



# Adapting a system for Named Entity Recognition and Linking for 19th century French Novels

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# Adapting a system for Named Entity Recognition and Linking for 19th century French Novels

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- **Annotation and linking of Named Entities in novels** - People, Places, or other proper names; important task for Digital Editions, Digital Literary Stylistics and Spatial Humanities

- **Create a pipeline for French Literary Texts of the 19th century**  
For “Paris Time Machine” Huma-Num consortium

## Corpus:

- ❑ first two chapters of *Le Ventre de Paris* (Zola, 1873)
- ❑ first chapter of *Cesar Birotteau* (Balzac, 1837)
- ❑ the size is 30,889 words

**Named Entity Recognition and Classification with SEM (Dupont, 2017)**, a machine learning system based on conditional random fields (CRF)

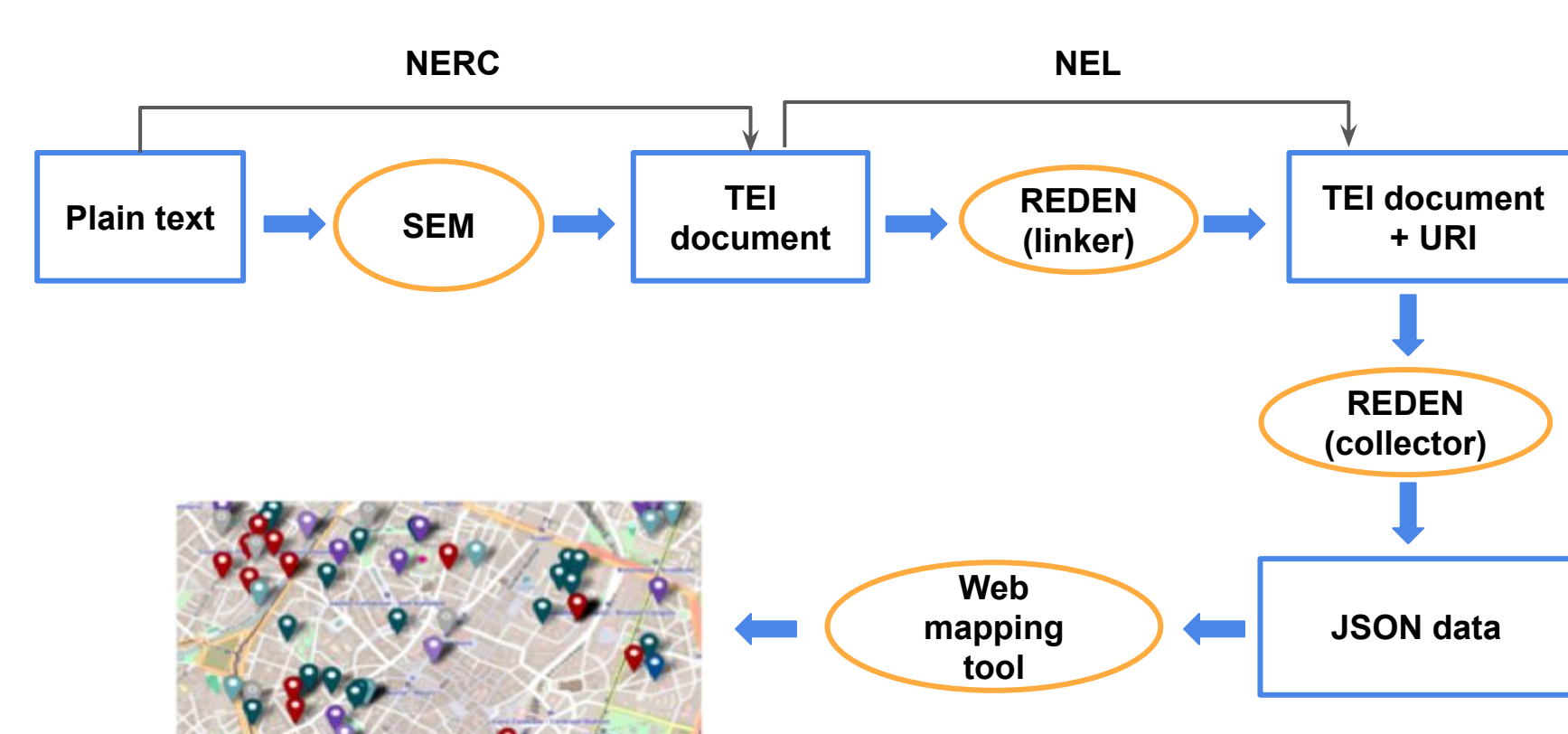


