

# **The application of natural language processing technologies within the legislative process**

## **Keywords**

legislation; rational lawmaking; natural language processing; system theory of law; language of law; corpus analysis; network analysis

## **Abstract**

This dissertation examines the potential of Natural Language Processing (NLP) in the legislative process. Its primary objective is to evaluate whether legal NLP methods and technologies can enhance the values of good law, such as clarity, consistency, coherence, efficiency etc. The work is interdisciplinary, situated at the intersection of legal theory, linguistics, and legal informatics. The first chapter establishes a theoretical framework based on modern concepts of rational law-making, the values of good law, and a systemic approach to law as a complex communication system. Emphasis is placed on the processes of information exchange between lawgiver and addressees, which include both the a priori and a posteriori interpretation of law and the sharing of linguistic contexts. A systemic perspective on the issues of legal order consistency and coherence is presented, along with proposed principles for quantifying these attributes using empirical models.

The empirical research employs a combination of corpus and network methods to analyze legal acts, their linguistic properties, intrasystemic differentiation, and interactions. The second chapter focuses on corpus methods, including a quantitative analysis of the lexicon within a corpus of legal acts. It also demonstrates qualitative approaches, such as concordance and collocation analysis, to complement traditional methods of legal interpretation. The third chapter delves into modeling the network reference structure of the legal order, analyzing its centers, peripheries, and the functional roles of individual acts within the legal system.

The theoretical and experimental findings of this dissertation provide novel insights into the structure of the Czech legal order (primary regulations) and the potential applications of NLP in legislation. These include methods for identifying inconsistencies to maintain and enhance the legal order's dynamics. Additionally, the dissertation highlights the limitations of current technologies and underscores the importance of a critical approach to their application, thereby opening avenues for further research at the intersection of technology and applied legal science.