MDS *Writer*

Annotation tool for creating high-quality multi-document summarization corpora

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ADAPTIVE PREPARATION OF INFORMATION FROM HETEROGENEOUS SOURCES

Motivation

- Amount of textual information (e.g., in the web) becomes intractable

➠ **We need automatic summarization!**

- Single-document summarization cannot reduce the *number* of documents

➠ **We need multi-document summarization!**

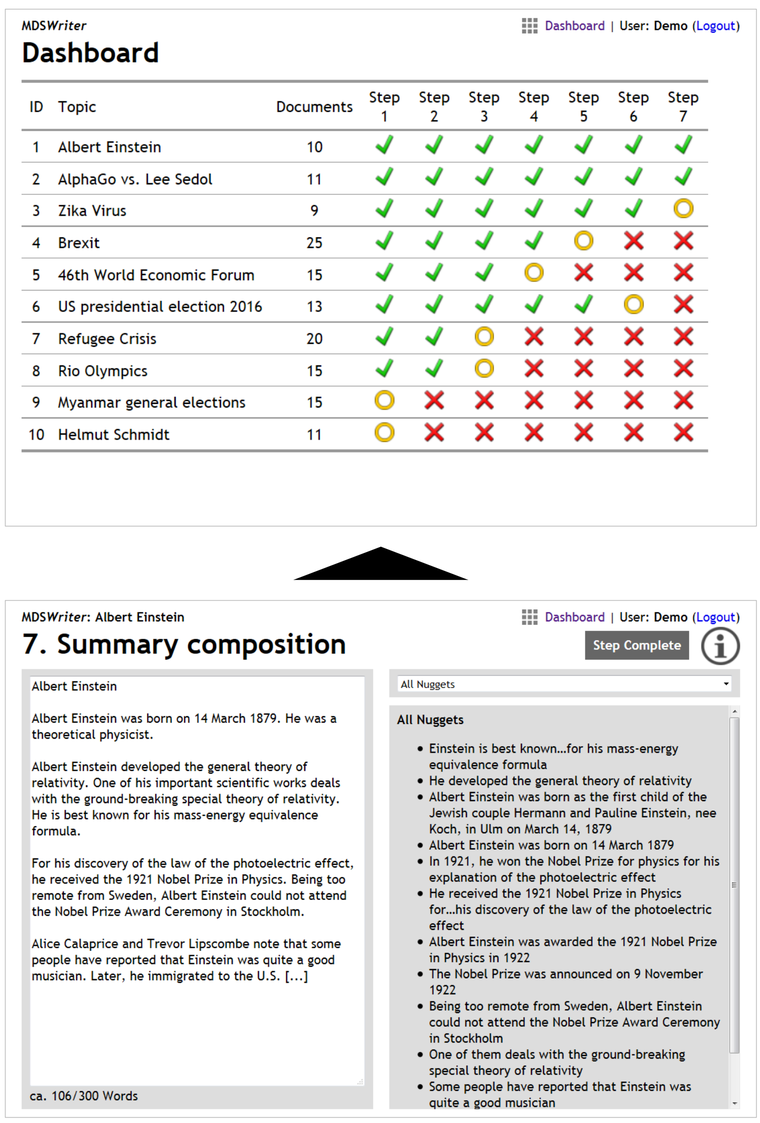
- Corpora are crucial for training and evaluating automatic methods
- Existing corpora limited in terms of size, domains, genres, languages

