

Dependency Grammars with NLTK

Natural Language Understanding Lab

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Objectives

- Understanding:
 - Dependency Relations and Grammars
 - Probabilistic Dependency Grammars
 - Projective and Non-Projective Parses
 - Transition-based Dependency Parsing
- Learning how to:
 - define dependency grammar in NLTK
 - identify a syntactic relation between Head and Dependent
 - parse with dependency grammar
 - evaluate dependency parser
 - use dependency parser of **spacy** and **stanza**

Outline

- ① Dependency Grammars
 - Dependency Relations
 - Defining Dependency Grammar in NLTK
 - Parsing with Dependency Grammar
 - *Exercises*: 20 min
- ② Probabilistic Dependency Grammars & Parsing
 - *Exercises*: 15 min
- ③ Transition-Based Dependency Parsing
 - Transition Parser in NLTK
- ④ Evaluation of Dependency Parsing
 - *Exercises*: 15 min
- ⑤ Dependency Parsing with Stanza and Spacy
- ⑥ *Exercises*: Evaluation of Parsers: 30 min

Recommended Reading

- Dan Jurafsky and James H. Martin. Speech and Language Processing (3rd ed. draft)
 - Chapter 14: Dependency Parsing
- Steven Bird, Ewan Klein, and Edward Loper. Natural Language Processing with Python
 - Chapter 8: Analyzing Sentence Structure
- Kubler, McDonald, and Nivre (2009) Dependency Parsing.