Syntactic Identification of Occurrences of MWE in Text using a Lexicon with Dependency Structures

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ÚSTAV FORMÁLNÍ A APLIKOVANÉ LINGVISTIKY

Objective

- We have SemLex – lexicon of all MWEs in PDT 2.5
  - basic (quotation) forms
  - lemmatised forms
  - dependency structures
- **How to find MWEs from SemLex in new texts?**

Datasets

- Prague Dependency Treebank 2.5
  - full manual annotation
    - morphology (m), surface syntax (a), deep syntax (t)
    - MWE
  - automatic analysis: (m), (a), (t)
- Czech National Corpus:
  - SYN2006-PUB – automatic

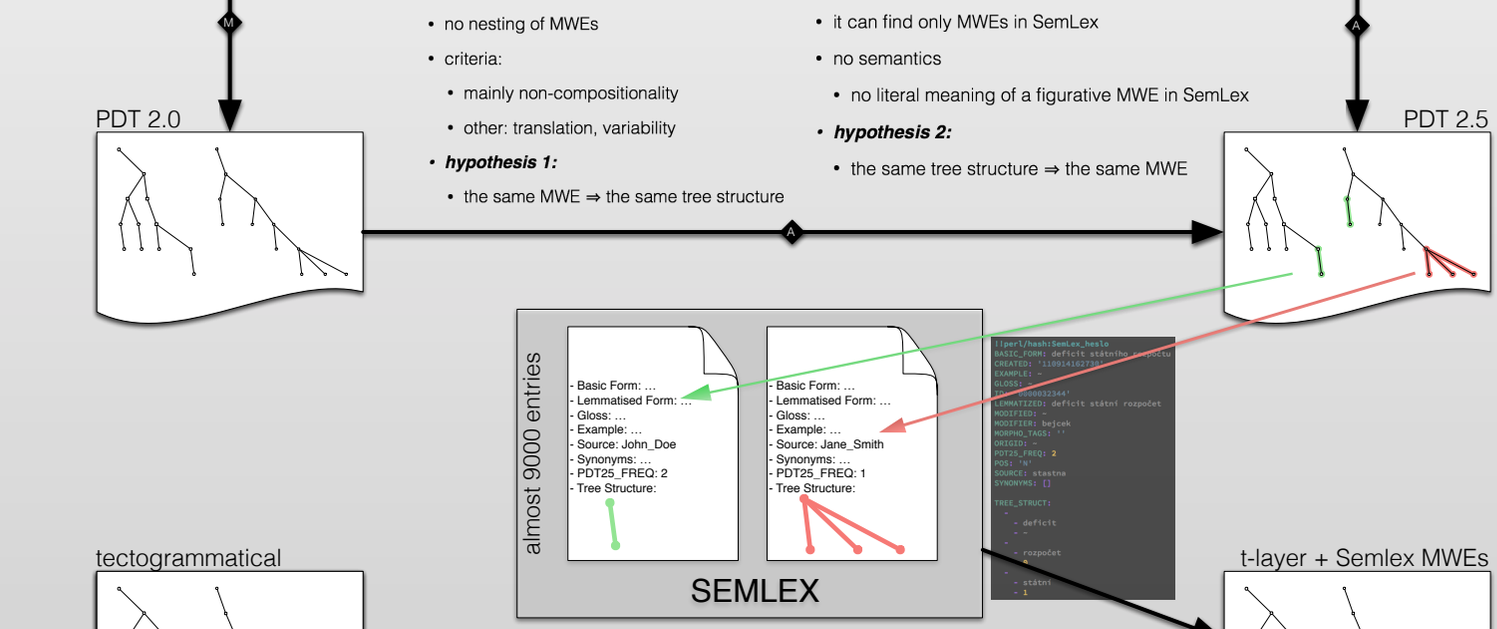
Prague Dependency Treebank 2.5

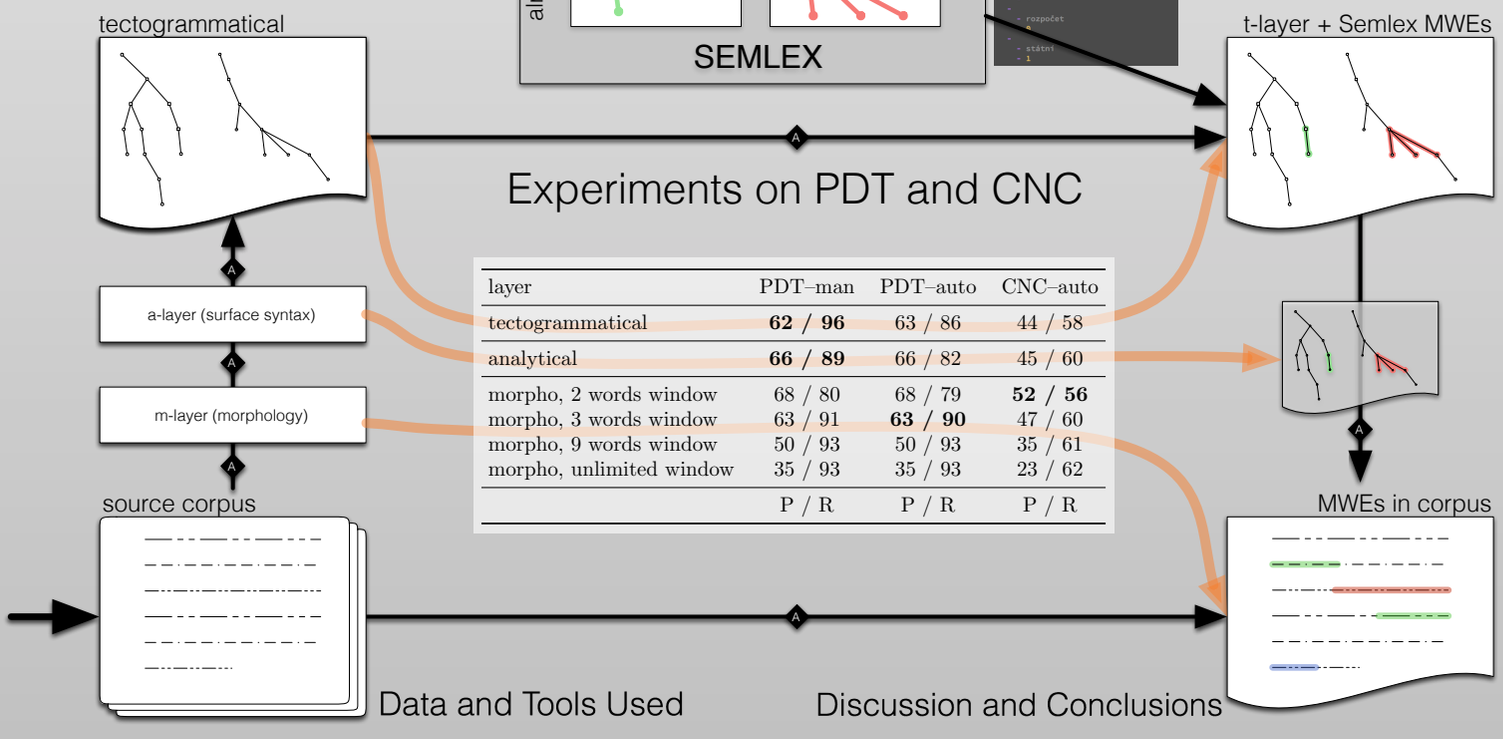
Annotation

- no nesting of MWEs
- criteria:
  - mainly non-compositionality
  - other: translation, variability
- ***hypothesis 1:***
  - the same MWE ⇒ the same tree structure

Automatic analysis

- it can find only MWEs in SemLex
- no semantics
  - no literal meaning of a figurative MWE in SemLex
- ***hypothesis 2:***
  - the same tree structure ⇒ the same MWE





Experiments on PDT and CNC

layer	PDT–man	PDT–auto	CNC–auto
tectogrammatical	**62 / 96**	63 / 86	44 / 58
analytical	**66 / 89**	66 / 82	45 / 60
