**CS 520 Prolog assignment #2 Fall 2015**

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Script started on Tue Nov 10 11:59:36 2015

> cat superdeepnumberize.nl

%for empty list.

superdeepnumberize([],[]).

%if head is List.

superdeepnumberize([H|P],[M|N]) :-

isList(H),

superdeepnumberize(H,M),

superdeepnumberize(P,N).

%if Y is number.

superdeepnumberize([Y|P],[Y|N]) :-

number(Y),

superdeepnumberize(P,N).

%if H is atom, replace it with 0.

superdeepnumberize([H|P],[M|N]) :-

atom(H),

M is 0,

superdeepnumberize(P,N).

%if Y is nor number, nor atom, nor list then use univ operator.

superdeepnumberize([Y|P],[H|Q]):-

not(number(Y)),

not(isList(Y)),

not(atom(Y)),

Y=..[T|YArgs],

superdeepnumberize(YArgs,HArgs),

H=..[T|HArgs],

superdeepnumberize(P,Q),!.

> np

NU-Prolog 1.3

1?- consult(superdeepnumberize).

true.

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

L = [14, 0, a(0, 27, c(16, [0]))] ;

fail.

3?- superdeepnumberize([],L).

L = [] ;

fail.

4?- superdeepnumberize([[a],b,c(d,10)],L).

L = [[0], 0, c(0, 10)] .

5?- superdeepnumberize([a,13,b(c,5),[1,d],h],X).

X = [0, 13, b(0, 5), [1, 0], 0] .

6?- superdeepnumberize([abc,[a,[b,[c,f(h,9)]]]],L).

L = [0, [0, [0, [0, f(0, 9)]]]] .

7?- exit(0).

>

> cat wordprob.nl

setup(L):-L=[[ames,\_,m,\_],[brown,\_,m,\_],[clark,\_,f,\_],[davis,\_,f,\_]].

%%clue 1. the Latin and math teachers won a tango contest in college.

clue1(L):-member([\_,latin,S1,C1],L),member([\_,math,S2,C1],L),opp(S1,S2),

(C1=sdsu;C1=usd;C1=ucsd).

%%clue 2. Mrs. Ames is pres. of the PTA

clue2(L):-member([ames,S1,\_,\_],L),

(not(S1=hist),not(S1=latin)).

%%clue 3. chem and math were roommates in college.

clue3(L):-member([\_,chem,S1,C2],L),member([\_,math,S1,C2],L),

(S1=m;S1=f),

(C2=sdsu;C2=usd;C2=ucsd).

%%clue 4. chem teacher coaches football.

clue4(L):-member([\_,chem,m,\_],L).

%%clue 5. hist. and latin teachers are engaged.

clue5(L):-member([\_,hist,S1,\_],L),member([\_,latin,S2,\_],L),opp(S1,S2).

%%clue 6. Ames, Brown and Clark went to diff. colleges.

clue6(L):-member([ames,\_,\_,sdsu],L),member([brown,\_,\_,usd],L),member([clark,\_,\_,

ucsd],L).

opp(f,m).

opp(m,f).

soln(L):-setup(L),clue1(L),clue2(L),not(clue3(L)),clue4(L),clue5(L),clue6(L).

> np

NU-Prolog 1.3

1?- consult(wordprob).

true.

2?- soln(L).

L = [[ames, chem, m, sdsu], [brown, latin, m, usd], [clark, hist, f, ucsd], [davis, math, f, usd]] ;

fail.

3?- exit(0).

>

> cat conc.nl

%%check if P and Q are atom and if so then only use name predicate and append

%%those 2 and again use name prediacate for final output.

conc(P,Q,X):-atom(P),atom(Q),name(P,A),name(Q,B),append(A,B,C),name(X,C).

%if P or Q is not atom then display with write that only works for atoms.

conc(P,Q,X):-not atom(P),write(only),tab(1),write(works),tab(1),write(for),tab(1),write(atoms),nl,X=X.

conc(P,Q,X):-not atom(Q),write(only),tab(1),write(works),tab(1),write(for),tab(1),write(atoms),nl,X=X.

> np

NU-Prolog 1.3

1?- consult(conc).

true.

2?- conc(hot,dog,L).

L = hotdog ;

fail.

3?- conc(hein,'57',L).

L = hein57 ;

fail.

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

only works for atoms

L = L ;

fail.

5?- conc(dhruv,10,L).

only works for atoms

L = L .

6?- conc(dhruv,10,L).

only works for atoms

L = L .

7?- exit(0).

>

> cat maxhr.nl

hr(1933,gehrig,50).

hr(1939,foxx,56).

hr(1999,mcguire,47).

hr(2005,bonds,56).

hr(2013,balasubramanian,49).

hr(1935,ruth,56).

maxhr(A):- hr(\_,A, \_), not(old(A)),write(A),nl, fail.

old(A):- hr(\_, A, C1), hr(\_, B, C2), B\=A, C2 > C1.

> np

NU-Prolog 1.3

1?- consult(maxhr).

true.

2?- maxhr(R).

foxx

bonds

ruth

fail.

3?- exit(0).

> exit

script done on Tue Nov 10 12:12:41 2015