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Prolog lab 2

CS 520 Fall 2015

Script of all the problems running on rohan:

NU-Prolog 1.3

1?- consult(prog3\_1).

true.

2?- superdeepnumberize([],[]).^H ^H^H ^H^H ^H^H ^H^H ^H^H ^H^H ^H[14,dog,a(b,27,c(16,[g]))] ^H ^H,X).

X = [14, 0, a(0, 27, c(16, [0| 0]))]

3?- superdeepnumberize(^H ^H([a,[[13]],b,14,c(5),8],X).

X = [0, [[13| 0]| 0], 0, 14, c(5), 8]

4?- superdeepnumberize([a,[[13]],b,19,c(5),43],C).

C = [0, [[13| 0]| 0], 0, 19, c(5), 43]

5?- consult(prog3\_2).

true.

6?- class(X).

X = [[ames, male, chem, usd], [brown, male, latin, sdsu], [clark, female, hist, ucsd], [davis, female, math, sdsu]]

7?- class(X).

X = [[ames, male, chem, usd], [brown, male, latin, sdsu], [clark, female, hist, ucsd], [davis, female, math, sdsu]] cla^H ^H^H ^H^H ^H

8?- class(X).

X = [[ames, male, chem, usd], [brown, male, latin, sdsu], [clark, female, hist, ucsd], [davis, female, math, sdsu]]

9?- consult(prog3\_3).

true.

10?- conc(hot,dog,X).

X = "hotdog"

12?- conc(heinz,'57',,Y).^[[D^H ^H^H ^H^H ^H^H ^H^H ^H^H ^H^H ^H^H ^HY).

Y = "heinz57"

13?- conc(4,sale,L).

Only works for atomsL = L

14?- consult(prog3\_4).

true.

15?- hr(X,Y,Z).

Z = 56,

Y = ruth,

X = 1935

16?- maxhr(X).

ruth

foxx

bonds

X = X

Problem #1

superdeepnumberize([],[]).

superdeepnumberize([X|Y],[X3|Y2]) :- functor(X,\_,\_),

%store a list of arguments of X to L

X =.. L,

%Skip the first argument

[F,X1|Y1] = L,

L1 = [X1|Y1],

%numberize the list

superdeepnumberize(L1,L2),

[X2|Y3] = L2,

L3 = [F,X2|Y3],

X3 =.. L3,

superdeepnumberize(Y,Y2), !.

superdeepnumberize([X|Y],[0|Y2]) :- atom(X),

superdeepnumberize(Y,Y2), !.

superdeepnumberize([X|Y],[X|Y2]) :- superdeepnumberize(Y,Y2), !.

Problem #2

%creates a teacher list

class(L) :- L = [[ames,\_,\_,\_],[brown,\_,\_,\_],[clark,\_,\_,\_],[davis,\_,\_,\_]],

%first clue,latin,math,same school,diff genders.

member([\_,G1,latin,U1],L),

member([\_,G2,math,U2],L),

%handles male,female,or,female,male, and same college.

gender(G1,G2),

school(U1,U2),

%second clue, Mr.Ames is a creepy,old,alone,and teaches chem or math.

member([ames,\_,C1,\_]),

(C1 = chem ; C1 = math),

%third clue, same gender,same college, math, chem.

member([\_,G3,math,U3],L),

member([\_,G4,chem,U4],L),

%handles same gender

gender\_a(G3,G4),

school(U3,U4),

%fourth clue, chem is male.

member([\_,male,chem,\_],L),

%fifth clue, hist and latin, diff genders.

member([\_,G5,hist,\_],L),

member([\_,G6,latin,\_],L),

gender(G5,G6),

%sixth clue ames,brown,clark, diff colleges(and genders) davis gender

member([ames,\_,\_,U5],L),

member([brown,male,\_,U6],L),

member([clark,female,\_,U7],L),

%member([davis,female,\_,\_],L),

school\_a(U5,U6,U7).

%for same genders.

gender\_a(male,male).

gender\_a(female,female).

%for different genders

gender(male,female).

gender(female,male).

%for same school.

school(sdsu,sdsu).

school(usd,usd).

school(ucsd,ucsd).

school\_a(sdsu,ucsd,usd).

school\_a(sdsu,usd,ucsd).

school\_a(usd,sdsu,ucsd).

school\_a(usd,ucsd,sdsu).

school\_a(ucsd,sdsu,usd).

school\_a(ucsd,usd,sdsu).

Problem #3

conc(A,B,Z) :- atom(A),

atom(B),

atomToString(A,X),

atomToString(B,Y),

append(X,Y,Z).

conc(\_,\_,\_) :- write('Only works for atoms').

Problem #4

hr(1935,ruth,56).

hr(1933,gehrig,50).

hr(1939,foxx,56).

hr(1999,mcguire,47).

hr(2005,bonds,56).

hr(2013,balasubramanian,49).

findmax([M],M).

findmax([A|B], M) :- findmax(B, M2),

(A > M2 -> M = A; M = M2).

maxhr(R) :- findall(HR, hr(\_,\_,HR), L),

findmax(L,M),

hr(\_,Name,M),

write(Name),

nl,

fail;

true.