In present work are studied possibilities of unsupervized constuction of semantic lexicons. There are compared advantages and disadvantages of several annotation methods. More closely developed is one solution, which is based on latent semantic analysis (LSA). Unlike the others, this method solves the problems of polysemy and synonymy. Below are described details of the algorithm implementanion and evaluation. This thesis provides a set of tools for construction, browsing and conversion of semantic lexicons for czech language. Used methods do not depend on the language.