



## 7th Theoretical Assignment in Artificial Intelligence (WS 2006/2007)

Issued: December, 7 2006

**Exercise 7.1** Consider the following statements:

*Clyde is an elephant. Elephants are mammals. Mammals are animals. Humans are mammals. John is a human. Animals are four-legged. Humans are two-legged (biped). Mammals have two eyes. Humans have two arms.*

- Represent these statements in a semantic net (in shortform).
- Represent these statements as formulas in first-order predicate logic (such that it can be derived that John has two legs and not four!)
- Represent these statements as frames.

### Exercise 7.2

Consider the following statement:

*John tells Mary a secret on Valentine's day.*

Represent this statement as a semantic net (in shortform). Use only binary relations.

### Exercise 7.3

Express the following information

1. in an appropriate logic,
2. as a semantic net,
3. and as frames:

*A* is an action of type *give* with agent *Prometheus*, object *fire*, and patient *mankind*. *Prometheus* is a subject of *Zeus*. *A'* is an action of type *disallow* with agent *Zeus*. The object of *A'* is any action of giving fire to mankind. If the ruler disallows an action, which will be performed by one of his subjects, another action takes place, in which the ruler punishes the subject.