

Programming Assignment 1

Total marks: 20.

Due: October 7 at 3pm (extended!)

Note: Your report for this assignment should be the result of your own individual work. Take care to avoid plagiarism (“copying”). You may discuss the problems with other students, but do not take written notes during these discussions, and do not share your written solutions.

Write and test a Prolog program that extends the family relations example of ch. 4 in the Levesque textbook.

Begin with the code in the file `family_asg.pl` that is available on the course web site. Add the Prolog code to define the following relations:

- `sibling(X, Y)`, meaning that X is a sibling of Y, i.e. X and Y are two different people who share a parent in common;
- `first_cousin(X, Y)`, meaning that X is a first cousin of Y, i.e. some parent of X and some parent of Y are siblings;
- `cousin(X, Y)`, meaning that X is a cousin of Y, i.e. some parent of X and some parent of Y are either siblings or (recursively) cousins. (This relation includes first cousins, second cousins, third cousins, ...)

See p. 82-83 of the Levesque textbook for more details about these relations. Test your code thoroughly to make sure it is correct. Do not add additional child assertions to the ones already in the `family_asg.pl` file.

Submit (i) a printed copy of your program, and (ii) a printout of a session where you load and test your program. Run at least the following test queries:

```
sibling(sue,mary) .  
sibling(john,X) .  
sibling(X,Y) .  
first_cousin(john,henry) .  
first_cousin(john,Y) .  
first_cousin(X,Y) .  
cousin(john,henry) .  
cousin(john,Y) .  
cousin(helen,Y) .  
cousin(X,Y) .
```

Note: Whenever a query contains variables, *keep asking for further answers until they run out.*

You may hand in your assignment report either in class or at the instructor office hours or in the dropbox by the Department of Philosophy Office entrance in Ross S 448.

Also email your program code file `family_asg.pl` to `lesperan@cse.yorku.ca` (using the subject “PHIL 3750 asg 1”).

Note that points will be given for partial solutions, even if they do not run without errors. Submit whatever you have by the deadline. Note also that points will be deducted if your program has syntax errors, does not produce the correct answers, or is more complex than necessary.