Exploiting KonText for querying Lindat corpora

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Overview

1. Introduction
   - Lindat repository
   - KonText
2. Querying Lindat corpora
   - Search in Universal Dependencies
   - Search in PDT
   - Other corpora
3. Conclusion

Outline

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Lindat repository

Ludwig van Beethoven, 1801

There ought to be only one grand dépôt of art in the world, to which the artist might repair with his works, and on presenting them receive what he required...

Repository Statistics

Year	Views	Downloads
2015	111021	49471
2016	40457	3698

Repository items

corpora

LINDAT

lexical resources

tools, services

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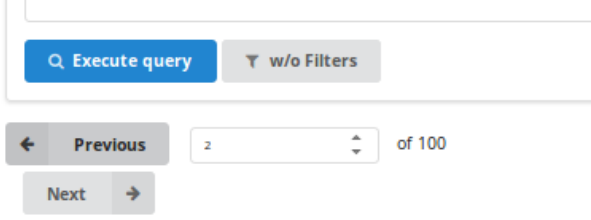
- Corpus query tool
- first UI - Bonito
- SketchEngine: commercial and NoSke
- KonText - developed by the Institute of Czech National Corpus, based on SketchEngine
- Lindat-KonText: syntactic annotation and tree view

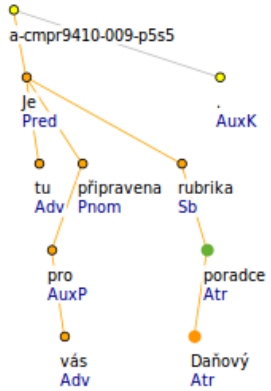
Kontext Overall Statistics

Year	Views
2015	4291
2016	2130

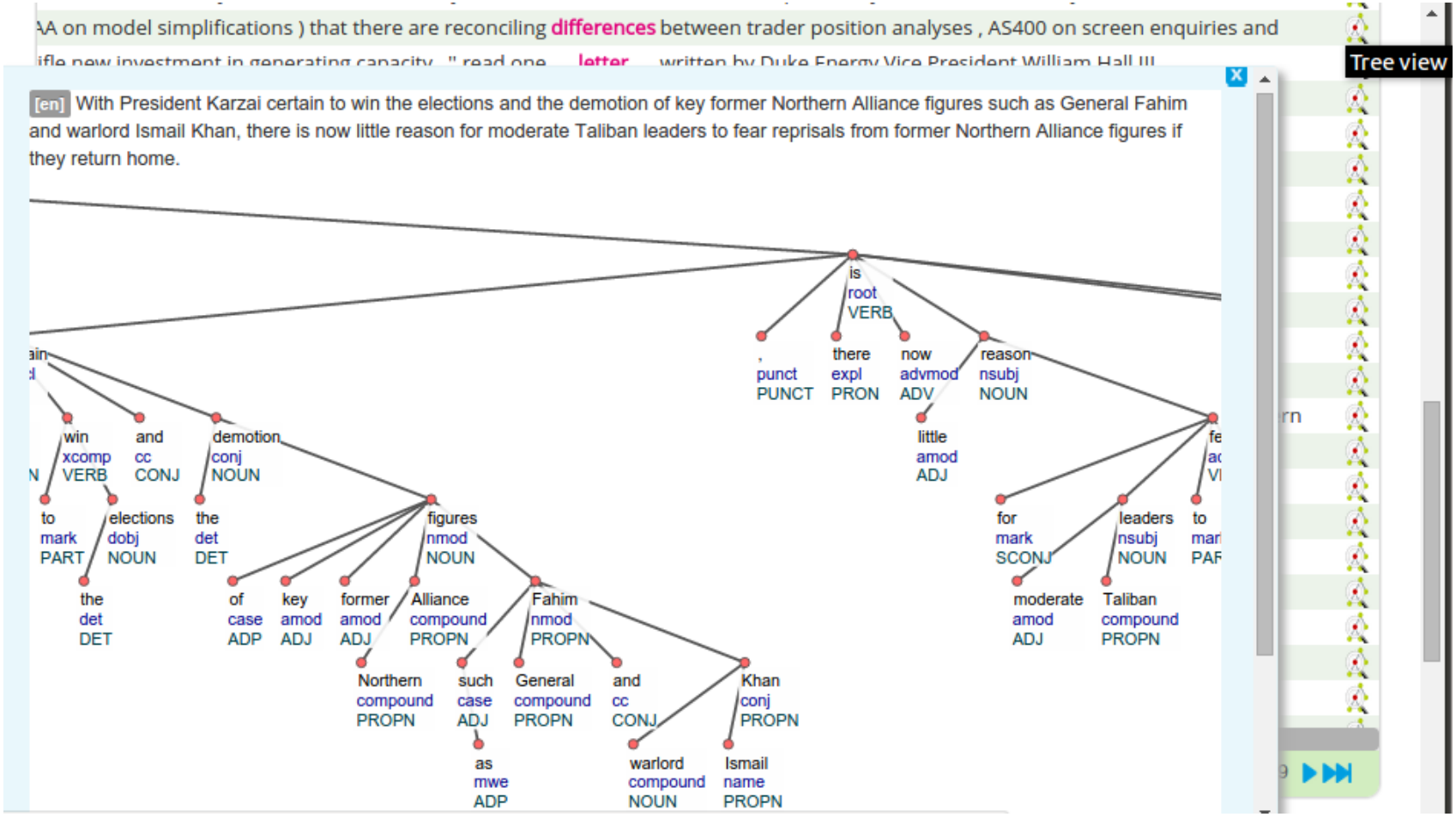
KonText and PML-TQ



Je tu pro vás připravena rubrika Daňový poradce.



Lindat-KonText: tree view



Search in KonText: CQL

- Corpus Query Language [attribute="value"]
- Traditionally: form lemma tag + some derived attributes [tag="Vp.*"][lemma="matka"]
- more complex annotation in Lindat Treebanks [tag="Vp.*"][p_afun="Coord" & tag="NNF.*"]
- more information on Search in KonText see the Czech National Corpus wiki

More attributes for syntax

- word
- lemma
- tag
- afun (deprel)

- p_form
- p_lemma
- p_tag
- p_afun
- parent="+3"

- ep_form
- ep_lemma
- ep_tag
- ep_afun
- eparent="-5"

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Universal Dependencies 1.2

- http://universaldependencies.org/
