

```

:- dynamic
   pos/1.

/* ----- */

e([],[]).
e([[]|R],Res) :- !, e(R,Res).
e([X|XS]|YS,Res) :- !, e([X,XS|YS],Res).
e([V|XS],[V|Res]) :- e(XS,Res).

/* ----- */

xor([],L,L) :- !.
xor(L,[],L) :- !.
xor(L,R,Res) :- sub(L,R,L1),sub(R,L,R1),app(L1,R1,Res).

sub([],_,[]).
sub([X|XS],YS,RS) :- elem(X,YS),!,sub(XS,YS,RS).
sub([X|XS],YS,[X|RS]) :- sub(XS,YS,RS).

elem(X,[X|_]) :- !.
elem(X,[_|XS]) :- elem(X,XS).

app([],L,L).
app([X|XS],L,[X|RS]) :- app(XS,L,RS).

/* ----- */

search(P,Res) :-
    setof(Path,s(P,P,0,Path),Res).

s(P,P,N,[P]) :- N <= 22, N >= 20, !.
s(_,_ ,N,_ ) :- N > 22, !, fail.
s(P,P,N,_ ) :- N \= 0, !, fail.
s(A,P,N,[A|R]) :-
    assertz(pos(A)),
    NN is N+1,
    nextStep(A,AA),
    ( not(pos(AA)) ; AA=P ) ,
    s(AA,P,NN,R).
s(A,_ ,_ ,_ ) :-
    pos(A),
    retract(pos(A)),
    !,fail.

nextStep(p(X,Y),p(XX,Y)) :- XX is X+1.
nextStep(p(X,Y),p(XX,Y)) :- XX is X-1.
nextStep(p(X,Y),p(X,YY)) :- YY is Y+1.
nextStep(p(X,Y),p(X,YY)) :- YY is Y-1.

/* ----- */

emptyT([]).

lookup(T,_ ,_ ,_ ) :- var(T), !, fail.
lookup(T,Var,Val,NT) :- nonvar(Var),nonvar(Val), !, iT(T,Var,Val,NT).
lookup(T,Var,Val,T) :- nonvar(Var), !T(T,Var,Val).

iT([], R, L, [p(R,L)]).
iT([p(R,_ )|PS], R, L, [p(R,L)|PS]) :- !.
iT([p(RR,LL)|PS], R, L, [p(RR,LL)|PPS]) :- iT(PS,R,L,PPS).

!T([p(R,L)|_ ],R,L) :- !.
!T([_ |PS],R,L) :- !T(PS,R,L).

/* EOF */

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