HW #6: CLAUSE FORM

Last Update: 25 March 2003

Note: NEW or UPDATED material is highlighted

Convert each of the following FOL wffs to clause form, as defined by the algorithm presented in lecture. For partial credit, show all your work, and justify each step using the algorithm's numbering scheme.

1. $(P \equiv Q) \equiv (\neg P \equiv \neg Q)$
2. $(P \wedge Q) \vee (R \wedge S)$
3. $\exists x \forall y \exists z \exists w \forall u \forall v \exists t [P(x,y,z,w,u,v,t)]$
4. $\neg \forall x [S(x) \supset (T(x,c) \wedge T(x,p))]$
5. $\exists x [S(x) \wedge \forall y [S(y) \supset y = x]]$
6. $\exists x \exists z [G(x,c) \wedge \forall y [G(y,c) \supset B(x,y)] \wedge G(z,p) \wedge \forall y [G(y,p) \supset B(z,y)] \wedge B(x,z)]$
7. $\forall x [(P(x) \wedge \forall y [C(y) \supset \neg L(x,y)]) \supset S(x)]$
8. $\forall x \forall y [(P(x) \wedge S(y) \wedge C(y)) \supset \neg L(x,y)]$
9. $\exists x \forall y [\neg S(y,y) \supset S(x,y)]$

NEW NEW

Extra Credit:

$$\forall x [P(x) \supset (\exists y \forall t [H(y) \wedge F(x,y,t)] \wedge \exists t \forall y [H(y) \supset F(x,y,t)] \wedge \neg \forall t \forall y [H(y) \supset F(x,y,t)])]$$

DUE: AT THE BEGINNING OF LECTURE, MONDAY, MARCH 31

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http://www.cse.buffalo.edu/∼rapaport/563/hw06.2003.03.25.pdf