```
% RCC5 representations: eq (==), dr (!), pp (<), ppi (>), po (><)

%% [ASP :)]$ time dlv rcc-asp-3x3-demo.dlv -silent | wc
%%     3686  265392 2854156

%% real 0m0.925s
%% user 0m0.916s
%% sys  0m0.022s

% INPUT TAP

% Taxonomy T1
pp(b,a).    % IS-A
pp(c,a).
pp(d,a).
dr(b,c).    % sibling disjointness (missing: parent coverage)
dr(c,d).
dr(b,d).

% Taxonomy T2
pp("B","A"). pp("C","A"). pp("D","A"). % IS-A
dr("B","C"). dr("C","D"). dr("B","D"). % sibling disjointness

% ARTICULATIONS
eq(a,"A").  % just connect the roots

% Universe of concepts (active domain)
u(a).
u(b).
u(c).
u(d).
u("A"). u("B"). u("C"). u("D").

%  Defining the SEARCH SPACE: one of the Base5 must hold for a pair (X,Y)
eq(X,Y) v dr(X,Y) v pp(X,Y) v ppi(X,Y) v po(X,Y) :- u(X), u(Y), X != Y.

% eq/2 is reflexive:
eq(X,X) :- u(X).
```

```
% The Base5 relations are mutually exclusive, so there are 4+3+2+1 = 10 ICs
:- eq(X,Y), dr(X,Y).
:- eq(X,Y), pp(X,Y).
:- eq(X,Y), ppi(X,Y).
:- eq(X,Y), po(X,Y).
:- dr(X,Y), pp(X,Y).
:- dr(X,Y), ppi(X,Y).
:- dr(X,Y), po(X,Y).
:- pp(X,Y), ppi(X,Y).
:- pp(X,Y), po(X,Y).
:- ppi(X,Y), po(X,Y).

% (WEAK) COMPOSITION TABLE
eq(X,Z)                                                 :- eq(X,Y), eq(Y,Z).
          dr(X,Z)                                       :- eq(X,Y), dr(Y,Z).
                    pp(X,Z)                             :- eq(X,Y), pp(Y,Z).
                              ppi(X,Z)                  :- eq(X,Y), ppi(Y,Z).
                                        po(X,Z)         :- eq(X,Y), po(Y,Z).
          dr(X,Z)                                       :- dr(X,Y), eq(Y,Z).
eq(X,Z) v dr(X,Z) v pp(X,Z) v ppi(X,Z) v po(X,Z)        :- dr(X,Y), dr(Y,Z).
          dr(X,Z) v pp(X,Z)           v po(X,Z)        :- dr(X,Y), pp(Y,Z).
          dr(X,Z)           v ppi(X,Z) v po(X,Z)       :- dr(X,Y), ppi(Y,Z).
          dr(X,Z) v pp(X,Z)           v po(X,Z)        :- dr(X,Y), po(Y,Z).
                    pp(X,Z)                             :- pp(X,Y), eq(Y,Z).
          dr(X,Z)                                       :- pp(X,Y), dr(Y,Z).
                    pp(X,Z)                             :- pp(X,Y), pp(Y,Z).
eq(X,Z) v dr(X,Z) v pp(X,Z) v ppi(X,Z) v po(X,Z)        :- pp(X,Y), ppi(Y,Z).
          dr(X,Z) v pp(X,Z)           v po(X,Z)        :- pp(X,Y), po(Y,Z).
                              ppi(X,Z)                  :- ppi(X,Y), eq(Y,Z).
          dr(X,Z)           v ppi(X,Z) v po(X,Z)       :- ppi(X,Y), dr(Y,Z).
eq(X,Z) v dr(X,Z) v pp(X,Z) v ppi(X,Z) v po(X,Z)        :- ppi(X,Y), pp(Y,Z).
                              ppi(X,Z)                  :- ppi(X,Y), ppi(Y,Z).
                              ppi(X,Z) v po(X,Z)        :- ppi(X,Y), po(Y,Z). % po o ppi
                                        po(X,Z)         :- po(X,Y), eq(Y,Z).
          dr(X,Z)           v ppi(X,Z) v po(X,Z)       :- po(X,Y), dr(Y,Z).
                    pp(X,Z)           v po(X,Z)        :- po(X,Y), pp(Y,Z).
          dr(X,Z)           v ppi(X,Z) v po(X,Z)       :- po(X,Y), ppi(Y,Z). % ppi o po
eq(X,Z) v dr(X,Z) v pp(X,Z) v ppi(X,Z) v po(X,Z)        :- po(X,Y), po(Y,Z).
```