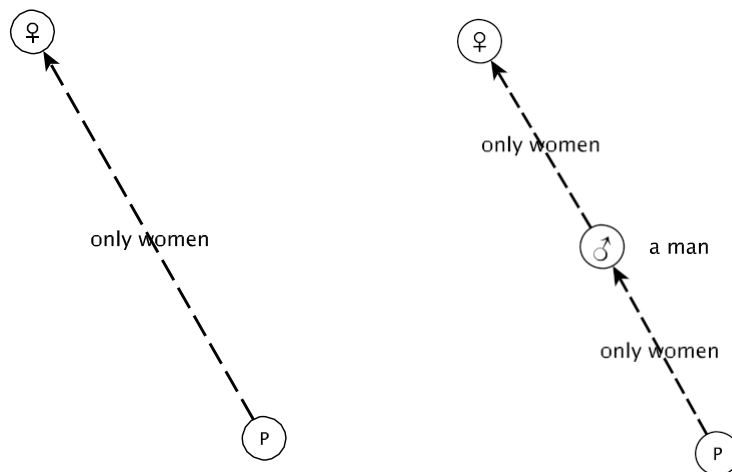


OWL and SWRL modeling

Define a vocabulary (classes and properties) and SWRL rules for representing the following definitions:

1. The uncle of a person is a brother of the mother or a brother of the father of this person
2. The women-only-ancestors of a person are his/her mother, mother of the mother, mother of the mother of the mother, etc. (see figure, left)
3. The almost-women-only-ancestors of a person are his/her ancestors connected to him/her through a chain containing only women except for one man (see figure right)



Q1:

$\text{mother}(?X, ?M), \text{brother}(?M, ?Y) \rightarrow \text{uncle}(?X, ?Y)$

$\text{father}(?X, ?F), \text{brother}(?F, ?Y) \rightarrow \text{uncle}(?X, ?Y)$

Q2:

$\text{mother}(?X, ?M) \rightarrow \text{woAncestor}(?X, ?M)$

$\text{mother}(?X, ?M), \text{woAncestor}(?M, ?A) \rightarrow \text{woAncestor}(?X, ?A)$

Q3:

$\text{woAncestor}(?X, ?W), \text{father}(?W, ?F), \text{woAncestor}(?F, ?Y) \rightarrow \text{awoAncestor}(?X, ?Y)$

$\text{father}(?X, ?F), \text{woAncestor}(?F, ?Y) \rightarrow \text{awoAncestor}(?X, ?Y)$

$\text{woAncestor}(?X, ?F), \text{father}(?F, ?Y) \rightarrow \text{awoAncestor}(?X, ?Y)$