# 2. Unit: OWL

**Exercise 2.1 (Gods)** Give an OWL specification of the following situation:

The Jewish belief is a monotheistic belief – the only god is Jehova. The old nothern European belief was polytheistic, the set of gods consists of Odin, Thor, and Freya. Moshe is a Jew, Haegar is a northern European.

State a SPARQL query that tells you who believes in whom.

**Exercise 2.2 (Win-Move Game: Draw Nodes)** Consider again the Win-Move-Game. There, WinNodes and LoseNodes have been axiomatized.

Is it possible to characterize DrawNodes in OWL?
Consider two alternative variants:

a) use the game axioms/rules to axiomatize DrawNodes explicitly.

b) consider the possible values: win/lost/drawn.

Test both with *typical* minimal examples and explain the results.

Comparison with the Database Theory lecture: Interpret the results and compare them with the semantics of the well-founded model and of stable models.

**Exercise 2.3 (Male and Female Names)**

Consider again the *Male and Female Names* Example in the lecture.

- The name commonly female name "Maria" is (mainly by catholics) also used as an additional first name for males, e.g. Rainer Maria Rilke (German poet, 1875-1926), José Maria Aznar (*1956, Spanish Prime Minister 1996-2004), cf. also Jean-Marie Le Pen (*1928, French Politician). Discuss the consequences on the ontology.

**Exercise 2.4 (Role Chains: Uncles)**

Characterize the uncle relationship as a role chain:

- $x$'s uncles are the brothers of $x$'s parents, and
- $x$'s uncles are husbands of the sisters of $x$'s parents.