

Phi 270 F96 test 3

(questions 1-6 are from quiz 3 and 7-9 are from quiz 4 out of 6 quizzes—these two quizzes addressed the part of the course your test is designed to cover)

Analyze the sentences below in as much detail as possible *without* going below the level of sentences (i.e., without recognizing individual terms and predicates). Be sure that the unanalyzed components of your answer are complete and independent sentences and that you respect any grouping in the English.

1. **You won't succeed unless you try.**

answer

2. **If it was after 5, Sam got in only if he had a key.**

answer

Check each of the following claims of entailment using the basic system of derivations (i.e., *do not use* attachment rules but *you may use* detachment rules). If a derivation fails, present a counterexample that divides its premises from its conclusion.

3. $(A \wedge B) \rightarrow C \Rightarrow A \rightarrow C$

answer

4. $C \rightarrow (A \rightarrow B) \Rightarrow (A \wedge \neg B) \rightarrow \neg C$

answer

5. Analyze the sentence below in as much detail as possible, continuing the analysis when there are no more connectives by identifying predicates, functors, and individual terms. Be sure that the unanalyzed expressions in your answer are independent and that you respect any grouping in the English.

If Ann's car is the one you saw, she wasn't driving it.

answer

6. a. Give two different expansions (using predicate abstracts) of the reduced form: Raa .

answer

- b. Put the following into reduced form: $[Fx \wedge Pxb]_x c$.

answer

7. Describe a structure (i.e., an assignment of extensions to the non-logical vocabulary) which makes the following sentences all true. (You may present the structure either using tables or, where possible, using diagrams.)

$a = c, ga = gb, Pa, \neg P(ga), Rab, Rbc, \neg Rc(ga)$

answer

Check each of the claims of entailment below using derivations. You need *not* describe structures dividing gaps you leave open.

8. $Ha \wedge c = d, G(fd) \Rightarrow G(fc) \wedge (a = b \rightarrow Hb)$

answer

9. $Ra(fa) \wedge Rb(fb), fa = b \Rightarrow Ra(f(fa))$

answer

Phi 270 F96 test 3 answers

1. You won't succeed unless you try
 you won't succeed $\leftarrow \neg$ you will try
 \neg you will succeed $\leftarrow \neg$ you will try
 $\neg S \leftarrow \neg T$ **or** $\neg T \rightarrow \neg S$

if not T then not S

S: you will succeed; T: you will try

2. If it was after 5, Sam got in only if he had a key
 it was after 5 \rightarrow Sam got in only if he had a key
 it was after 5 $\rightarrow (\neg$ Sam got in $\leftarrow \neg$ Sam had a key)

$A \rightarrow (\neg G \leftarrow \neg K)$ **or** $A \rightarrow (\neg K \rightarrow \neg G)$

if A then if not K then not G

A: it was after 5; G: Sam got in; K: Sam had a key

3.

	$(A \wedge B) \rightarrow C$	3
	A	(4)
	$\neg C$	(3)
3 MTT	$\neg (A \wedge B)$	4
4 MPT	$\neg B$	
	\circ	$A, \neg B, \neg C \not\Rightarrow \perp$
	\perp	2
2 IP	C	1
1 CP	$A \rightarrow C$	

A	B	C	$(A \wedge B) \rightarrow C$	$A \rightarrow C$
T	F	F	F	Ⓟ
			Ⓟ	Ⓟ

4.	C → (A → B)	4
	A ∧ ¬ B	2
2 Ext	A	(5)
2 Ext	¬ B	(6)
	C	(4)
4 MPP	A → B	5
5 MPP	B	(6)
	•	
6 Nc	⊥	3
3 RAA	¬ C	1
1 CP	(A ∧ ¬ B) → ¬ C	

5. If Ann's car is the one you saw, she wasn't driving it
Ann's car is the one you saw → ¬ Ann was driving Ann's car
Ann's car = the car you saw → ¬ [was driving] Ann (Ann's car)

['s car] Ann = [the car saw] you → ¬ Da(['s car] Ann)
ca = ro → ¬ Da(ca)

[ca = ro → ¬ Da(ro) is also possible]

D: [was driving] ; a: Ann; c: ['s car]; o: you; r: [the car saw]

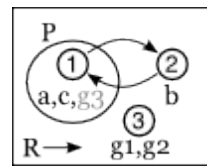
6. a. The following are the possibilities; in the last, τ may be any term:

$$[Rxx]_x a, [Rxa]_x a, [Rax]_x a, [Raa]_x \tau$$

b. $Fc \wedge Pcb$

7. range: 1, 2, 3

a b c	τ gτ	τ Pτ	R 1 2 3
1 2 1	1 3	1 T	1 F T F
	2 3	2 F	2 T F F
	3 1	3 F	3 F F F



(The diagram provides a complete answer, and so do the tables to its left. The tables below show a way of arriving at these answers.)

alias sets IDs values

a	1	a: 1
c		c: 1
b	2	b: 2
ga	3	g1: 3
gb		g2: 3

resources values

Pa	P1: T
¬ P(ga)	P3: F
Rab	R12: T
Rbc	R21: T
¬ Rc(ga)	R13: F

8.	$Ha \wedge c = d$ $G(fd)$	(3)								
1 Ext	Ha	(5)								
1 Ext	$c = d$	a,b,c-d,fc-fd								
3 QED=	<table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-left: 1px solid black; padding-left: 5px; vertical-align: top;">•</td> <td style="padding-left: 5px;"></td> </tr> <tr> <td style="border-left: 1px solid black; border-bottom: 1px solid black; padding-left: 5px; vertical-align: top;"> $G(fc)$ </td> <td style="padding-left: 5px;"></td> </tr> </table>	•		$G(fc)$		2				
•										
$G(fc)$										
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$a = b \rightarrow Hb$										
2 Cnj	$G(fc) \wedge (a = b \rightarrow Hb)$									

9.	$Ra(fa) \wedge Rb(fb)$ $fa = b$	1 a,b-fa,fb-f(fa)						
1 Ext	$Ra(fa)$							
1 Ext	$Rb(fb)$							
2 IP	<table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-left: 1px solid black; padding-left: 5px; vertical-align: top;"> $\neg Ra(f(fa))$ </td> <td style="padding-left: 5px;"></td> </tr> <tr> <td style="border-left: 1px solid black; border-bottom: 1px solid black; padding-left: 5px; vertical-align: top;">○</td> <td style="padding-left: 5px;"></td> </tr> <tr> <td style="border-left: 1px solid black; padding-left: 5px; vertical-align: top;">⊥</td> <td style="padding-left: 5px;"></td> </tr> </table>	$\neg Ra(f(fa))$		○		⊥		$fa=b, Ra(fa), Rb(fb), \neg Ra(f(fa)) \Rightarrow \perp$ 2
$\neg Ra(f(fa))$								
○								
⊥								
2 IP	$Ra(f(fa))$							