Korpusomat.pl
New functionalities and future development

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What is Korpusomat?

Web application aimed at building
- automatically indexed and annotated
- searchable corpora
- from documents provided by the user,
- using modern NLP tools for Polish
- and equipped with intuitive user interface.
For whom?

Mostly for linguists with limited technical skills:
- undergraduate and graduate students
- as well as individual researchers

interested in investigating
- sociolects in the Web,
- language of individual authors,
- language of niche and specialist press.
Limitations

- Korpusomat has been around for nearly two years now.
- It gained some popularity but also quickly reached its limitations:
  - old search engine Poliqarp with no constant support,
  - no possibility to integrate other layers of annotation,
  - poorly scalable.
- A need for a significant reconstruction arose.
- Although the web interface remained the same, the majority of the components were either changed or at least updated.
KORPUSOMAT

Utwórź własny korpus językowy

MOJE KORPUΣY JĘZYKOWE

UTWÓRZ KORPUΣ

PRZEŚLIJ OPINIĘ
Workflow

- DOCX, PDF, TXT, EPUB, MOBI, HTML
- METADATA RETRIEVAL
- APACHE Tika CALIBRE
- <query />
- INDEXING
- NE RECOGNITION
- MORPHOLOGICAL ANALYSIS
- TAGGING
Morphosyntactic tagging

- **Morfeusz 2 — morphological analyser** [Woliński, 2014]
  - two custom dictionaries: SGJP and Polimorf,
  - frequent updates,
  - large portion of proper names added just recently.

- **Concraft 2 — morphosyntactic tagger** [Waszczuk et al., 2018]
  - CRF-based,
  - tagging accuracy 92.6%,
  - well integrated with Morfeusz 2,
  - supports ambiguous segmentation,
  - performs sentencing.
Liner2.6 — named entities classifier [Marcińczuk et al., 2013]

- CRF-based,
- classification model based on National Corpus of Polish,
- accuracy 81%,
- 3rd place in Poleval 2018 shared task,
- https://github.com/CLARIN-PL/Liner2
Named entities II

- persName
- surname
- addName
- orgName
- date
- time
- bloc
- country
- region
- district
- placeName
- settlement
- geogName
- bloc
- country
- region
- district
- placeName
- settlement
- geogName
MTAS = Multi Tier Annotation Search [Brouwer et al., 2017]

- search engine created in Meertens Institute (Royal Netherlands Academy of Arts and Sciences),
- based on software developed by Apache Foundation:
  - Lucene — document search library,
  - Solr — server side application based on Lucene,
- actively developed, used in large projects such as Nederlab — \( \approx \) 10 billion tokens large documents database,
- the development of MTAS is firmly situated in the CLARIN domain as part of the Dutch CLARIAH project.
Multi Tier Annotation Search II

Crucial features:

- indexing of annotated documents and defining custom layers, including multi-word units,
- CQL (Corpus Query Language),
- incremental indexing — no need for processing the whole corpus after adding one document,
- scalability,
- filtering using metadata.
Query examples

- `<ne="geogName" /> containing [pos="prep"]`
  - *Przy Agorze*
  - *U Huberta*
  - *Zamek Królewski na Wawelu*
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  - Europa Zachodnia i Skandynawia,
  - Bliski Wschód oraz Afryka Północna
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- `[orth="A.*"] [orth="M.*"] fullyalignedwith <ne="persName" />`
  - *Adam Małysz*
  - *Adam Michnik*
  - *Antoni Macierewicz*
Future functionalities

Near future:
- statistical tools for collocations,
- more visualizations,
- syntactic information based on dependency parser.

Further plans:
- terminology extraction,
- more layers: sentiment analysis, word sense disambiguation,
- state-of-the-art NLP deep learning tools,
- platform for sharing users’ custom corpora.
So far Korpusomat served as a basis for deployment of various static corpora:

- Baroque Corpus of Polish
  http://korba.pl,

- Corpus of texts published between 1830 and 1918
  http://korpus19.nlp.ipipan.waw.pl,

- Corpus of Parliamentary Discourse
  http://sejm.nlp.ipipan.waw.pl,

- manually annotated gold-standard subcorpus of NCP
  http://nkjp.nlp.ipipan.waw.pl/

We hope for other successful deployments:

- integrated Diachronic Corpus of Polish?
- National Corpus of Polish 2.0?
Conclusions

- Still a simple web application, but with some higher ambitions,
- with a mission for promoting NLP tools and techniques in Polish linguistic community.
- No intentions for developing new tools, focused rather on integrating and reusing the ones created in other projects.
- Feel free to test it at: http://test.korpusomat.nlp.ipipan.waw.pl/.

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MTAS: A Solr/Lucene based Multi Tier Annotation Search solution.

Springer Berlin Heidelberg, Berlin, Heidelberg.

Morphosyntactic disambiguation and segmentation for historical Polish with graph-based conditional random fields.

Morfeusz reloaded.