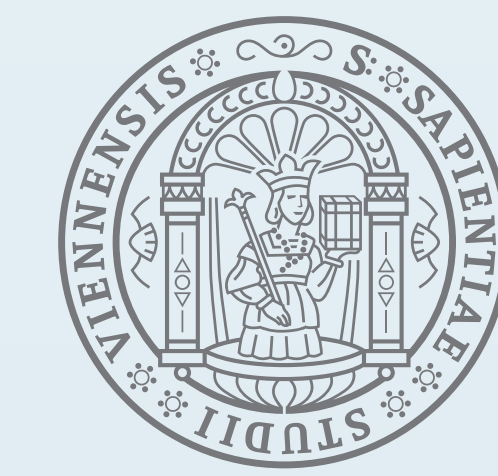# VOLARE – Visual Ontological LAnguage REpresentation

Werner Winiwarter
werner.winiwarter@univie.ac.at

universität wien

1. Introduction

- We introduce a novel meaning representation, which is based on AMR but extends it towards a visual ontological representation

- We visualize concepts by representative images, and roles by emojis

- All concepts are identified either by PropBank rolesets, Wikipedia page titles, WordNet synsets, or Wikidata lexeme senses

- We have developed a Web-based annotation environment enabled by augmented browsing and interactive diagramming

- We have implemented a multilingual annotation solution by using English as anchor language and comparing it with French and Japanese versions

- We have extended our representation by a translation deviation annotation to document the differences between the language versions

- The intended user groups are, besides professional translators and interpreters, students of translation, language, and literary studies

- We describe a first use case in which we use novels by French authors and compare them with their English and Japanese translations

- The main motivation for choosing Japanese is the soaring popularity of Japanese courses at our university and the particular challenges involved with trying to master this language

2. Related Work

- **Meaning Representations**: AMR (Banarescu et al., 2013), SPRING parser (Bevilaqua et al., 2021), WISeR (Feng et al., 2023), CAMRA annotation tool (Cai et al., 2023), UMR (Gysel, et al. 2021)

- **Multimodality**: ImageNet collection (Deng et al., 2009), Wikipedia, BabelNet (Navigli et al., 2021) with annotation tool Babelfy (Moro et al., 2014) and BabelPic dataset (Calabrese et al., 2020)

- **Translation Deviations**: Deviation analysis of Chinese-English MT texts (Deng and Xue, 2017), MT documents with annotated translation errors (Fishel et al., 2012), English-French-Chinese corpus annotated with translation relations (Zhai et al., 2018)