- Universal Dependencies 1.2 - treebanks in 38 languages
- Google universal part-of-speech tags: [pos="ADJ"]
- Interset, universal features (ufeat). Ex., they: Case=Nom|Number=Plur|Person=3|PronType=Prs
- Stanford dependencies: deprel="root"
- Lindat-KonText

Universal Dependencies

Year	Views
2015	525
2016	573

POS pos="ADJ"

- ADJ: adjective
- ADP: adposition
- ADV: adverb
- AUX: auxiliary verb
- CONJ: coordinating conjunction
- DET: determiner
- INTJ: interjection
- NOUN: noun
- NUM: numeral
- PART: particle
- PRON: pronoun
- PROPN: proper noun
- PUNCT: punctuation
- SCONJ: subordinating conjunction
- SYM: symbol
- VERB: verb
- X: other

UFEAT called: Tense=Past|VerbForm=Part

- Animacy: animacy
- Aspect: aspect
- Case: case
- Definite: definiteness or state
- Degree: degree of comparison
- Gender: gender
- Mood: mood
- Negative: whether the word can be or is negated
- NumType: numeral type
- Number: number
- Person: person
- Poss: possessive
- PronType: pronominal type
- Reflex: reflexive
- Tense: tense
- VerbForm: form of verb or deverbative
- Voice: voice

Deprel deprel="root"

- acl: clausal modifier of noun (adjectival clause)
- advcl: adverbial clause modifier
- advmod: adverbial modifier
- amod: adjectival modifier
- appos: appositional modifier
- aux: auxiliary
- auxpass: passive auxiliary
- cc: coordinating conjunction
- compound: compound
- conj: conjunct
- cop: copula
- csubj: clausal subject
- csubjpass: clausal passive subject
- det: determiner
- discourse: discourse element ... and many more

Disclaimer

disclaimer

The examples here are just illustration of queries.
It is not a meaningful linguistic research!!!

Examples

- LOGIN -> Shibboleth
- Position of adjectives in the Romance languages

  [pos="ADJ" & p_pos="NOUN" & parent="\+.*"]
- In English, a predicate before a subject

  [deprel="nsubj" & p_deprel="root" & p_pos="VERB" & p_lemma!="be" & parent="-.*"]

