

Phi 270 F96 test 4

(questions 1-3 are from quiz 4 and 4-9 are from quiz 5 out of 6 quizzes—these two quizzes addressed the part of the course your test is designed to cover)

1. Identify individual terms and quantifier phrases in the following sentence and indicate links between pronouns and their antecedents. (You can do this by marking up an English sentence; you are *not* being asked to provide a symbolic analysis.)

Al called everyone who left him a message concerning the accident and told them he had seen it.

answer

Analyze the following generalizations in as much detail as possible. Provide a key to the non-logical vocabulary (upper and lower case letters) appearing in your answer *and restate the result using an unrestricted quantifier.*

2. Every employee received the letter.

answer

3. Among bystanders, Sam interviewed only soldiers.

answer

Analyze the following sentences in as much detail as possible, providing a key to the non-logical vocabulary (upper and lower case letters) appearing in your answer.

4. If anyone guessed the number, the prize was awarded.

answer

5. Everyone who worked on any part of the project was honored.

answer

Synthesize an English sentence whose analysis would yield the following form.

6. $(\forall x: Px) \rightarrow \forall y Axy$

A: [_ ate _]; P: [_ is a person]

answer

Use derivations to establish the validity of the following arguments. You may use attachment rules.

7. $\forall x Fx$
 $\forall x Gx$

 $\forall x (Fx \wedge Gx)$

answer

8. $\forall x (Fx \rightarrow Rxa)$
 $\forall x (Rxa \rightarrow \forall y Ryx)$

 $\forall x \forall y (Fy \rightarrow Rxy)$

answer

9. Use a derivation to show that the following argument is not valid and describe a structure dividing one of the derivation's open gaps. (You will *not* need the rules UG+ and ST introduced in §7.8 that are designed to avoid unending gaps.)

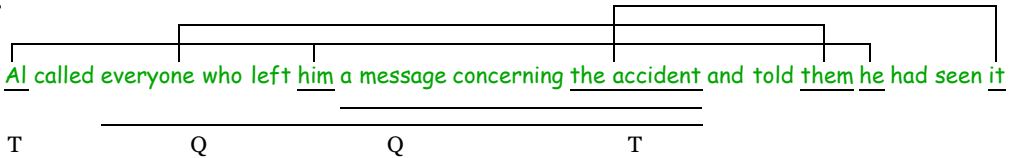
$$\forall x Rxx$$

$$Rab \rightarrow \forall x Rxa$$

answer

Phi 270 F96 test 4 answers

1.



Al called everyone who left him a message concerning the accident and told them he had seen it

T Q Q T

[it could instead have a message concerning the accident as its antecedent]

2. Every employee received the letter

Every employee is such that (he or she received the letter)

$(\forall x: \underline{x} \text{ is an employee}) \underline{x} \text{ received the letter}$

$$(\forall x: Ex) Rxl$$

$$\forall x (Ex \rightarrow Rxl)$$

E: [_ is an employee]; R: [_ received _]; l: the letter

3. Among bystanders, Sam interviewed only soldiers

Among bystanders, only soldiers are such that (Sam interviewed them)

$(\forall x: \underline{x} \text{ was a bystander} \wedge \neg \underline{x} \text{ was a soldier}) \neg \underline{\text{Sam}} \text{ interviewed } \underline{x}$

$$(\forall x: Bx \wedge \neg Sx) \neg Isx$$

$$\forall x ((Bx \wedge \neg Sx) \rightarrow \neg Isx)$$

B: [_ was a bystander]; I: [_ interviewed _]; S: [_ was a soldier]; s: Sam

4. If anyone guessed the number, the prize was awarded

Everyone is such that (if he or she guessed the number, the prize was awarded)

$(\forall x: x \text{ is a person}) (\text{if } x \text{ guessed the number, the prize was awarded})$

$(\forall x: Px) (\underline{x} \text{ guessed the number} \rightarrow \underline{\text{the prize was awarded}})$

$$(\forall x: Px) (Gxn \rightarrow Ap)$$

P: [_ is a person]; G: [_ guessed _]; n: the number

5. Everyone who worked on any part of the project was honored
 Every part of the project is such that (everyone who worked on it was honored)

$(\forall x: \underline{x} \text{ is a part of the project})$ everyone who worked on x was honored

$(\forall x: Rxj) (\forall y: y \text{ is a person who worked on } x) y$ was honored

$(\forall x: Rxj) (\forall y: y \text{ is a person} \wedge y \text{ worked on } x) Hy$

$(\forall x: Rxj) (\forall y: Py \wedge Wyx) Hy$

H: [_ was honored]; P: [_ is a person]; R: [_ is a part of _];

W: [_ worked on _]; j: the project

6. $(\forall x: x \text{ is a person}) \neg \forall y x \text{ ate } y$
 $(\forall x: x \text{ is a person}) \neg x \text{ ate everything}$
 No one is such that (he or she ate everything)
 No one ate everything

7.

	$\forall x Fx$	a:2
	$\forall x Gx$	a:3
	⊢	
	ⓐ	
2 UI	Fa	(5)
3 UI	Ga	(6)
	•	
	⊢	
5 QED	Fa	4
	•	
	⊢	
6 QED	Ga	4
	⊢	
4 Cnj	Fa \wedge Ga	1
1 UG	⊢ $\forall x (Fx \wedge Gx)$	1

8.

	$\forall x (Fx \rightarrow Rxa)$	c:4
	$\forall x (Rxa \rightarrow \forall y Ryx)$	c:6
	⊢	
	ⓑ	
	ⓐ	
	Fc	(5)
	⊢	
4 UI	Fc \rightarrow Rca	5
5 MPP	Rca	(7)
6 UI	Rca $\rightarrow \forall y Ryc$	7
7 MPP	$\forall y Ryc$	b:8
8 UI	Rbc	(9)
	•	
	⊢	
9 QED	Rbc	3
	⊢	
3 CP	Fc \rightarrow Rbc	2
	⊢	
2 UG	$\forall y (Fy \rightarrow Rby)$	1
1 UG	⊢ $\forall x \forall y (Fy \rightarrow Rxy)$	

9.

	$\forall x Rxx$	
1 UI	Raa	
2 UI	Rbb	
	Rab	
5 UI	\textcircled{c} Rcc	
	$\neg Rca$	
	\circ	
	\perp	
6 IP	Rca	
4 UG	$\forall x Rxa$	
3 CP	Rab $\rightarrow \forall x Rxa$	

a:1,b:2,c:5

Raa,Rab,Rbb,Rcc, $\neg Rca \Rightarrow \perp$

6

4

3

