

## **Bartłomiej Antoni Szymczak**

The study has two main subjects:

- Computational processing of texts in natural language by logical methods
- Theories and methods for engineering of formal ontologies. The key objective of the research to be carried out during the PhD–study is to establish theoretically sound connections between these two areas. The project strives to establish a domain independent "ontological semantics" for relevant fragments of natural language. The purpose of this research is to develop methods and systems for taking advantage of formal ontologies for the purpose of extracting the meaning contents of texts. This functionality is desirable e.g. for coming content–based search systems in contrast to today's keyword based search systems, which rely chiefly on recognition of stated keywords in the targeted text.

The first year of the PhD–study period is set off for studying logical type theory and syntactic and semantic language theories applied in contemporary computational linguistics using the below references.

The second year focuses on developing and validating methods for incorporation of formal ontologies into computational language processing. This work is carried out in the context of the SIABO project. The chosen application domain in the project is patent databases relating to insulin using available bio–ontologies.

The third year is used for elaborating the thesis.