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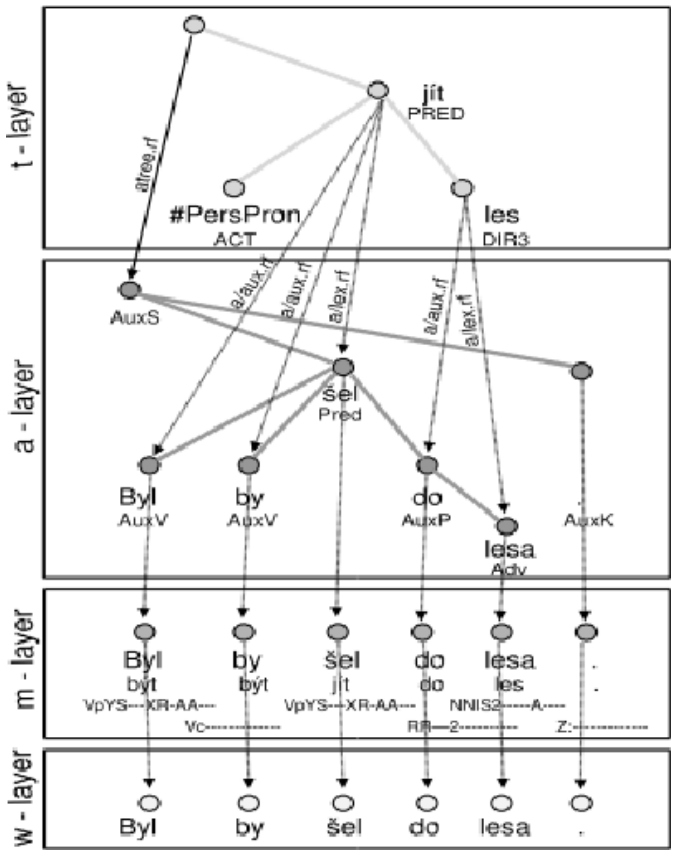
PDT



- morphological layer
- analytical layer
- tectogrammatical layer

PDT attributes

- Node attributes:
  - m-layer, m-layer: word, lemma, tag
  - a-layer: ord, clause_number, is_member, afun, a_type
  - t-layer: deepord, t_lemma, functor, tfa, sempos, grammatemes_rf, coref_special, antes, discourse_special, discourse_type, discourse_target
- parent: p_form, p_lemma, , p_tag, p_afun, parent
- eparent: ep_form, ep_lemma, p_tag, ep_afun, eparent
- more see the PDT manual

Examples-PDT

- Word order in Czech
  - SV
    [afun="Sb" & p_afun="Pred" & parent="\+.*"]
  - VS
    [afun="Sb" & p_afun="Pred" & parent="\-.*"]
  - "se" stands more than 10 positions from the verb:
    [lemma="se" & ep_afun="Pred" & parent="\+(1|2).+"]
  - want more - e.g. SVO? Better to use PMLTQ...
- Auxiliary word, member of coordination:
  [is_member="1" & a_type="aux"]

Examples-PDT

- functors:

  [tag="N...[^7].*" & functor="MEANS"]

  [functor="DPHR"]{3}

- tfa:

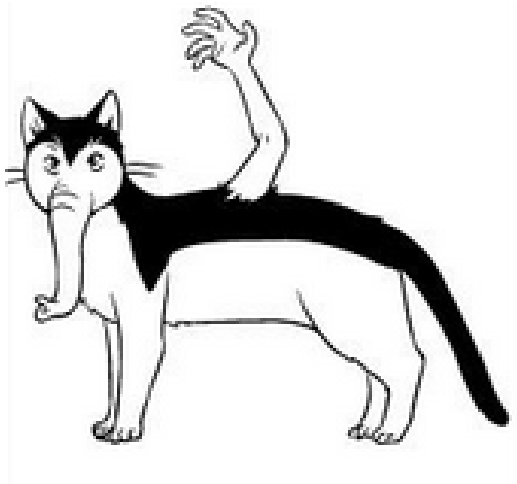
  [afun="Sb" & tfa="f" & p_afun="Pred" & parent="\-.*"]

- coreference:

  [coref_special!="_"]

- discourse:

  [discourse_type="opp"]



Querying other corpora

- Czech Legal Text Treebank
  lemma="se" & ep_tag="V.*"
- speech corpora:
- corpus with sentiment analysis
  word=":)"within <s polarity="n" />

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Conclusion and plans for the nearest future

- KonText adjusted to search in Lindat corpora
- Added tree view functionality
- Plans for nearest future:
  - make all the corpora from Lindat available via KonText
  - parse the corpora without annotation
  - PDT attributes from t-layer
  - PDT - tree view for a-trees and t-trees
  - add a short manual for each corpus
- Long-term goals:
  - word sketches
  - connection to the dictionaries, valency lexicon
  - word alignments for parallel corpora

Thank You!