morpho, 2 words window	68 / 80	68 / 79	**52 / 56**
morpho, 3 words window	63 / 91	**63 / 90**	47 / 60
morpho, 9 words window	50 / 93	50 / 93	35 / 61
morpho, unlimited window	35 / 93	35 / 93	23 / 62
	P / R	P / R	P / R

Data and Tools Used

- PDT 2.5 – http://hdl.handle.net/11858/00-097C-0000-0006-DB11-8
- ČNK – http://hdl.handle.net/11858/00-097C-0000-0023-1358-3
- Semlex – http://ufal.mff.cuni.cz/lexemann/mwe/
- Morphology – http://hdl.handle.net/11858/00-097C-0000-0015-A780-9
- Tagger – http://hdl.handle.net/11858/00-097C-0000-0001-4904-2
- Treex – http://ufal.mff.cuni.cz/treex

Discussion and Conclusions

- tree structures in SemLex are too simple (⇒ add prepositions etc.)
- more general tectogrammatical lemmatisation should help
- 50,000 sentences in PDT data but only 546 sentences in CNC data
- there are some deficiencies in the current tectogrammatical parser
- the approach on the tectogrammatical layer is not better than on other layers, yet

LINDAT CLARIN

This work has been using language resources developed and/or stored and/or distributed by the LINDAT-Clarin project of the Ministry of Education of the Czech Republic (project LM2010013).

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