CMPT 310, 2-09 Assignment 1 (10 p.)

due May 11th at 2:30 pm

1 (2 p.) Show that abduction is unsound in propositional calculus, by using truth tables to enumerate all interpretations.

2 (2 p.) Say whether the following sets of terms are unifiable. If so, show their most general unifier. If not, say why not.

S1={g(a(b,Z)),X,g(b,w(a))}
S2={+(2,3),5}
S3={W,f(a,W),f(a,b)}
S4={f(a(b,Y)),f(a(X,c))}

3 (3 p.) Given the following assumptions, which we give both in clause form and in English sentences:

1. boring(tv). *TV is boring*
2. boring(X):- watches(X,Y), boring(Y).
*Whomever watches something boring is boring*
3. watches(bibi,tv). *Bibi watches TV*

and the conclusion *Bibi is boring*,

a)(.5 p.) add the conclusion's denial to the set of assumptions,
b) (.5 p.) show the universe of discourse determined by the resulting set of clauses,
c) (2 p.) clearly show that the set of clauses resulting from a) is inconsistent.

4 (3 p.) Let the intended interpretation of

parity(X, odd). be *X is odd*
parity(X, even). be *X is even.*

Let the notion of opposite parities be expressed by the two clauses

opp(odd, even).
opp(even, odd).

Define the notion of a number being odd or even using only three additional clauses, two of them variable-free assertions.