

## SLDNF Resolution

Prolog query evaluation employs the process called *SLDNF Resolution*. “SLDNF” stands for *Selective Linear Definite-clause with Negation as Failure*. We can get a glimpse of this process by “tracing” query evaluation.

```
% File family.pro
male(a). male(m).
parent(s,w). parent(s,a). parent(w,m).
female(X) :- \+ male(X).
brother(X,Y) :- parent(Z,X), parent(Z,Y), male(X), X\=Y.

> /p/bin/sicstus
SICStus 3.11.2 (x86-linux-glibc2.2): Wed Jun  2 11:43:47 CEST 2004
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| ?- ['family.pro'].
% consulting /v/filer4b/v41q001/v1/tmp/family.pro...
% consulted /v/filer4b/v41q001/v1/tmp/family.pro in module user, 10 msec 1232 bytes
yes
| ?- trace.
% The debugger will first creep -- showing everything (trace)
yes
% trace
| ?- brother(a,w).
      1      1 Call: brother(a,w) ?
      2      2 Call: parent(_1062,a) ?
?      2      2 Exit: parent(s,a) ?
      3      2 Call: parent(s,w) ?
?      3      2 Exit: parent(s,w) ?
      4      2 Call: male(a) ?
      4      2 Exit: male(a) ?
      5      2 Call: a\=w ?
      5      2 Exit: a\=w ?
?      1      1 Exit: brother(a,w) ?
yes
% trace
```

```
| ?- female(a).
      1      1 Call: female(a) ?
      2      2 Call: male(a) ?
      2      2 Exit: male(a) ?
      1      1 Fail: female(a) ?

no
% trace
| ?- female(X).
      1      1 Call: female(_463) ?
      2      2 Call: male(_463) ?
?      2      2 Exit: male(a) ?
      1      1 Fail: female(_463) ?

no
% trace
| ?- halt.
>
```