Results of the PolEval 2020 Shared Task 4

Information extraction and entity typing from long documents with complex layouts

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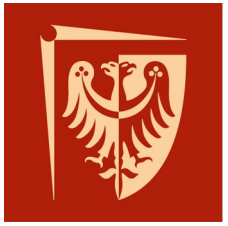

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Task 4 description

The goal of the task is to extract values for a defined set of fields from documents with complex layouts.

The documents' layouts are complex - the documents can contain many (>100) pages and multiple text sections, tables, plots, forms, etc.

Fields to extract:

- company
- drawing_date
- period_from
- period_to
- postal_code
- city
- street
- street_no
- people :
  { name, role, sign }

Dataset

Three datasets:

- training – 1662 documents
- dev – 554 documents
- test – 555 documents

Three formats:

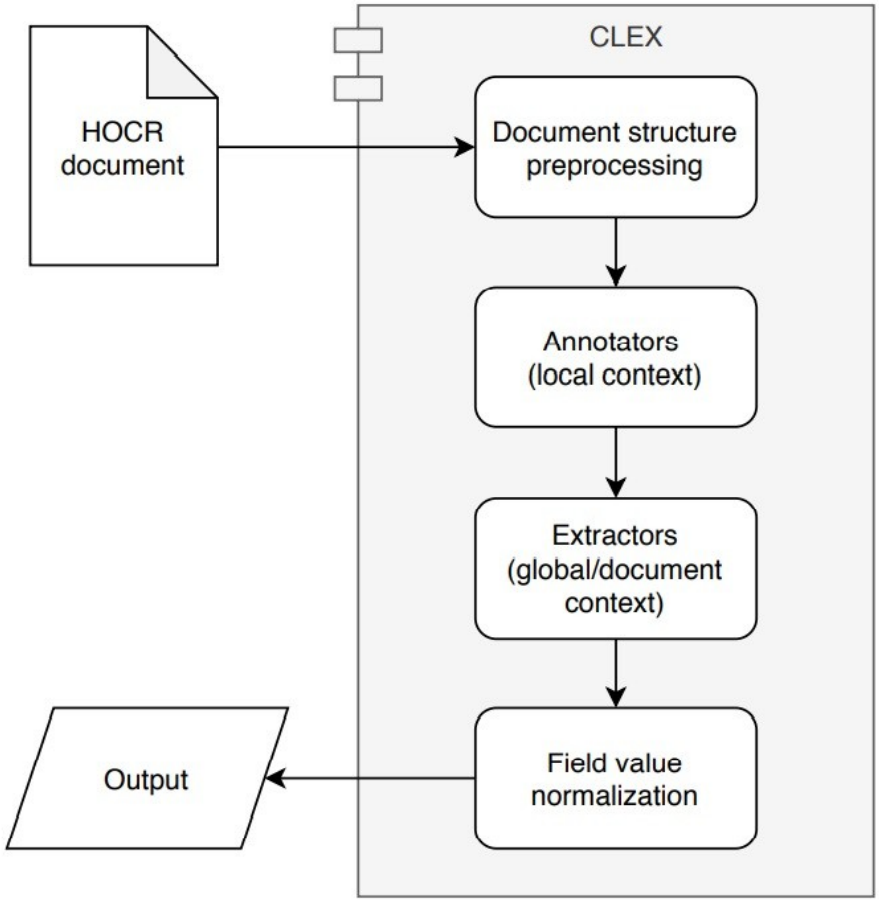
- pdf – original
- txt – only text
- HOCR - text with spatial information

Resources

- company names in base form
  - extracted from training and dev sets
- company addresses
  - extracted from training and dev sets
- person names
  - taken from NELexicon2 [1]
- city names
  - taken from Polish TERYT database

[1] Marcinczuk, M.: NELexicon2 (2014), http://hdl.handle.net/11321/247, CLARINPL digital repository

