

Exercise Introduction into ObjectLogic

a) Represent the following in ObjectLogic

- Mother is a Woman
- Mothers have children, which are Persons
- Anja is a Woman
- Nils is a Person
- Anja has Nils as child
- Is Anja a Mother?

b) What is the result of the question, if Anja would be a mother? How does the program be extend in order to classify Anja as a mother.

c) Represent the above in Prolog

Solution

a)

- `Mother::Woman.`
- `Mother[child {1:*} *=> Person]`
- `Anja:Woman.`
- `Nils:Person.`
- `Anja[child -> Nils].`
- `?- Anja:Mother.`

c)

No, Anja would not be classified as a mother because the information in the signature (`Mother[child {1:*} *=> Person]`) is not used. In order to classify Anja as a mother, a rule would be needed:

```
?X:Mother :- ?X:Woman AND ?X[child -> ?Y] AND ?Y:Person.
```

c)

- `woman(X) :- mother(X).`
- `---` (can't be represented)
- `woman(anja).`
- `Person(nils).`
- `child(anja,nils).`
- `?- mother(anja).`
- `mother(X) :- woman(X), child(X,Y), person(Y).`