Phi 270 Foo test 1 in pdf format

1. Define (logical) equivalence by completing the following: φ ⇔ ψ if and only if ... . (Your answer need not replicate the wording of the text's definitions, but it should define equivalence in terms of truth values and possible worlds.)
[answer]

2. Suppose you know that φ entails ψ (i.e., φ ⇒ ψ) and that φ is false. What, if anything can you conclude about the truth value of ψ? Explain your answer by reference to the definitions of entailment and equivalence, making explicit reference to the possibilities of truth and falsity mentioned in these definitions.
[answer]

3. Suppose everything implicated (and thus everything implied) by a sentence φ is actually implied by a sentence ψ (so ψ explicitly says everything that φ suggests) and suppose that ψ has no further implicatures. Could ψ be true but inappropriate (and thus true but misleading)? Explain your answer using the definitions of implicature and implication.
[answer]

4. Analyze the sentence below in as much detail as possible, presenting the result in both symbolic and English notation. Be sure that the unanalyzed components of your answer are complete and independent sentences; also try to respect any grouping in the English.

Sam got a red jellybean but wanted a green one; and Tom got a green one even though he wanted a red one

[answer]

Use derivations (but no replacement rules) to check whether each of the entailments below holds. If one fails, provide a table in which you calculate the truth values of the premises and conclusion on an extensional interpretation (i.e., an assignment of truth values) which divides an open gap.

5. A ∧ (B ∧ C) ⇒ (A ∧ B) ∧ D
[answer]

6. (A ∧ B) ∧ C, D ∧ E ⇒ (D ∧ B) ∧ E
[answer]

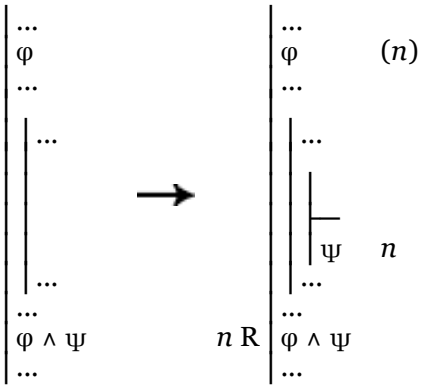
7. [This question was on a topic not covered in F05] Use replacement principles to put the following sentence into list

normal form (in which no conjunction is the left component of a conjunction and letters appear in alphabetical order without repetition):

$$(G \wedge B) \wedge (D \wedge G)$$

[answer]

8. Explain why the following derivation rule *R* would be a legitimate one. That is, explain why it would be legitimate, when φ appears among the active resources of a gap, to develop the gap by replacing a goal φ ∧ ψ with the new goal ψ. [When evaluating your answer, I'll be less concerned about your mastery of my technical terminology than in your intuitive understanding of how derivations work. Your answer need not be long; two or three sentences would be enough to give an entirely satisfactory answer.]



[answer]

Phi 270 Foo test 1 answers

1. φ ⇔ ψ if and only if there is no possible world in which φ and ψ have different truth values.

2. You can conclude nothing. Although the definition of entailment requires that ψ be true φ is true, it places no constraints on its value when φ is false; that is, it doesn't rule out either the possibility that φ and ψ are both false or the possibility that ψ is true even though φ isn't.

3. No. Since ψ implicates nothing beyond what φ does and implies all of φ's implicatures, anything required for ψ to be appropriate is required for it to be true.

4. *Sam got a red jellybean but wanted a green one; and Tom got a green one even though he wanted a red one*

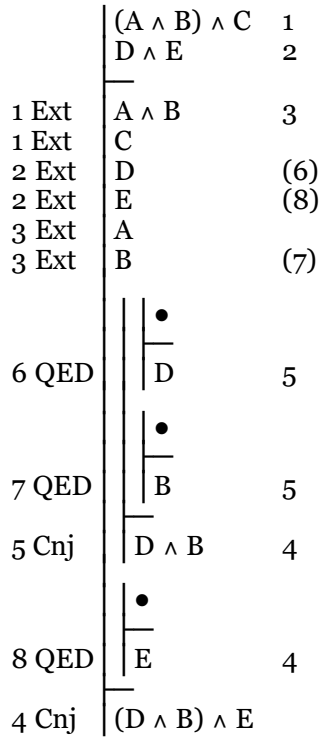
Sam got a red jellybean but wanted a green one ∧ *Tom got a green jellybean even though he wanted a red one*
(*Sam got a red jellybean* ∧ *Sam wanted a green jellybean*) ∧ (*Tom got a green jellybean* ∧ *Tom wanted a red jellybean*)
(R ∧ G) ∧ (D ∧ N)
`both both` R `and` G `and both` D `and` N
[D: *Tom got a green jellybean*; G: *Sam wanted a green jellybean*; N: *Tom wanted a red jellybean*; R: *Sam got a red jellybean*]

5.

	A ∧ (B ∧ C)	1
1 Ext	A	(5)
1 Ext	B ∧ C	2
2 Ext	B	(6)
2 Ext	C	
5 QED	• / A	4
6 QED	• / B	4
4 Cnj	A ∧ B	3
	○	A, B, C, ⇏ D
	D	3
3 Cnj	(A ∧ B) ∧ D	

A	B	C	D	A ∧ (B ∧ C) / (A ∧ B) ∧ D			
T	T	T	F	Ⓣ	T	T	Ⓕ

6.



7. [This question was on a topic not covered in F05]

$$(G \wedge B) \wedge (D \wedge G)$$
$$\Leftrightarrow$$
$$(B \wedge G) \wedge (D \wedge G)$$
$$\Leftrightarrow$$
$$B \wedge (G \wedge (D \wedge G))$$
$$\Leftrightarrow$$
$$B \wedge ((D \wedge G) \wedge G)$$
$$\Leftrightarrow$$
$$B \wedge (D \wedge (G \wedge G))$$
$$\Leftrightarrow$$
$$B \wedge (D \wedge G)$$

8. A gap with $\varphi \wedge \psi$ as a goal represents the question whether $\varphi \wedge \psi$ is entailed by the gap's active resources. In this case, the question is whether $\varphi \wedge \psi$ is entailed by a group of assumptions including φ. That will be so if and only if each of φ and ψ is entailed and φ is bound to be entailed by a group of assumptions that includes it, so the only question is whether ψ is entailed by these assumptions. And that's the question

represented by gap that results when this rule is applied.