## Named Entity Linking with REDEN (Brando et al., 2016; Frontini et al., 2016):

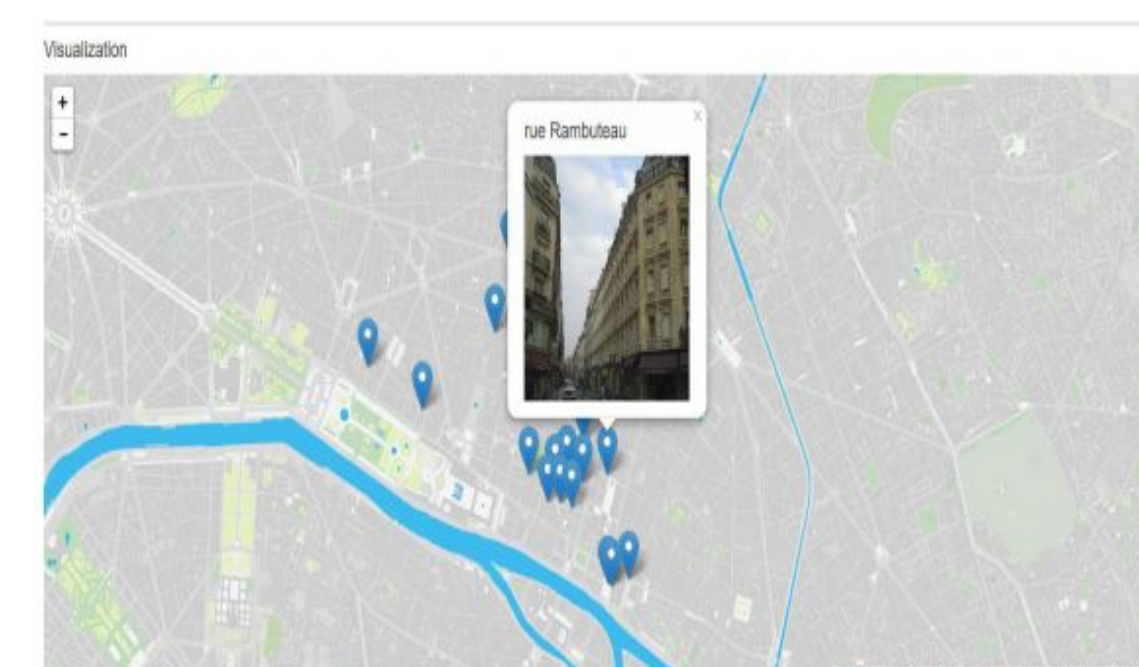
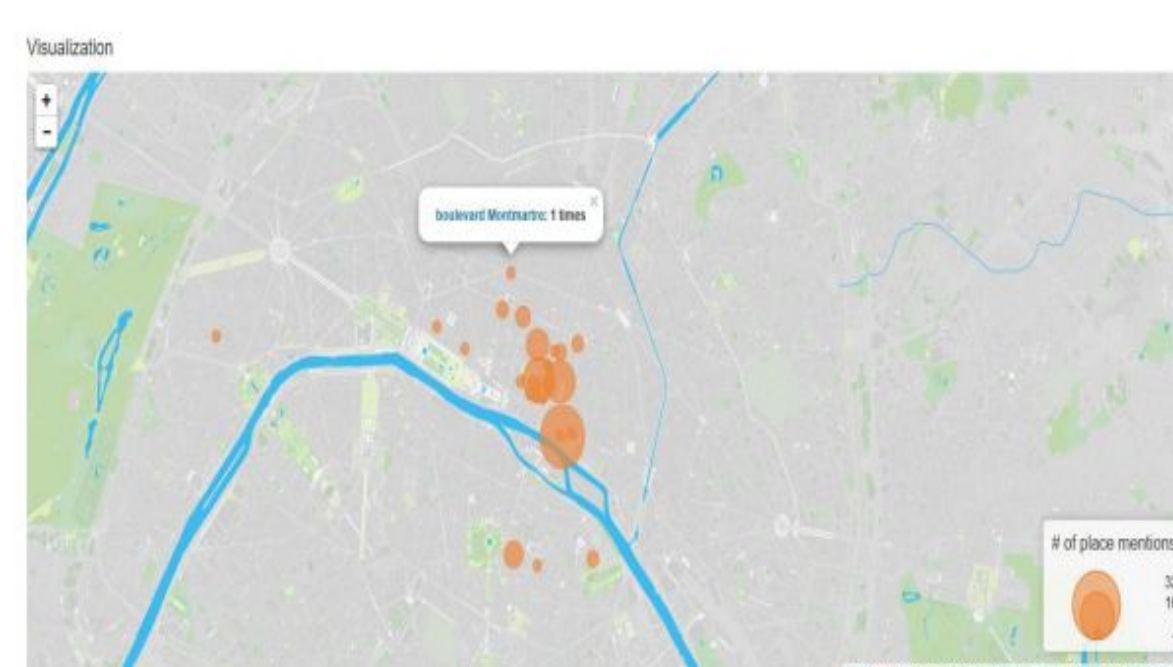
- ❑ graph-based algorithm and Semantic Web technologies
- ❑ composed of two phases, candidate retrieval and disambiguation



## The overall Pipeline



## Visualisation output



By dereferencing IRIs, it is possible to access values for the aforementioned properties and use them in the context of a Web mapping application

## SEM Evaluation

**SETUP 1** - training on the first chapter of Zola and test on the second one

**SETUP 2** - training on the Zola subcorpus and test on Balzac

	Setup 1	Setup 2
Precision	1	0,7
Recall	0,69	0,26
F-measure	0,82	0,38

- ❑ The model trained on one chapter performs well on another; however we notice an important drop in performance when the model trained on one novel is applied on the other
- ❑ This bears important consequences for our ongoing work to constitute an adapted NERC model for 19th century French novels

