Extension of NLP Techniques for Privacy Management

Olga Krachina, Victor Raskin, CERIAS, Purdue University

Motivation:

- deployment of Privacy Policies (PP) occurs on the level of a formal language, but PP are written primarily in natural language
- level of natural language expressiveness necessary to accomplish a certain task or goal is unknown a priori
- inherent ambiguity associated with natural language creates obstacles for formal languages that have syntax-based structure and, as a rule, are domain-specific

Framework of Choice:

Ontological Semantics

A domain-independent NLP framework characterized by expressive semantics, comprehensive information representation modules (TMR), modularity, easily extendable to accommodate and process domain-specific knowledge (for detailed description of the framework see [2]).

Applications in the Field of Privacy:

- natural language to formal language translation
- tasks pertaining to inference process:
  - policy compliance verification, i.e. testing alignment of a particular policy and regulation for that specific category [1]
  - question-and-answering session, i.e. user-policy interaction

Future NLP Goals in the Domain:

abstracting a standard set of queries that are necessary to determine compliance, which will require development of a ranking system of the queries

References:


Overview of basic components of Ontological Semantics: arrows indicate modifications to the framework necessary to accommodate domain of Privacy Policies.