PHI 100 : Introduction to Logic and Critical Analysis

Assignment Six

1. Here are some well-known properties of dyadic (2-place) relations:

$\forall x R(x,x)$	(Reflexivity)
$\forall x \neg R(x,x)$	(Irreflexivity)
$\forall x \forall y (R(x,y) \rightarrow R(y,x))$	(Symmetry)
$\forall x \forall y (R(x,y) \rightarrow \neg R(y,x))$	(Asymmetry)
$\forall x \forall y \forall z ((R(x,y) \wedge R(y,z)) \rightarrow R(x,z))$	(Transitivity)
$\forall x \forall y \forall z ((R(x,y) \wedge R(y,z)) \rightarrow \neg R(x,z))$	(Intransitivity)

   Use Fitch proofs to demonstrate that

   a Intransitivity entails irreflexivity.

   b Transitivity and irreflexivity together entail asymmetry.

   You should turn these two proofs in on paper (either hand-written, or printed out from Fitch.)

2. Consequence Relations: Do exercises 10.10, 10.12 and 10.14.

3. Do exercise 13.50

When you are finished, make sure the Grade Grinder sends your Submit-able files to *your TA* at the appropriate email address (Ben if your surname starts with a letter between A and K (inclusive), David if it starts with an L or later letter. Their email addresses are bfloydcl@wustl.edu and ddspeetz@wustl.edu respectively.) Work that is to be "turned in" rather than submitted goes in the appropriate drawer of the turn-in cabinet in the Philosophy Department office in Wilson Hall.

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