

Presented work explores the possibilities of automatic construction and expansion of semantic networks with use of machine learning methods. The main focus is put on the feature retrieving procedure for the data set. The work presents a robust method of semantic relation retrieval, based on distributional hypothesis and trained on the data from Czech WordNet. We also show the first results for czech language in this area of research. Part of the thesis is also a set of software for processing and evaluating of input data and a overview and discussion about its results on real-world data. The resulting tools can process data of amount in orders of hundreds of millions of words. The research part of the thesis used Czech morphologicaly and syntacticaly annotated data, but the methods are not language dependent.