

CSC 301 Assignment 10

Baheem Ferrell

Family_tree.pl

female(pam).

female(liz).

female(ann).

female(pat).

male(tom).

male(bob).

male(jim).

parent(pam,bob).

parent(tom,bob).

parent(tom,liz).

parent(bob,ann).

parent(bob,pat).

parent(pat,jim).

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

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

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

grandmother(X,Y):-female(X),parent(X,Z),parent(Z,Y).

ancestor(X,Y):-parent(X,Y).

ancestor(X,Y):-parent(X,Z), ancestor(Z,Y).

1.)

?- consult('family_tree.pl'). true.

?- female(ann). true.

?- female(jim). false.

?- parent(X,bob). X = pam ;
X = tom.

?- parent(tom,X). X = bob ;
X = liz.

?- parent(X,ann),parent(X,pat). X = bob.

```
?- consult('family_tree.pl').
true.

?- female(ann).
true.

?- female(jim).
false.

?- parent(X,bob).
X = pam ;
X = tom.

?- parent(tom,X).
X = bob ;
X = liz.

?- parent(X,ann),parent(X,pat).
X = bob.
```

2.)

?- parent(X,pat).

X = bob.

?- parent(liz,X). false.

?- parent(X,pat),parent(Y,X). X = bob,

Y = pam ;

X = bob,

Y = tom.

```
?- consult('family_tree.pl').
true.

?- parent(X,pat).
X = bob.

?- parent(liz,X).
false.

?- parent(X,pat),parent(Y,X).
X = bob,
Y = pam ;
X = bob,
Y = tom.
```

3.)

?- sister(X,pat).

X = ann ; false.

?- sister(X,Y). X = liz,

Y = bob ;

X = ann,

Y = pat ; X = pat, Y = ann ; false.

?- son(jim,X). X = pat.

?- father(X,bob). X = tom ;

false.

?- grandmother(X,ann). X = pam ;

false.

?- ancestor(X,jim). X = pat ;

X = pam ;

X = tom ;

X = bob ; false.

```
?- consult('family_tree.pl').
true.

?- sister(X,pat).
X = ann ;
false.

?- sister(X,Y).
X = liz,
Y = bob ;
X = ann,
Y = pat ;
X = pat,
Y = ann ;
false.

?- son(jim,X).
X = pat.

?- father(X,bob).
X = tom ;
false.

?- grandmother(X,ann).
X = pam ;
false.

?- ancestor(X,jim).
X = pat ;
X = pam ;
X = tom ;
X = bob ;
false.
```