The UdS POS Tagging Systems @ EmpiriST 2015

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UNIVERSITÄT DES SAARLANDES

Projekt Schreibgebrauch
Analyse und Instrumentarien zur Beobachtung des Schreibgebrauchs im Deutschen

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Revisiting our Submissions

- Certain phenomena occur over and over in CMC
- Adding in-domain training data will help to cope with them

1st approach: "Retrain" [Horbach et al. 2014, 2015]

TIGER + EmpiriST training set + "Schreibgebrauch" project training set

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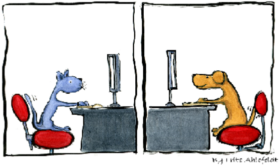

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1st approach: "Retrain" [Horbach et al. 2014, 2015]

TIGER + EmpiriST training set + "Schreibgebrauch" project training set (boosted 5 times)

Pros

✓ big performance boost

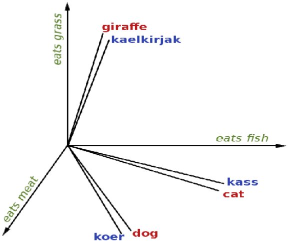
Cons

× many words still not in training data

× expensive to annotate more data

Revisiting our Submissions

- unsupervised learning
- profit from large, raw in-domain data set
- assumption: words have the same POS tags as their distributional neighbours



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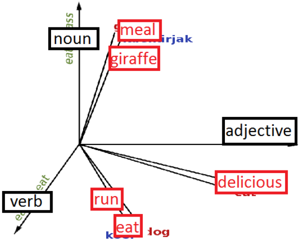

Revisiting our Submissions

- unsupervised learning
- profit from large, raw in-domain data set
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2nd approach: "Distributional" [Prange et al. 2015]

for each unkown word type:

- generate known candidates based on distributional similarity
- rank POS tags of candidates
- propose highest ranked POS tag(s) to the tagger

Revisiting our Submissions

2nd approach: "Distributional" [Prange et al. 2015]

for each unkown word type:

- generate known candidates based on distributional similarity
- rank POS tags of candidates
- select highest ranked POS tag(s) to the tagger

Pros

✓ no additional manual annotation

✓ covers more words

Cons

× local context not considered

→ multiple readings of one word cannot be distinguished (only indirectly via off-the-shelf tagging software)

Revisiting our Submissions

- assumption: unknown words are often misspellings and similar to their intended forms

3rd approach: “Surface”

for each unkown word type:

- generate candidates based on string-similarity

for each unkown word token:

- rank candidates in context by language model
- replace unknown word with highest ranked candidate

Revisiting our Submissions

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3rd approach: "Surface"

for each unkown word type:

- generate candidates based on string-similarity

for each unkown word token:

- rank candidates in context by language model
- replace unknown word with highest ranked candidate

Pros

✓ no additional manual annotation

✓ local context considered

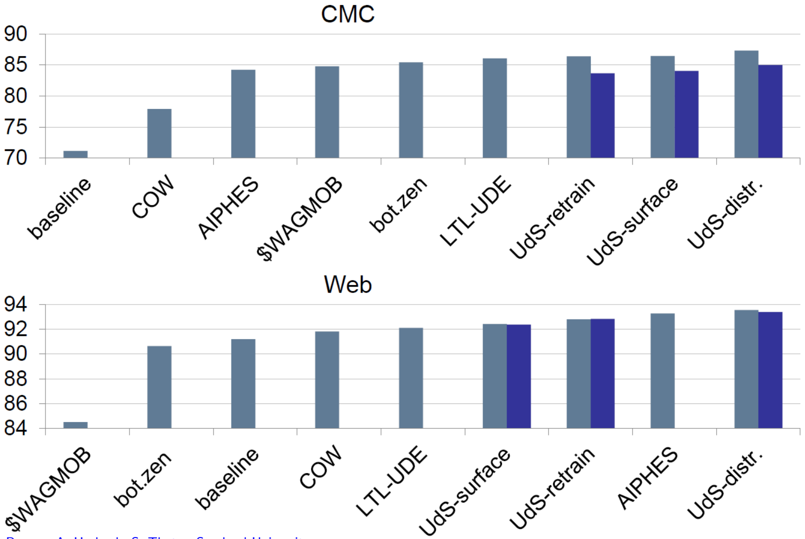
Cons

× very small performance boost, if any

× "overcorrection": not only typos, but also lexical gaps are replaced

Revisiting our Submissions

[% accuracy]



Afterthoughts and Ideas for the Future

- influence of data vs influence of algorithm

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- new particle tags are problematic – also for humans? Would it help to re-annotate TIGER with STTS 2.0?

Afterthoughts and Ideas for the Future

- influence of data vs influence of algorithm
- oracle experiment shows there is room for improvement with an ideally combined system
- new particle tags are problematic – also for humans? Would it help to re-annotate TIGER with STTS 2.0?
- action words are problematic – (morphological) preprocessing? Tokenisation?

Thank you!

software available under
http://www.coli.uni-saarland.de/projects/schreibgebrauch/de/page.php?id=resources