Guessing lists of fixed finite length

% goal: ask the user (who should finish with .)
goal(L) :- write(L), write('?'), nl, read(yes).

% Initialize with N=[0....0]
guess(N,_) :- search([N]).

search([H|_]) :- goal(H).

search([H|T]) :- findall(X, arc(H,X), Nbrs),
             append(T, Nbrs, New),
             search(New).

arc([X|L], [s(X)|L]).

arc([0|L], [0|L2]) :- arc(L, L2).

Guessing lists of arbitrary finite length

% Initialize with N=[]
gess(N) :- searc([N]).

searc([H|_]) :- goal(H).

searc([H|T]) :- findall(X, ar(H,X), Nbrs),
                append(T, Nbrs, New),
                searc(New).

ar(L, [0|L]).

ar([X|L], [s(X)|L]).