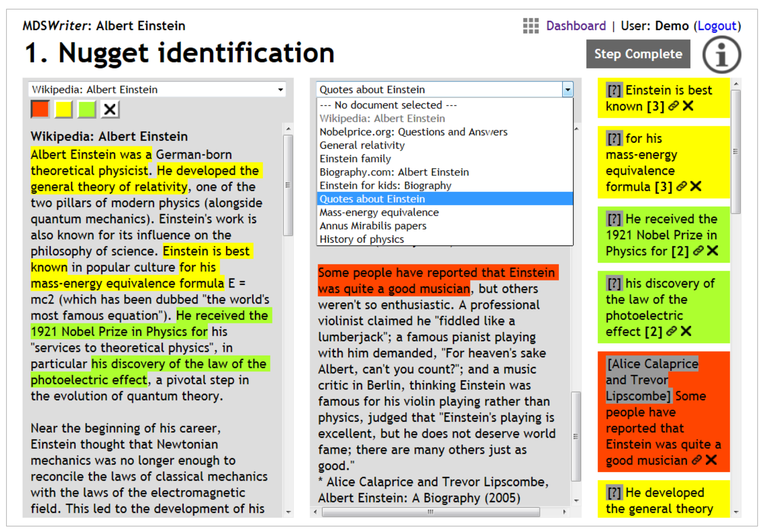
➠ **We need summarization corpora!**

- Summarization is one of the most challenging NLP tasks, as it requires solving multiple subtasks, incl. content selection, redundancy removal, coherent writing
- Existing corpora focus on a single subtask (e.g., the final summary text), which prevents us from evaluating intermediate steps
- Currently no freely available tools for modeling a complex multi-document summarization setup and storing intermediate results and system–user interactions

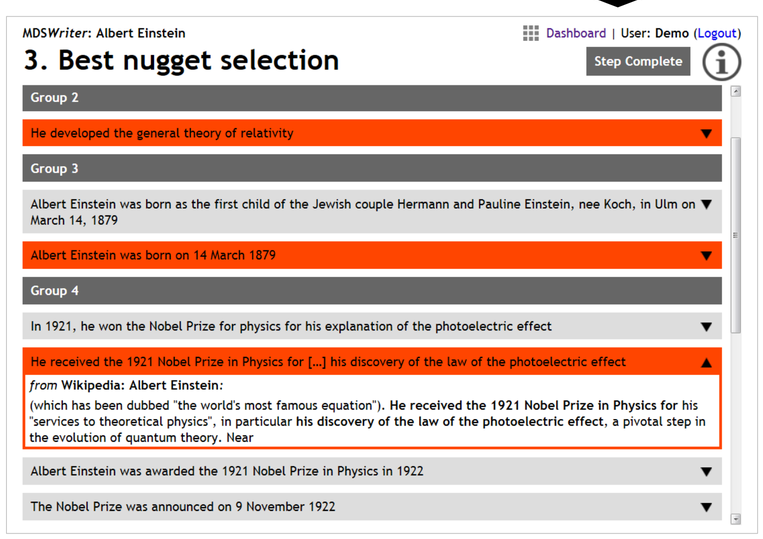
➠ **We need tools for complex annotation setups!**

