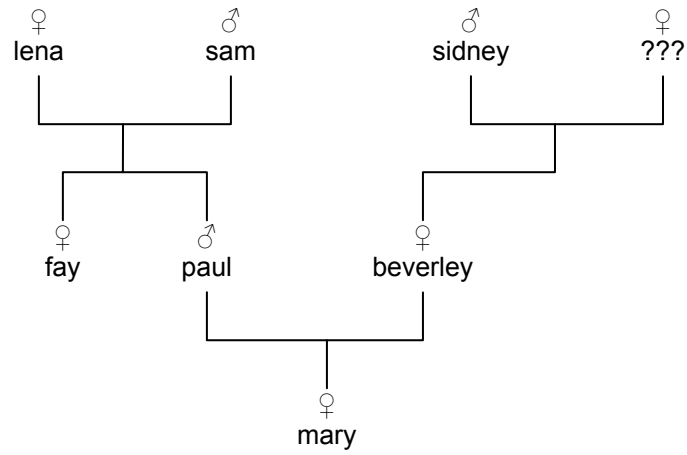
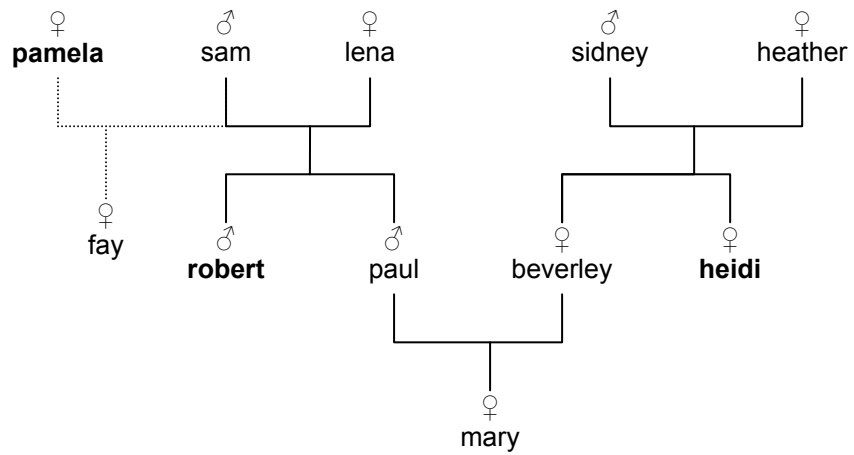


Family:



extended family:



```

1  % -----
2  % Logische Programmierung, ueb 1, 4.11.2002
3  % (c)Marc Dörflinger, Roger, Philip Iezzi
4  % -----
5
6  male(paul).
7  male(sidney).
8  male(sam).
9  male(robert).
10 female(beverley).
11 female(fay).
12 female(mary).
13 female(lena).
14 female(pamela).           % NEW!
15 female(heidi).           % NEW!
16 female(heather).         % NEW!
17 father(sam, paul).
18 father(sidney, beverley).
19 father(sidney, heidi).    % NEW!
20 father(sam, fay).
21 father(paul, mary).
22 father(sam, robert).     % NEW!
23 mother(beverley, mary).
24 mother(lena, paul).
25 mother(pamela, fay).     % NEW!
26 mother(lena, robert).    % NEW!
27 mother(heather, heidi).  % NEW!
28 mother(heather, beverley). % NEW!
29
30
31
32 % -----
33 % Parents
34 % -----
35
36 parent(Parent, Child) :-           % a parent is
37     father(Parent, Child).         % a father, or
38
39 parent(Parent, Child) :-
40     mother(Parent, Child).         % a mother
41
42
43 % -----
44 % Ancestors
45 % -----
46
47 ancestor(X, Y) :-                 % an ancestor is
48     parent(X, Y).                 % a parent, or
49
50 ancestor(X, Y) :-
51     parent(X, Z),                 % the parent of
52     ancestor(Z, Y).               % an ancestor
53
54 % -----
55 % Brother / Sister
56 % -----
57
58 brother(X, Y) :-                 % X is brother of Y
59     male(X),
60     father(F, X),
61     father(F, Y),
62     mother(M, X),
63     mother(M, Y),
64     X \= Y.
65
66 sister(X, Y) :-                 % X is sister of Y
67     female(X),
68     father(F, X),

```

```
69         father(F,Y),
70         mother(M,X),
71         mother(M,Y),
72         X \= Y.
73
74 brosis(X,Y) :-
75     brother(X,Y).
76 brosis(X,Y) :-
77     sister(X,Y).
78
79
80 % -----
81 % Aunt
82 % -----
83
84 aunt(X,Y) :-                                % X is Y's aunt if she's
85     parent(Z,Y),                            % his/her parent's sister
86     sister(X,Z).
87
88
89
90 % -----
91 % Halfbrother
92 % -----
93
94 halfbrother(X,Y) :-                          % X and Y got the same father
95     male(X),                                % but Y's mother isn't X's mother
96     father(F,X),
97     father(F,Y),
98     mother(M,Y),
99     \+ mother(M,X).
100
101 halfbrother(X,Y) :-                          % X and Y got the same mother
102     male(X),                                % but Y's father isn't X's father
103     mother(F,X),
104     mother(F,Y),
105     father(M,Y),
106     \+ father(M,X).
107
```