Transparent NLP for the Digital Humanities: Processing Historical Texts

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Outline I

1. Example Project

2. NLP Transparency Issues
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Example Project

Chronicling novelty. New knowledge in the Netherlands, 1500-1850

Main applicants: Judith Pollmann, Erika Kuijpers
https://chroniclingnovelty.com/
After 1650 Europeans became more receptive to new technology and innovation than their ancestors

- this enabled the Enlightenment and Industrial Revolution

The spread of new knowledge and techniques among scholars and specialists between 1500-1850 is well-documented

Yet since acceptance by specialists does not guarantee wider acceptance, it is interesting to study how and to what effect, new knowledge actually anchored among the wider public
Investigating the **circulation and evaluation of new knowledge, ideas and technologies**

- among a non-specialist public of middle-class authors
- in the Netherlands
- by analysing handwritten **chronicles** created to record events and phenomena that were considered important by the author.
Data

Chronicles (1500-1850)

- Non-institutional character
- The content has a strictly chronological organization
- Describe a period that may start in an (ancient) past but that evolves into an account of events occurring during the lifetime of the author
- Focus on public life in the local community of the author
- Historical or public events and collective experience are the main topic, not the person or autobiography of the author

Corpus: 200 digitalised chronicles
Over het begin van Gent. Afbeelding uit de kroniek van Gillis de Voocht ca. 1610
Main Questions

- What knowledge is considered collectible and why?
- What are the authors’ sources of authority?
- Do these change as the flow of information increases?
- What do chroniclers do with contradictory information?
- How do people appropriate, reproduce and structure knowledge?
- How does new knowledge acquire epistemic and moral authority?
- Does it replace or complement old knowledge?
- How do the information-flows and new ideas affect people?
- Does local knowledge become less important?
- Does increased exposure to the new make people less or more averse to novelty?
Outline

1. Example Project

2. NLP Transparency Issues
There are many interesting historical questions and data

There are many NLP tools that can be used or adapted to process historical texts

However,

- Not all the tools are known to DH researchers
- A lot of the tools are not off-the-shelf and not easy to use
- Most of the tools are black boxes for non-experts
  - not obvious what they do and how they do it
  - not clear how reliable they are and what type of errors they make
    (evaluation)
- Given a DH research question, it is not easy to determine which NLP tools or methodologies can be applied
- The NLP field evolves rapidly, difficult to keep up
Questions

- How much do DH researchers need to know about NLP to feel comfortable in using it as a "standaard" methodology?
- How much interaction does it need to be between DH researchers and the NLP community about the need for transparent NLP?
- Can the NLP community provide transparent tools to DH researchers?
- What is more desirable, to provide easy-to-use tools or tools that are complex but transparent?
- **What is a “transparent” tool?**
Transparency Requirements from a DH Perspective

- Clear definition of what the tool does, explained for NLP non-experts
- Accompanying tutorials to show how the tool can be used
- Explanation for non-experts about the methodologies implemented in the tools
- Detailed technical documentation about the methodologies implemented in the tools
- Clear information about how the tool is evaluated and what is its performance
- Documentation about error analysis of the tool
- Explanation about how to interpret the results
- Visualization of output
DH scholars should be able to use the tools,
but more importantly, they should also be able to understand the complexity of the tools,
and, essential, they should be able to understand how the errors that the tool makes can interfere with finding answers for their research questions.

DH scholars should have enough information to
- make informed choices about the tools they use
- make a critical evaluation about how the errors and bias of the tool can influence their conclusions
The End

Thanks for your attention!