### The Project

The project aims at developing an architecture designed for extracting semantic knowledge from information coded in annotation graphs and adding this knowledge to an already existing resource.

### Technical Preliminaries

- **Ontology** represents a set of concepts within a domain and the relationships between those concepts.

\[
\text{Driver}(x) \rightarrow \text{Person}(x) \land \exists y: \text{CanFly}(y) \land \text{drives}(x, y) \\
\text{Penguin}(x) \rightarrow \text{Bird}(x) \land \neg \text{CanFly}(x)
\]

- **Annotation graph** is a graph-based, multilayered annotation scheme where each level of linguistic annotation is treated independently.

### Problem

IF

Consistent ontology \( O \) + New Axiom \( A \)

THEN

\( O \) has to be adapted to \( A \)

An ontology is logically **inconsistent** if it has no model.

### Sources of Logical Inconsistency and Adaptation Solutions

1. **Errors of the information extraction procedure**

   *Solution*: Fix bugs in the IE procedure

2. **Polysemy of terms**

   *Adaptation Solution*: “Split” polysemous terms

3. **Overgeneralization of concepts**

   *Adaptation Solution*: Regenerate problematic concepts

### The overall architecture

- **Conclusion and Future Work**

  - **Presented adaptation procedure**
    - is an automatic rewriting technique
    - is knowledge preserving (as less information as possible is lost)
    - does not require an extension of the underlying logic
  - **Future work concerns**:
    - The characterization of the complexity of the algorithm.
    - Testing the algorithm on large ontologies.

- **Context of this work**

  - This work is sponsored by the German Research Foundation as project C2 in the research unit FOR 437 “Text Technological Modeling of Information”.