), C → D ⊨ A ↔ C
(5) A ∨ (B & C), C ∨ (D & E), (A ∨ C) → (~B ∨ ~D) ⊨ B & D
(6) A → (B → (C → D)), A & C, C → B ⊨ ~B ↔ (D & ~D)
(7) (A ↔ B) & (B ↔ C) ⊨ (A ∨ ~A) & ((B ∨ ~B) & (C ∨ ~C))
(8) (A ↔ B) ∨ (B ↔ C) ⊨ A ↔ (B ∨ C)
(9) (~A & ~B) ∨ C, (A → D) & (B → F), F → (G ∨ H) ⊨ ~G → (H ∨ C)