Phi 270 F98 test 4

(questions 1-2 are from quiz 4 and 3-8 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.)

    Sam ordered a book, but instead of it he received a book he didn't want.

    answer

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

    No one saw the book that was lying on the table.

    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.

3. No one except numismatists understood the joke

    answer

4. The movie delighted all boys and girls

    answer

5. If anyone relayed the message to everyone, then no one understood every part of it

    answer

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

6. ∀x (Fx ∨ Gx)

    $\underline{\quad ∀x ¬ Gx \quad}$

    ∀x Fx

    answer

7. $\underline{\quad ∀x (Fx → ∀y (Pxy → Rxy)) \quad}$

    ∀y ∀x ((Fx ∧ Pxy) → Rxy)

    answer

8. Use a derivation to show that the following argument is not valid and describe a structure dividing one of the derivation's open gaps.

    $\underline{\quad ∀x (Fx → ¬ Rxx) \quad}$

    ∀x ∀y (Fy → ¬ Rxy)

    answer

Phi 270 F98 test 4 answers

1.

Sam ordered a book, but instead of it he received a book he didn't want

    T   Q   Q

2. No one saw the book that was lying on the table.

No one is such that (he or she saw the book that was lying on the table)

($\forall$x: x is a person) $\neg$ x saw the book that was lying on the table

($\forall$x: Px) $\neg$ Sx(the book that was lying on the table)

                        ($\forall$x: Px) $\neg$ Sx(bt)

P: [_ is a person]; S: [_ saw _]; b: [the book that was lying on _]; t: the table

3. No one except numismatists understood the joke

($\forall$x: x is a person $\wedge$ $\neg$ x is a numismatist) $\neg$ x understood the joke

                         ($\forall$x: Px $\wedge$ $\neg$ Nx) $\neg$ Uxj

N: [_ is a person]; P: [_ is a numismatist]; U: [_ understood _]; j: the joke

4. The movie delighted all boys and girls

all boys and girls are such that (the movie delighted them)

($\forall$x: x is a boy or girl) the movie delighted x

($\forall$x: x is a boy $\vee$ x is a girl) the movie delighted x

                   ($\forall$x: Bx $\vee$ Gx) Dmx

B: [_ is a boy]; D: [_ delighted _]; G: [_ is a girl]; m: the movie

5. If anyone relayed the message to everyone, then no one understood every part of it

($\forall$x: x is a person) if x relayed the message to everyone, then no one understood every part of it

($\forall$x: Px) (x relayed the message to everyone $\rightarrow$ no one understood every part of the message)

($\forall$x: Px) (($\forall$y: y is a person) x relayed the message to y $\rightarrow$ ($\forall$z: z is a person) $\neg$ z understood every part of the message)

($\forall$x: Px) (($\forall$y: Py) x relayed the message to y $\rightarrow$ ($\forall$z: Pz) $\neg$ ($\forall$w: w is a part of the message) z understood w)

        ($\forall$x: Px) (($\forall$y: Py) Rxmy $\rightarrow$ ($\forall$z: Pz) $\neg$ ($\forall$w: Twm) Uzw)

P: [_ is a person]; R: [_ relayed _ to _]; T: [_ is a part of _]; U: [_ understood _]; m: the message

6.

$\forall x\,(Fx \lor Gx)$ a:2
$\forall x\,\neg Gx$ a:3

(a)

2 UI   Fa ∨ Ga   4
3 UI   ¬ Ga   (4)
4 MTP   Fa   (5)
     ●

5 QED   Fa   1

1 UG $\forall x\,Fx$

7.

$\forall x\,(Fx \rightarrow \forall y\,(Pxy \rightarrow Rxy))$ b:5

(a)
 (b)

Fb ∧ Pba   4

4 Ext   Fb   (6)
4 Ext   Pba   (8)
5 UI   Fb → $\forall y\,(Pby \rightarrow Rby)$ 6
6 MPP $\forall y\,(Pby \rightarrow Rby)$ a:7
7 UI   Pba → Rba   8
8 MPP   Rba   (9)
     ●

9 QED   Rba   3

3 CP   (Fb ∧ Pba) → Rba   2

2 UG $\forall x\,((Fx \land Pxa) \rightarrow Rxa)$ 1

1 UG $\forall y\,\forall x\,((Fx \land Pxy) \rightarrow Rxy)$

8.

$\forall x (Fx \rightarrow \neg Rxx)$ b:5, a:7

ⓐ
  ⓑ
    Fb   (6)

      Rab

5 UI   Fb $\rightarrow \neg$ Rbb   6
6 MPP $\neg$ Rbb
7 UI   Fa $\rightarrow \neg$ Raa   8

          $\neg$ Fa

            ○   Fb,Rab,¬Rbb,¬Fa $\nRightarrow \bot$

            $\bot$ 9

9 IP   Fa   8

          $\neg$ Raa

            ○   Fb,Rab,¬Rbb,¬Raa $\nRightarrow \bot$

            $\bot$ 8

8 RC $\bot$ 4

4 RAA $\neg$ Rab   3

3 CP   Fb $\rightarrow \neg$ Rab   2

2 UG $\forall y (Fy \rightarrow \neg$ Ray)   1

1 UG $\forall x \forall y (Fy \rightarrow \neg$ Rxy)

This structure divides both gaps: