

Research Questions

- Question 1: How can we apply available **corpora** of classical texts for the **acquisition of Latin** at school?
- Question 2: How can we systematically obtain **lexical information** from problematic texts suitable to enhance the acquisition of Latin **vocabulary**?
- Question 3: What are the criteria of a user-friendly **software** in a **teaching/learning** environment?
- Question 4: How can we model digital language **exercises** according to the requirements of a **cognitive progression** design?

Introduction

- **Current state** of vocabulary learning in high-school Latin classes:
 - **Infrequent** vocabulary-centered input
 - Methodologically **not adapted** to recent technical developments (digitization)
 - Usually based on core vocabularies that are **not scientifically recognized**

Aim

- Technical framework for **vocabulary learning** in Latin:
 - Flexible, individualized exercises **on a regular basis**
 - Designed for **mobile devices** and learning environments, but also printable
 - Dynamic **corpus-based** vocabulary filter

Method

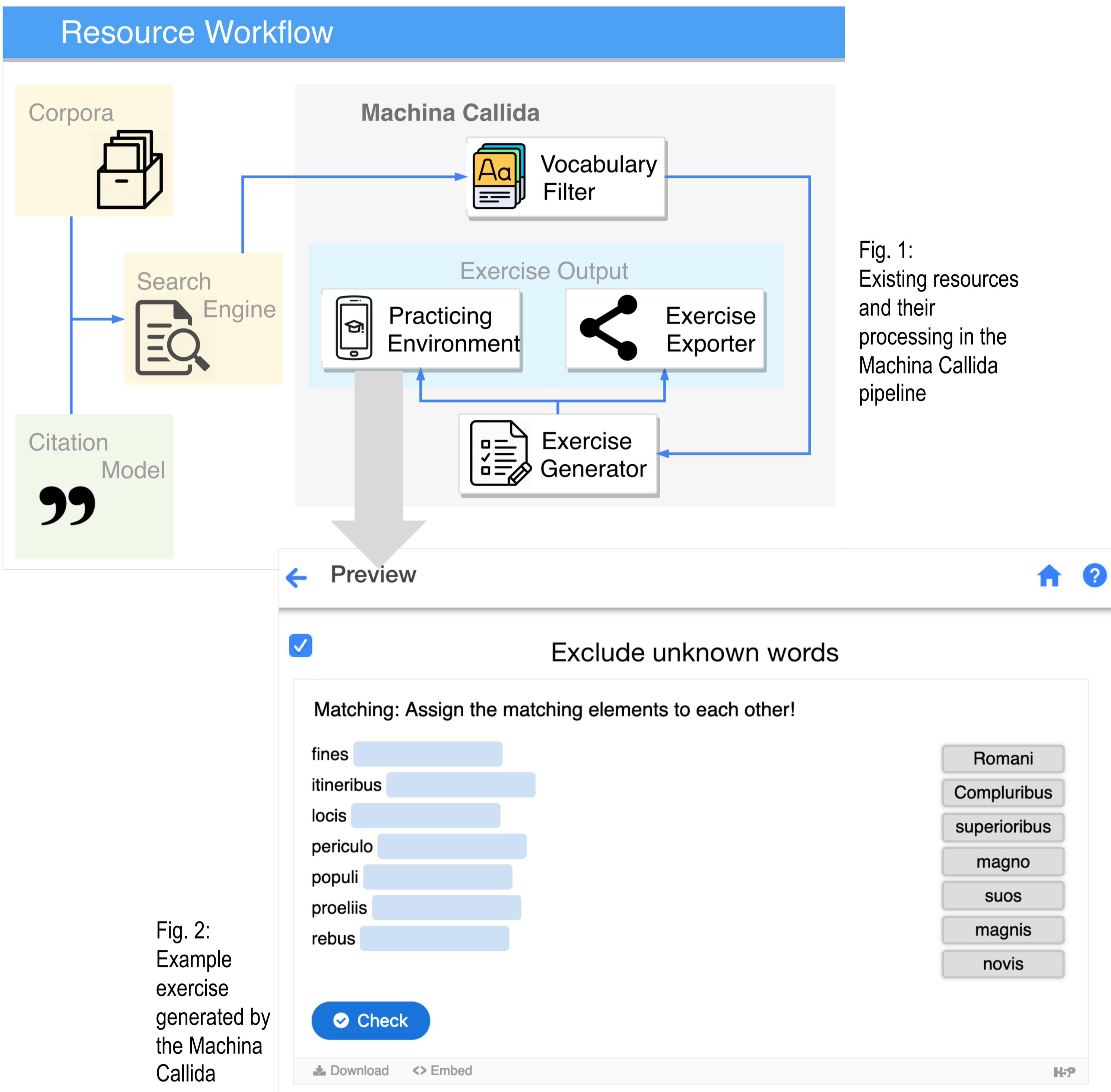
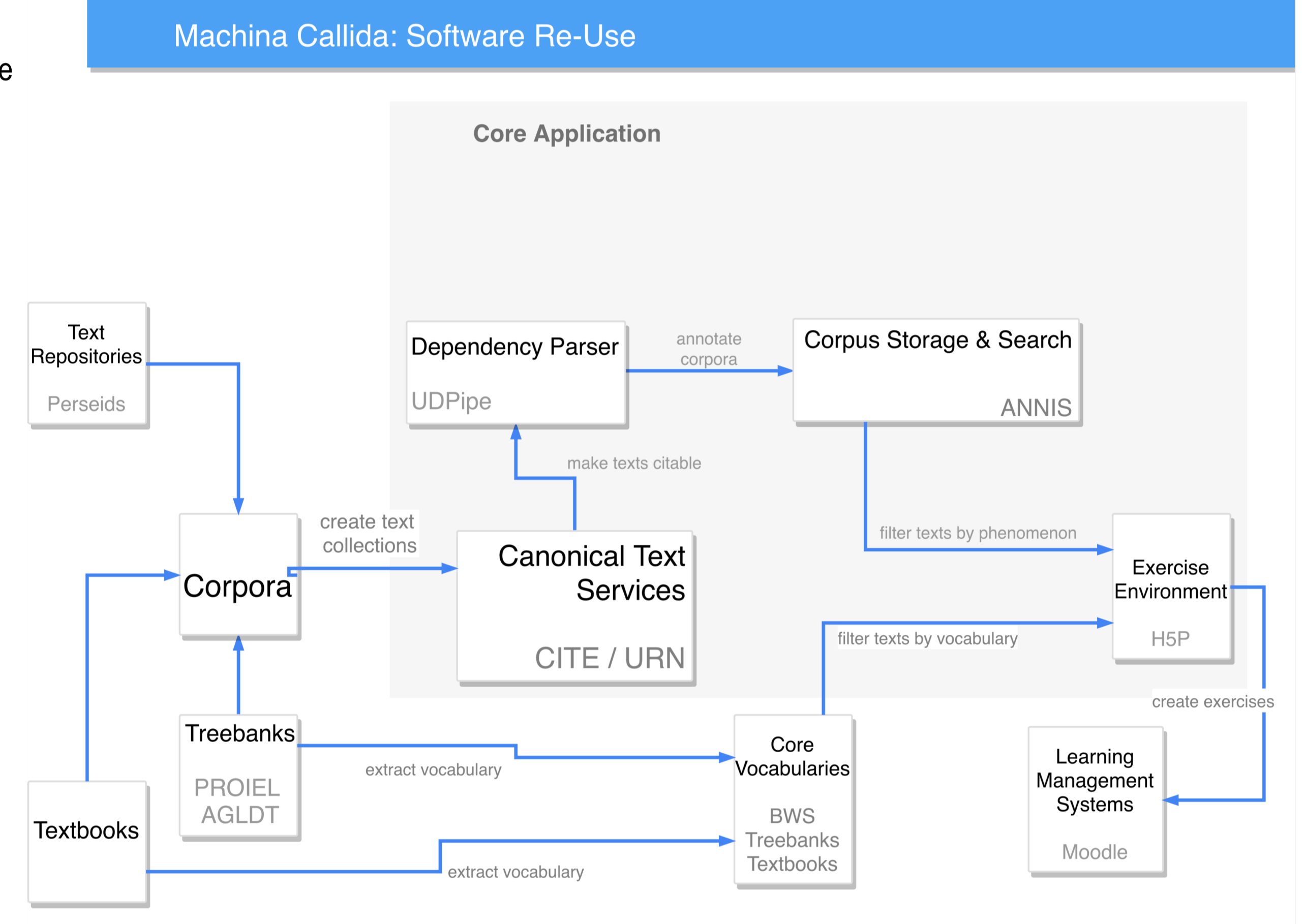