CLEX – system architecture



Document preprocessing

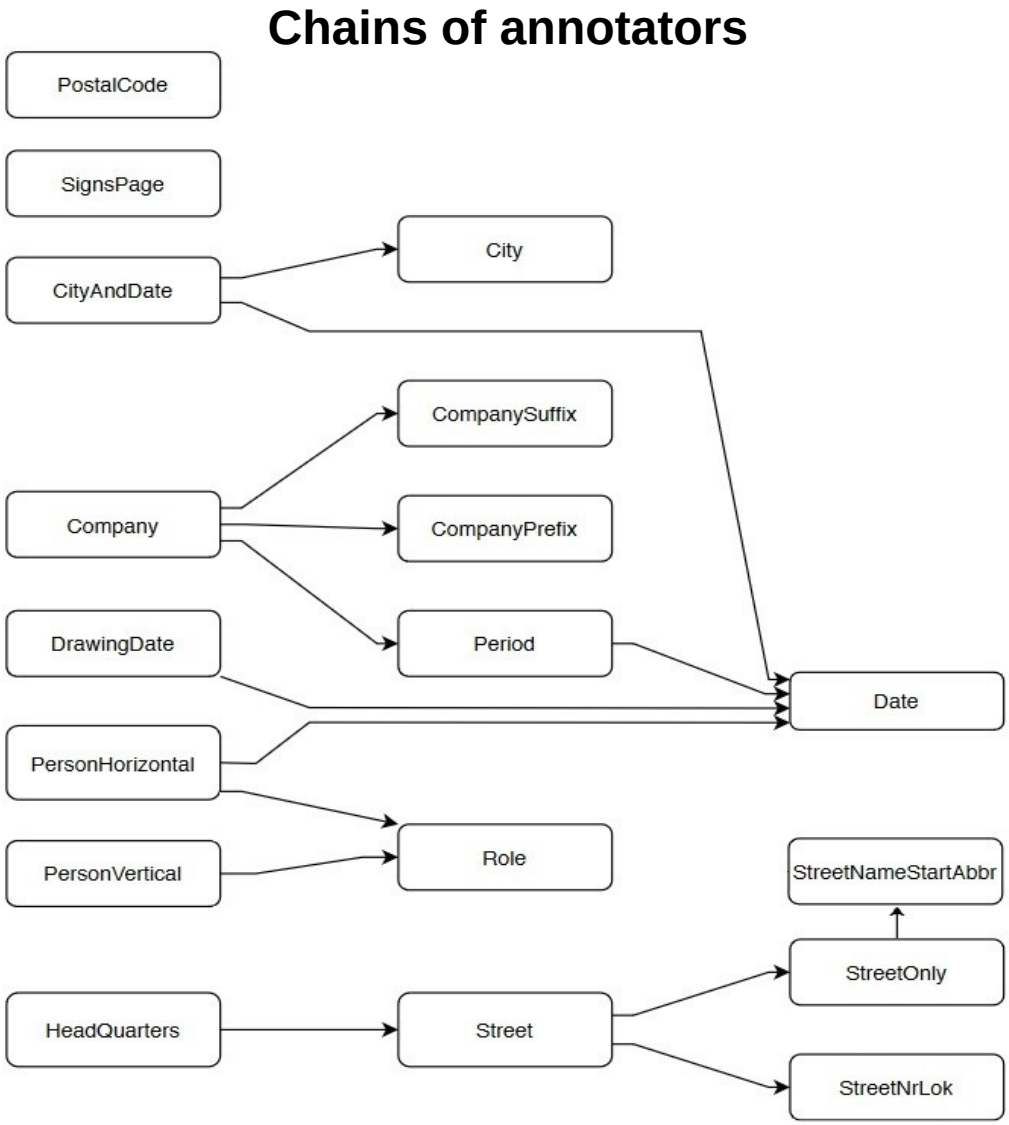
- Restoring order
- Separation of punctuation marks
- Handling empty leading pages
- Calculating line heights and its distribution
- Separating headers and footers from document

Annotators - local context

At the lowest level, we have a set of *matchers* that match the given text or the given regular expression

The *matchers* are combined to define more elaborated *patterns*.

Annotators use the *patterns* to create rules that allow extracting interesting fragments of the text



Extractors - global view

Extractors - try to select the best result from the ones found and stored so far.

Extractors have a defined behavior depending on the type of field they are trying to find

One special : finds the page with signatures

For some fields additional lematization and normalization is performed:

- names of companies
- names of streets

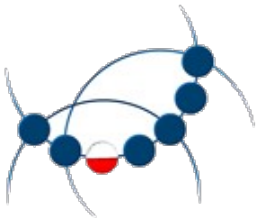
Results

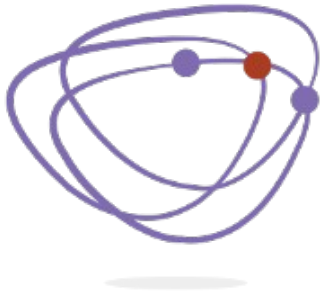
Evaluation results on the test set

Submission	F1(UC) on test
CLEX	**0.651** ±0.019
double_big	0.606 ±0.017
300_xgb	0.592 ±0.015
double_small	0.588 ±0.018
300_RF	0.587 ±0.015
middle_big	0.585 ±0.016
100_RF	0.584 ±0.016
Multilingual BERT + Random Forest	0.440 ±0.014

Thank you for your attention

CLARIN-PL
Common Language Resources and Technology Infrastructure





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