Facilitating Annotation of Collective Agreements with Keywords Extraction
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Previous script: Find KEYWORDS per topic while looking at CLAUSES

New script:
1. Split the full text into paragraphs.
2. Finds the clauses in the paragraphs and assigns a topic to each paragraph (or no topic)
3. Looks for keywords in the full text (in all paragraphs).

Issue: many words are common in all the topics. We could not tell whether a word was more common than in the full text.
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1440 Collective bargaining agreements (CBAs) texts from the WageIndicator CBA Database (since 2012)
WageIndicator.org/cbadatabase

28 languages
50+ countries
Annotated: answers to 249 labour rights related questions on 9 topics (eg Employment Contracts, Gender Equality Issues, etc) + clauses selected

AIM OF THIS WORK
To ease future CBA texts annotation by finding the parts of texts where a question is answered = assign a ‘bind’ to paragraphs in new CBA texts

DATA PROCESSING:
1. We parse texts in paragraphs and create a ‘paragraphs dictionary’ with languages as keys, containing all the paragraphs for each language.
2. For each clause selected, we check whether it is contained in a paragraph. If that is the case, then the bind is assigned to the paragraph in a new data frame with 1 or 0 identifying whether the bind is assigned to that paragraph or not.
3. We can only do the training on binds that have a sufficient number of assigned paragraphs: we decide for 5 as a minimum.
4. We perform cleaning (tokenisation - lemmatisation - stop words removal) using NLTK tools (WordNetLemmatizer for English, Snowball Stemmer for other languages).
5. We add a column with cleaned paragraphs to our data frame.

Python script

FREQUENCY MODELS:
1. Our own model, relative frequency:
   a) Training set: 70% of paragraphs; testing set: 30%.
   b) We calculate the relative frequency of the 30 most common words for each bind in the training paragraphs with bind and without bind (we exclude from the 30 words the 100 most common words in par. without bind)
   c) We do the same for the testing paragraphs.
   d) We plot the ROC curve for each bind on the testing paragraphs to see if the model works well and to determine the optimal threshold.
2. Try with Bag of Words.
3. Explore other models of more advanced machine learning (Bert - Par2Vec).