Prototypical Annotation Workflow

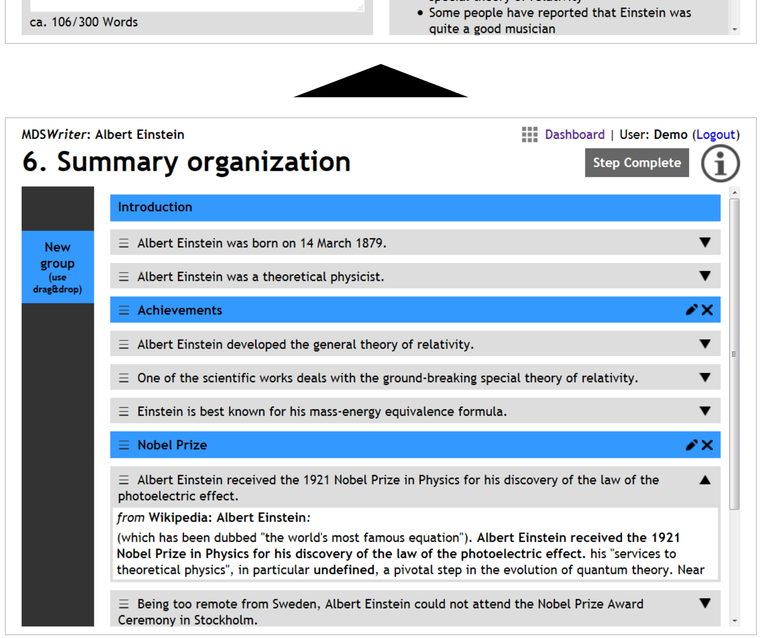


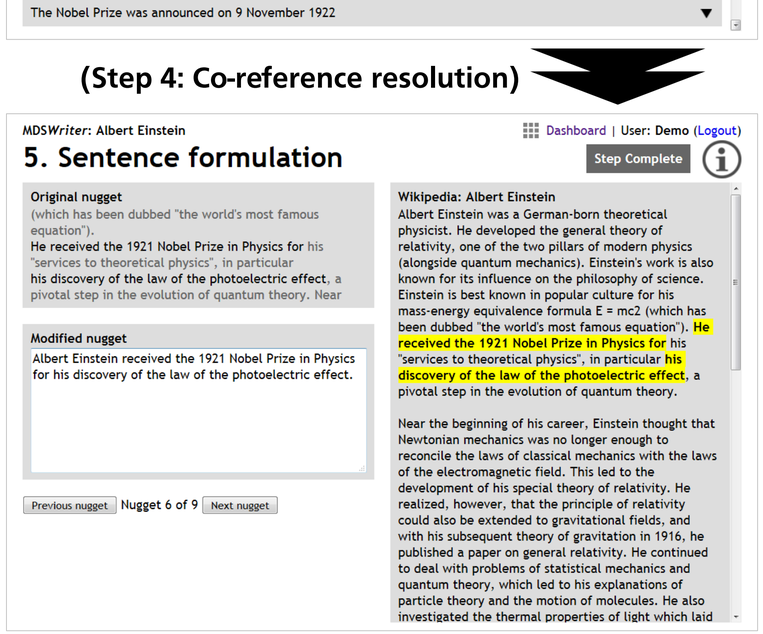


(Step 2: Redundancy detection)



(Step 4: Co-reference resolution)





Summary

MDS *Writer* is an open-licensed software for designing complex annotation setups with multiple steps. It is particularly useful for the creation of summarization corpora.

Highlights:

- **Divide complex annotation setups into multiple steps**
- **Support cross-document tasks such as multi-document summarization**
- **Link annotation tool and guidelines to support human annotators in creating high-quality corpora**
- **Separately store results of intermediate steps and system–user interaction**
  - **Improve evaluation of automatic summarization methods by assessing intermediate results**
  - **First step towards our vision for next-generation summarization systems that learn the human summarization *process* rather than only replicating its *result***
- **Easy to extend to other summarization setups and other cross-document tasks**
- **Available as open-source software from GitHub under the Apache License (ASL)**
  - **https://github.com/UKPLab/mdswriter**

Extensibility

- MDS *Writer* is flexible to deviate from our prototypical annotation workflow:
  - Define the steps of your own workflow, create and test annotation guidelines
  - Add, modify, or reorder existing steps
  - Extend i18n if necessary (currently: en/de)
- Enables a wide range of complex annotation setups such as:
  - Summarization (single- and multi-document, structured and opinionated summaries,...)
  - Information extraction (separate steps for entity, event, relation identification)
  - Text compression (sentence fusion, subclause removal, co-references, lexical substitution,...)
  - Cross-document discourse structure annotation

Technology

- Java/JSP and JavaScript
- Multi-user, multi-step, multi-doc. support
- Individual user actions sent to server application in real-time based on WebSockets connection
- Results stored in SQL database
- Simple text-based protocol allows for easy and fast extensions

MDS *Writer* – https://github.com/UKPLab/mdswriter
Source code, documentation, annotation guidelines, video tutorial

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