Example 1

parent(mary,bob).

parent(mary, john).

parent(john, ann).

parent(mary, barbara).

female(mary).

female(barbara).

female(ann).

daughter(X,Y) :- parent(Y,X), female(X).  
  
daughter(X,Y).  
X = ann,  
Y = john  
X = Barbara,

Y = mary  
  
  
Example 2  
  
parent(mary, bob).

parent(mary, john).

parent(john, ann).

parent(mary, barbara).

female(mary).

female(barbara).

female(ann).

male(bob).

male(john).

daughter(X, Y) :- parent(Y, X), female(X).

son(X, Y) :- parent(Y, X), male(X).

sibling(X, Y) :- parent(Z, X), parent(Z, Y), X \= Y.

sister(X, Y) :- sibling(X, Y), female(X).

brother(X, Y) :- sibling(X, Y), male(X).  
  
son(X,Y).  
  
QUERY  
**X** = bob,  
**Y** = mary

**X** = john,  
**Y** = mary

Example 3  
  
parent(mary, bob).

parent(mary, john).

parent(john, ann).

parent(mary, barbara).

female(mary).

female(barbara).

female(ann).

male(bob).

male(john).

daughter(X, Y) :- parent(Y, X), female(X).

son(X, Y) :- parent(Y, X), male(X).

sibling(X, Y) :- parent(Z, X), parent(Z, Y), X \= Y.

Sibling(X,Y).  
  
QUERY:

X = bob,

Y = john

X = bob,

Y = barbara

X = john,

Y = bob

X = john,

Y = barbara

X = barbara,

Y = bob

X = barbara,

Y = john  
  
Example 4  
  
parent(mary, bob).

parent(mary, john).

parent(john, ann).

parent(mary, barbara).

female(mary).

female(barbara).

female(ann).

male(bob).

male(john).

daughter(X, Y) :- parent(Y, X), female(X).

son(X, Y) :- parent(Y, X), male(X).

sibling(X, Y) :- parent(Z, X), parent(Z, Y), X \= Y.

sister(X, Y) :- sibling(X, Y), female(X).

brother(X, Y) :- sibling(X, Y), male(X).

%sister(X, Y).

brother(X,Y).  
QUERY  
  
**X** = bob,  
**Y** = john

**X** = bob,  
**Y** = barbara

**X** = john,  
**Y** = bob

**X** = john,  
**Y** = barbara

Example 5  
  
arrow(a,b, 5).

arrow(b,c, 10).

path(X, Y, A) :- arrow(X, Y, A).

path(X, Y, A) :- path(X, Z, B), arrow(Z, Y, C), A is B+C.

path(X,Y,Z).  
  
QUERY   
**X** = a,  
**Y** = b,  
**Z** = 5

**X** = b,  
**Y** = c,  
**Z** = 10

**X** = a,  
**Y** = c,  
**Z** = 15

Example 6  
  
arrow(a, b, 5).

arrow(b, c, 10).

arrow(c, n, 6).

arrow(b, d, 2).

arrow(d, e, 1).

path(X, Y, A) :- arrow(X, Y, A).

path(X, Y, A) :- path(X, Z, B), arrow(Z, Y, C), A is B + C.  
  
path(X,Y,Z).  
  
QUERY  
**A** = 5,

**X** = a,

**Y** = b

**A** = 10,

**X** = b,

**Y** = c

**A** = 9,

**X** = c,

**Y** = n

**A** = 4,

**X** = b,

**Y** = d

**A** = 7,

**X** = d,

**Y** = e

**A** = 15,

**X** = a,

**Y** = c

**A** = 9,

**X** = a,

**Y** = d

**A** = 19,

**X** = b,

**Y** = n

**A** = 11,

**X** = b,

**Y** = e

**A** = 24,

**X** = a,

**Y** = n

**A** = 16,

**X** = a,

**Y** = e