

ASSIGNMENT 3

NAME:SOURABH PATEL

ADMISSION NO: U19CS082

Consider the following story.

"I married a widow (call her W) who has a grown-up daughter (D). My father (F), who visited us quite often, fell in love with my step-daughter and married her. Hence my father became my son-in-law and my step-daughter became my mother. Some months later, my wife gave birth to a son (S1), who became the brother-in-law of my father, as well as my uncle. The wife of my father-that is, my stepdaughter also had a son (S2)."

- Using Prolog, create a list of facts that represents the situation in the above story.
- Add rules defining the family relationships (such as father-in-law) described in the story.
- Show how a Prolog system would use your program to prove the goal "I am my own grandfather"

FACTS

```
male(i). male(f).
male(s1).
male(s2).

female(w).
female(d).
parent(f,i).
parent(w,d).
parent(i,s1).
parent(w,s1).
parent(f,s2).
parent(d,s2).
parent(i,d).

married(f,d).
married(i,w).
```

RULES

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

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

father_inl(X,Y):-
father(X,Z),
married(Y,Z).

brother(X,Y):-
male(X),
    parent(Z,X),
parent(Z,Y).

grandpaa(X,Y):-
male(X),
parent(X,Z),
parent(Z,Y).
    grandpaa(X,Y):-
male(X),
father(Z,Y),
father_inl(X,Z).
    uncle(X,Y):-
father(Z,Y),
brother(Z,X).
```

compiling C:/Users/Sourabh Patel/Desktop/assignment/82/SEM6/AI/ASS3/Q1.pl for byte code...

C:/Users/Sourabh Patel/Desktop/assignment/82/SEM6/AI/ASS3/Q1.pl compiled, 40 lines read - 3857 bytes written, 7 ms

| ?- father(CX,d).

CX = i ?

(46 ms) yes

| ?- father(CX,i).

CX = f ?

(47 ms) yes

| ?- grandpaa(X,i).

X = i ?

yes

| ?- grandpaa(X,s1).

X = f ?

yes

| ?- grandpaa(i,i).

true ?