- **Japanese Language**: Research on Japanese linguistics (see Hasegawa, 2015, 2018), JMdict (Breen, 2004), OMW (Bond and Paik, 2012), CaboCha dependency parser (Kudo and Matsumoto, 2002), trained pipelines for SpaCy
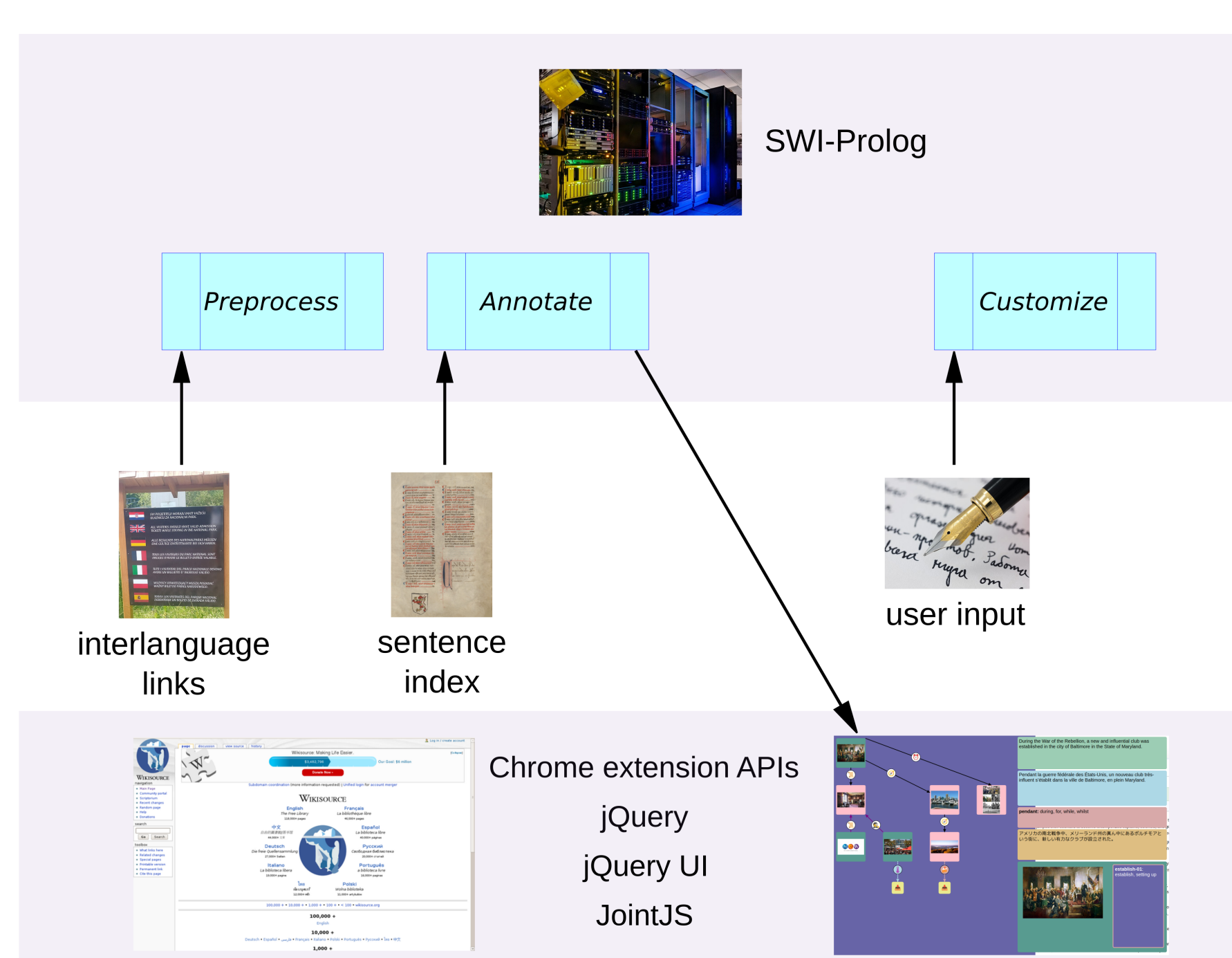
3. User Interface
