```
Script started on Tue Mar  6 21:02:25 2012
bash-3.2$ cat -n gr\007aphpaths.pl
     1  % $Id: graphpaths.pl,v 1.3 2011-05-19 19:53:59-07 - - $ */
     2
     3  %
     4  % Define the links in the graph.
     5  %
     6
     7  link( a, b ).
     8  link( a, d ).
     9  link( b, c ).
    10  link( d, e ).
    11  link( e, c ).
    12  link( e, f ).
    13  link( f, a ).
    14  link( f, g ).
    15  link( f, j ).
    16  link( g, h ).
    17  link( h, i ).
    18  link( i, j ).
    19
    20  %
    21  % Prolog version of not.
    22  %
    23
    24  not( X ) :- X, !, fail.
    25  not( _ ).
    26
    27  %
    28  % Is there a path from one node to another?
    29  %
    30
    31  %
    32  % This is the old version, which does not work on the new set
    33  % of facts.  It causes the message [WARNING: Out of local stack],
    34  % presumably due to the loop in the graph.
    35  %
    36  ispath( L, L ).
    37  ispath( L, M ) :- link( L,X ),ispath( X,M ).
    38  %
    39
    40  ispath( L, M ) :- ispath2( L, M, [] ).
    41
    42  ispath2( L, L, _ ).
    43  ispath2( L, M, Path ) :-
    44     link( L, X ),
    45     not( member( X, Path )),
    46     ispath2( X, M, [L|Path] ).
    47
    48  %
    49  % Find a path from one node to another.
    50  %
    51
    52  writeallpaths( Node, Node ) :-
    53     write( Node ), write( ' is ' ), write( Node ), nl.
    54  writeallpaths( Node, Next ) :-
    55     listpath( Node, Next, [Node], List ),
    56     write( Node ), write( ' to ' ), write( Next ), write( ' is ' ),
    57     writepath( List ),
    58     fail.
    59
    60  writepath( [] ) :-
    61     nl.
    62  writepath( [Head|Tail] ) :-
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   65:     63     write( ' ' ), write( Head ), writepath( Tail ).
   66:     64
   67:     65  listpath( Node, End, Outlist ) :-
   68:     66     listpath( Node, End, [Node], Outlist ).
   69:     67
   70:     68  listpath( Node, Node, _, [Node] ).
   71:     69  listpath( Node, End, Tried, [Node|List] ) :-
   72:     70     link( Node, Next ),
   73:     71     not( member( Next, Tried )),
   74:     72     listpath( Next, End, [Next|Tried], List ).
   75:     73
   76:     74
   77:     75  % TEST: writeallpaths(a,e).
   78:     76  % TEST: writeallpaths(a,j).
   79: bash-3.2$ gprolog
   80: GNU Prolog 1.3.1
   81: By Daniel Diaz
   82: Copyright (C) 1999-2009 Daniel Diaz
   83: | ?- [graphpaths].
   84: compiling /afs/cats.ucsc.edu/courses/cmps112-wm/Languages/prolog/Examples/graphp
aths.pl for byte code...
   85: /afs/cats.ucsc.edu/courses/cmps112-wm/Languages/prolog/Examples/graphpaths.pl co
mpiled, 76 lines read - 4948 bytes written, 11 ms
   86:
   87: yes
   88: | ?- writeallpaths(a,e).
   89: a to e is  a d e
   90:
   91: no
   92: | ?- writeallpaths(a,j).
   93: a to j is  a d e f g h i j
   94: a to j is  a d e f j
   95:
   96: no
   97: | ?-
   98:
   99:
  100: bash-3.2$ exit
  101:
  102: Script done on Tue Mar  6 21:03:05 2012
```