## Results and future work

Annotated dataset is publicly available



We plan to increment the French corpus in connection to other initiatives

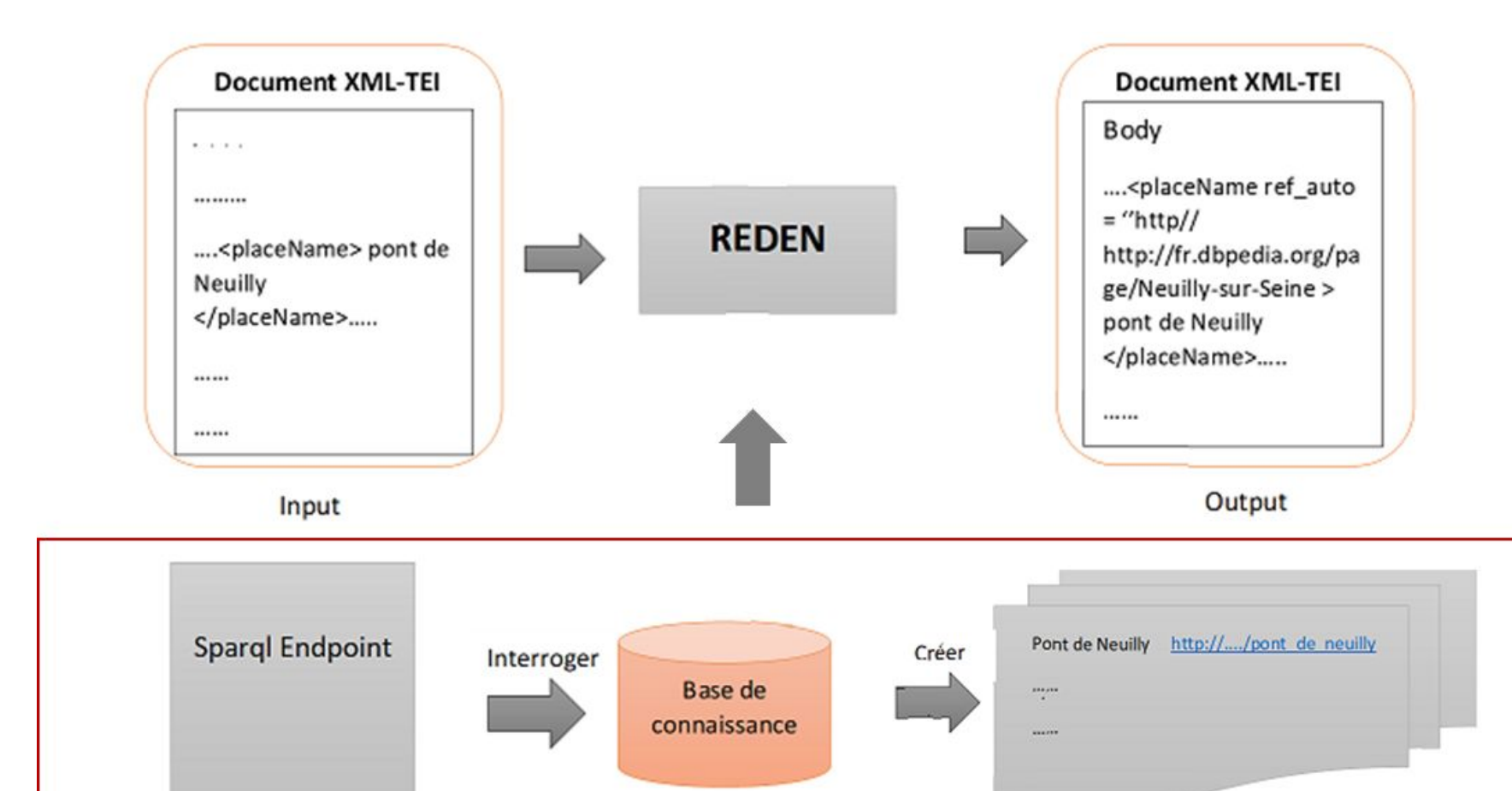
Labex OBVIL & COST ACTION Distant Reading for European Literary History - the French European Literary Text Collection (ELTeC)

## The test and training set

Mentions	LVDP	CB
Persons	257	533
Places	187	41

- ❑ Inter-annotator agreement of 0,91 (F-measure)
- ❑ An Internationalized Resource Identifier (IRI) was added for those place names for which a reference existed.

## REDEN Setup and Evaluation



KB	Overall linking accuracy
DBpedia	0,834
BNF	0,7
Wikidata	0,85

- ❑ REDEN was tested on the task of referencing *placeNames*, using three different KBs. Wikidata is the best KB in terms of overall accuracy
- ❑ BnF is a more accurate source of information for **old place names** (e.g. it records the older name “château de Bicêtre” for the “fort de Bicêtre”)
- ❑ candidate retrieval may fail due to spelling variations