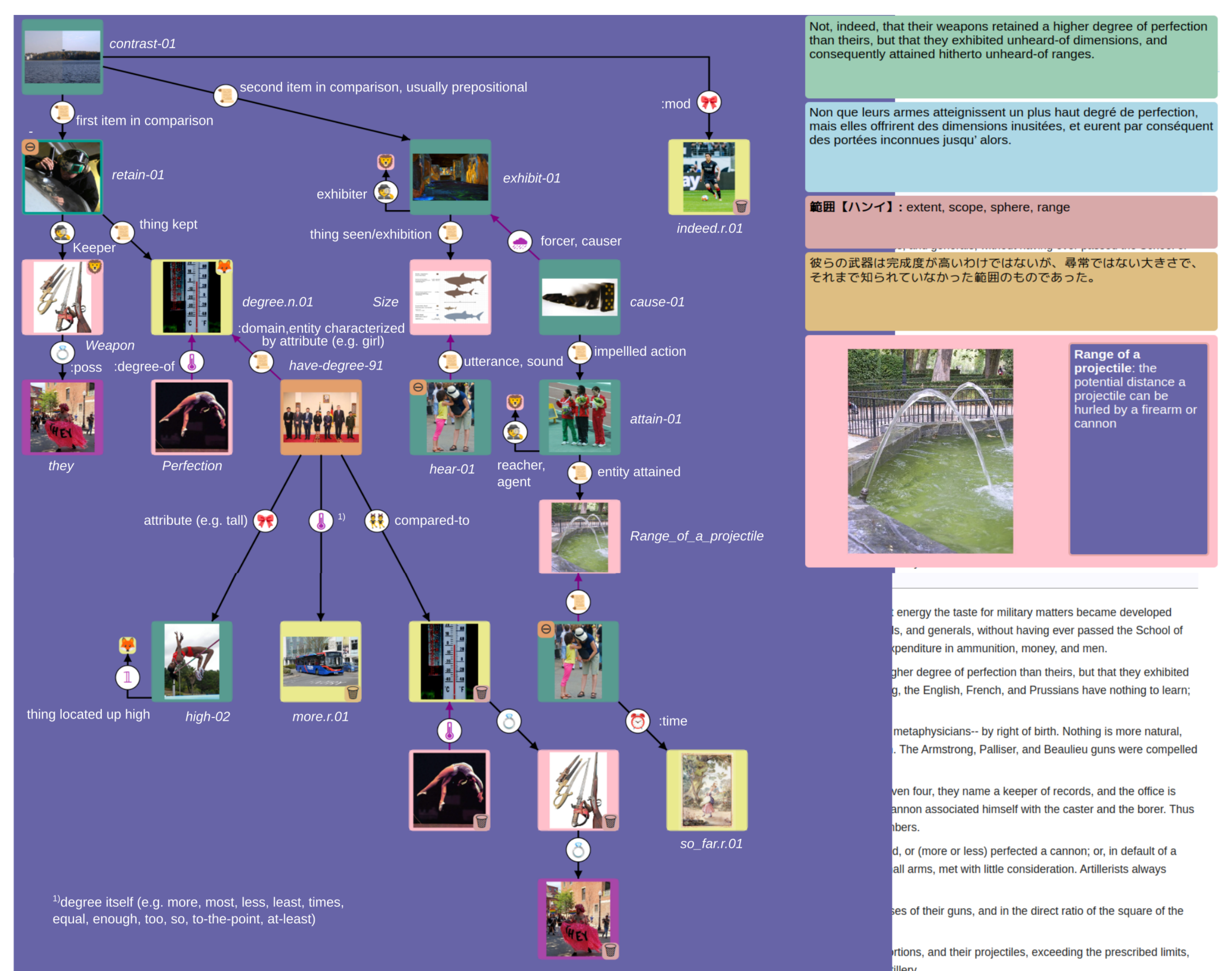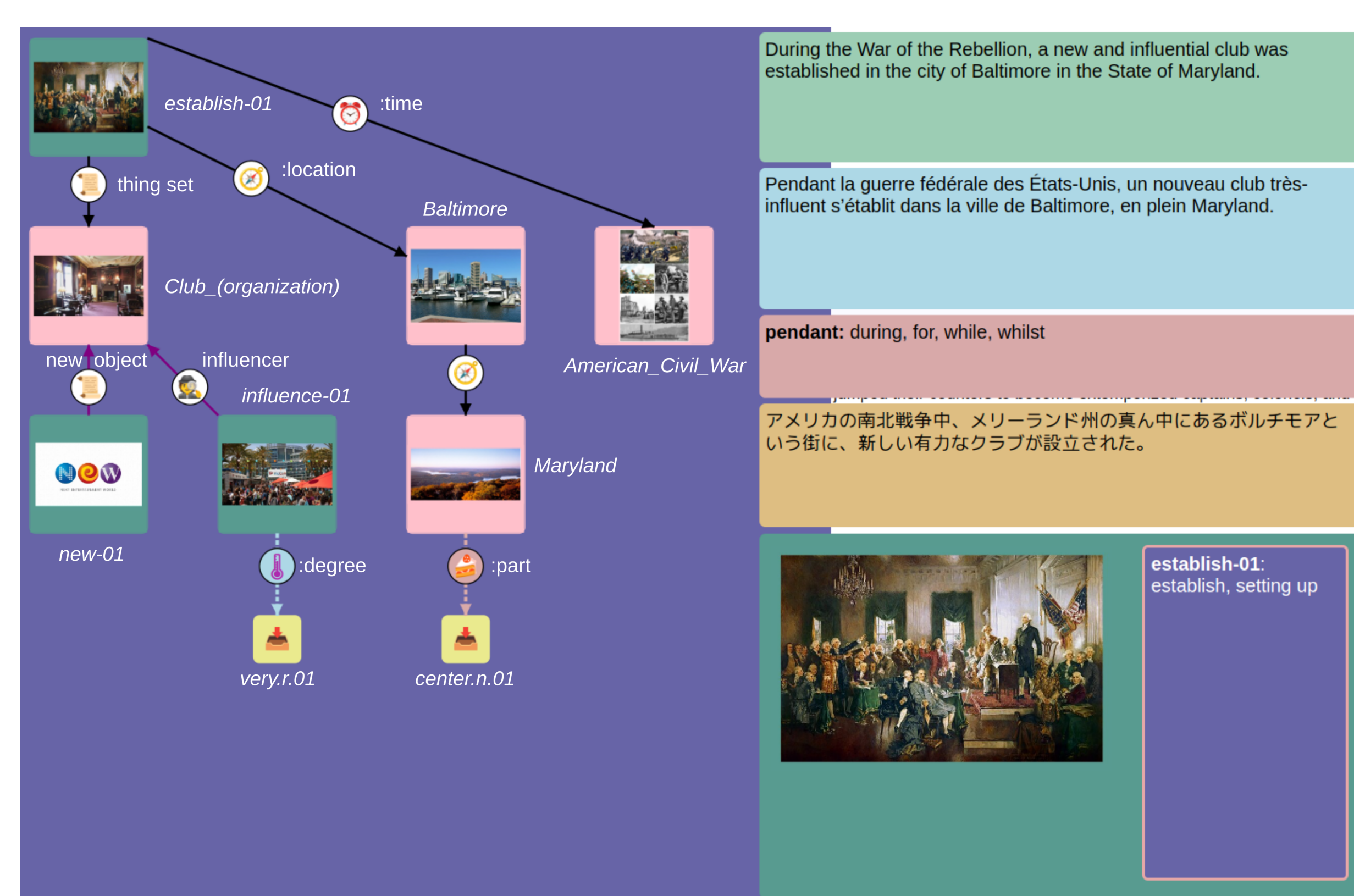
4. Complex Substitution
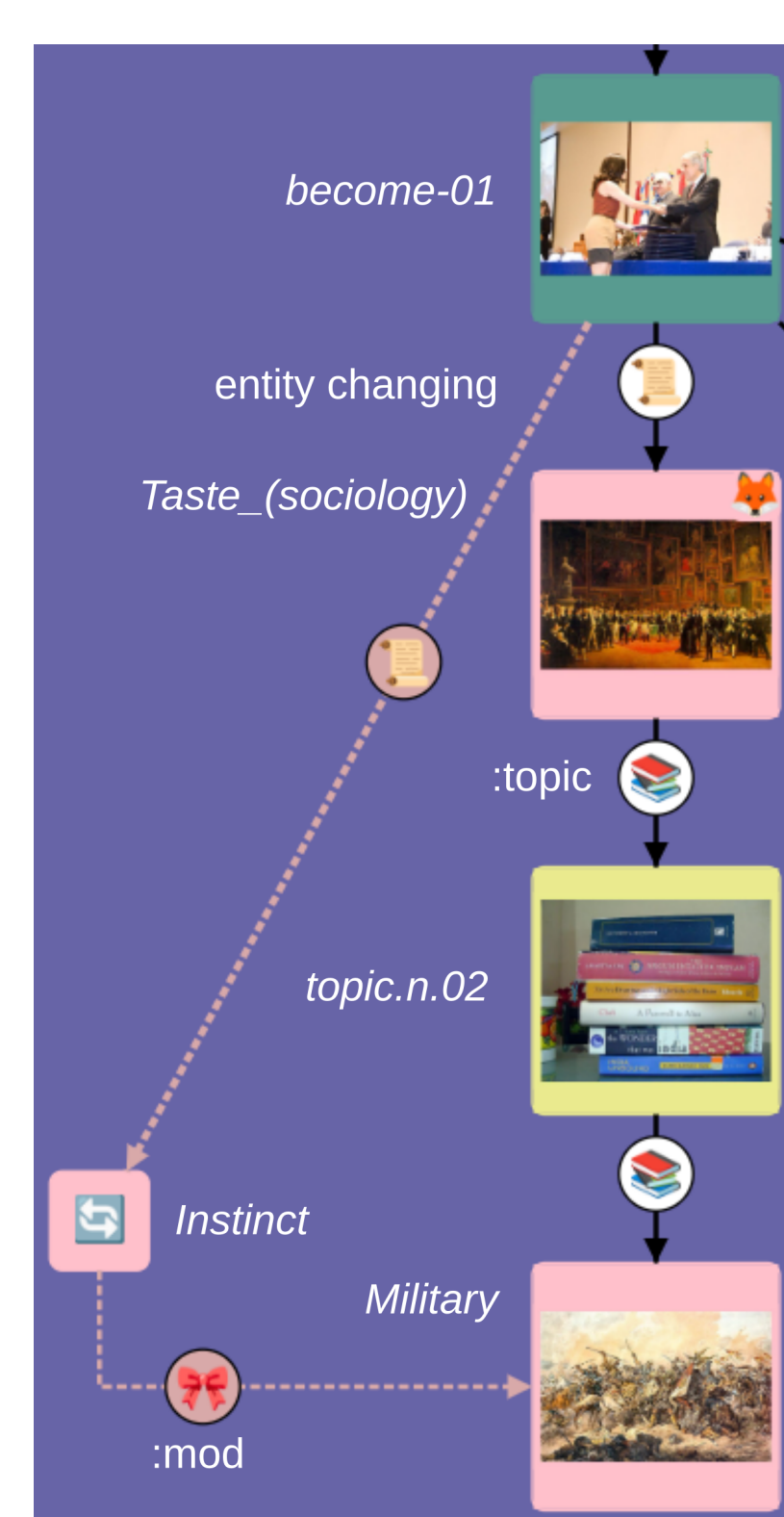
5. System Architecture

6. Future Work

- Evaluation with several volunteer professional translators and interpreters

- Based on results and user feedback further improvement of our system

- Annotation guidelines for the users

- Classroom scenarios in university courses to investigate the educational benefits

- Extension to other/additional languages

- Switch foundation to UMR