

## Logic Programming

Assume we have facts for the predicates:

```
human(john) .  
human(paul) .  
human(mary) .  
  
male(john) .  
male(paul) .  
  
female(mary) .  
  
father(john,mary) .  
  
mother(mary,paul) .
```

### Exercise

Write Horn clauses defining the following predicates with the given meaning.

- a)     **man (X)**             A man is a human who is male  
       **woman (X)**         A woman is a human who is female  
       Solution:     **man (X)     :- human (X) , male (X) .**  
                      **woman (X) :- human (X) , female (X) .**
- b)     **parent (X,Y)**     X is the parent of Y if it is either the father or the mother of Y  
       Solution:     **parent (X,Y) :- mother (X,Y) .**  
                      **parent (X,Y) :- father (X,Y) .**
- c)     **ancestor (X,Y)**   An ancestor is the parent or an ancestor of a parent  
       Solution:     **ancestor (X,Y) :- parent (X,Y) .**  
                      **ancestor (X,Y) :- parent (X,Z) , ancestor (Z,Y) .**