

# Combining the conceptual with social network analysis: Usage based frame analysis of the concepts

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## Keywords:

Graph analysis, Construction grammar, Conceptual analysis, Parliamentary debates, Social Network Analysis

The paper deals with the application of the Conceptual Grammar [1] Conceptual Network Analysis (ConGraCNet)[4, 3] on the Croatian Parliamentary Debates corpus (CroParl) [2]. The goal is to map the conceptual structures obtained by the construction grammar network analysis on the discourse metadata about the speakers in the parliamentary sessions. The ConGraCNet approach enables the identification of sense structures for a given conceptual lexeme using the syntactic-semantic structures in the CroParl corpus.

The approach enables each lexeme to be presented as a componential structure framed by multiple semantic domains and conceptual networks. This conceptual framework is combined with the underlying structure of the discourse metadata that yields corpus metrics for each speaker, as well as the metadata about the affiliated relations to a parliamentary club. This mapping of conceptual structures and social networks enables the quantitative and qualitative research on the framing of concepts within the parliamentary debates.

In this paper we will present the methodology, pipeline, results and framing of highly polysemic social concepts such as *marriage*, *freedom*, *democracy*, *peace*, etc., for a Corpus of 60 million words harvested from Croatian parliamentary debates from year 2005 to 2017 that are interpreted in terms of the usage based discourse perspective.

## Acknowledgments

Perak and Ban Kirigin is supported in part by the Croatian Science Foundation under the project UIP-05-2017-9219.

## References

- [1] Langacker, Ronald and Langacker, Ronald W Cognitive grammar: A basic introduction. OUP, 2008
- [2] Perak, Benedikt and Rodik, Filip Building a corpus of the Croatian parliamentary debates using UDPipe open source NLP tools and Neo4j graph database for creation of social ontology model, text classification and extraction of semantic information Language Technologies & Digital Humanities, 2018
- [3] Perak, Benedikt and Ban Kirigin, Tajana Identifying Semantic Domains by Using Syntactic Logical Connectives: Construction Grammar Conceptual Networks *arxiv*, 2019
- [4] Perak, Benedikt Conceptualisation of the Emotion Terms: Structuring, Categorisation, Metonymic and Metaphoric Processes within Multi-layered Graph Representation of the Syntactic and Semantic Analysis of Corpus Data *Cognitive Modelling in Language and Discourse across Cultures*, Cambridge Scholars Publishing, 2017