Abstrakt: Distributional semantics is based completely on the distributional properties of words. The core resource is a single lexico-semantic lexicon that can be used for a variety of tasks, where word meanings are represented as vectors in Vector Space, and word similarities as distances between vector representations. Using strengths of similarities, appropriateness of terms given a particular context can be calculated and used for a variety of tasks, one of them being Word Sense Disambiguation. In this thesis several different approaches to models of Vector Space were examined and implemented in order to cross evaluate their performance on the Word Sense Disambiguation task in Prague Dependency Treebank.