Fig. 3: Software Re-Use in the Machina Callida



Machina Callida is...

- **Modular:** server interface easily extendable by new functionality
- **Mobile:** hybrid web application that supports mobile learning
- **Efficient:** graph databases for corpus storage and search
- **Sustainable:** installation as container for increased stability and comfort
- **Collaborative:** open source code using common languages and frameworks
- **Shareable:** free license (MIT)

Results

- Machina Callida already...
- generates interactive **cloze** and **matching** exercises
 - provides exercises with increasing degrees of **complexity**
 - exports exercises to various **platforms** (mobile, learning management systems, print)
 - applies **language filters** using pre-defined or custom vocabularies
 - **annotates** Latin texts dynamically with a range of phenomena: morphology, lemma, part of speech, syntactic dependencies
 - **visualizes** syntactic information
 - extends its **citation** model to custom corpora, e.g. textbooks or treebanks

Prospects for future research

- Treebanks: work pretty well for creating exercises, but only very **limited amount of texts**
- **Challenges:**
 - Handling of words with **identical spelling** in exercise solutions
 - **No direct feedback** or hinting (yet) in the Machina Callida
 - **No hardware** for manual testing (tablets, mobile phones etc.)
 - **Low accuracy** in existing dependency parsers
 - **User Interface** not (yet) well-designed

References

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