UNIVERSITY OF PASSAU

MULTILINGUAL DOMAIN ONTOLOGIES OF RHETORICAL FIGURES AND THEIR APPLICATIONS
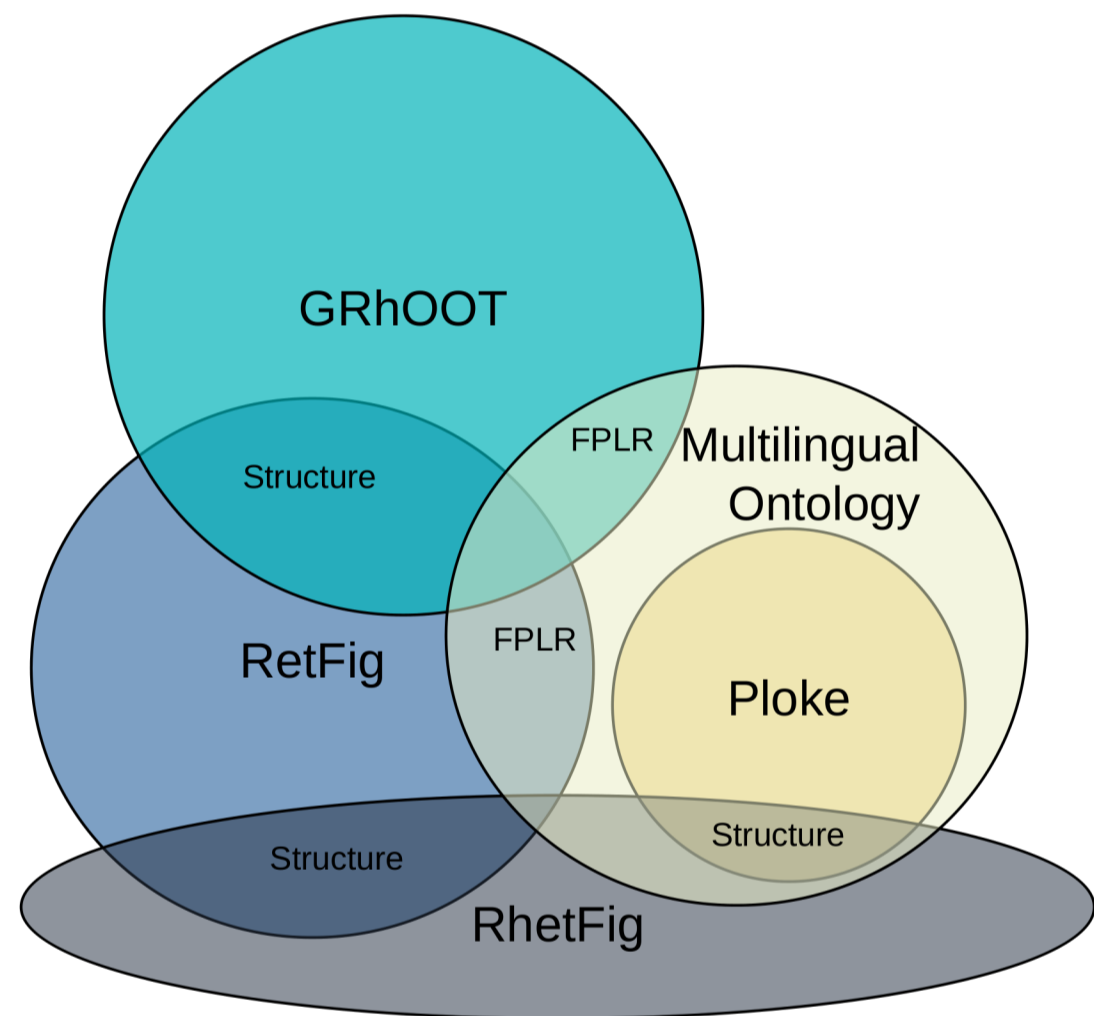
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INTRODUCTION

Rhetorical figures add **flavor to language**, making it more interesting, memorable, or persuasive. Considering features of rhetorical figures leads to a better performance of several NLP tasks, such as **hate speech detection, text summarizers**, or **argument mining**.

However, a machine-readable formal description of rhetorical figures is missing to automatically create annotated datasets. To fill this gap, we created **formal domain ontologies of rhetorical figures in different languages**. We also show different **applications** and how they can help annotate.

CONTRIBUTION

- *We created formal domain ontologies of rhetorical figures in different languages*
- *We present and compare rhetorical ontologies, especially in regard to their language: English, Serbian, German*
- *We show applications how those ontologies can support data annotation*

FPLR = Figures of Perfect Lexical Repetition

ONTOLOGIES OF RHETORICAL FIGURES

An ontology is a formal representation of knowledge. In our case, the ontologies represent knowledge from the domain of rhetorical figures. The **English RhetFig** [1] was the first description of how such an ontology could look like. The **Serbian RetFig** [3] was the actual implementation for rhetorical figures in Serbian. The **GRhOOT ontology** [2] is its adaption to the **German** language. The **English Ploke ontology** [4], which is also based on RhetFig, formalizes figures of perfect lexical repetition with a focus on cognitive aspects.

We combined all three ontologies (Serbian, English, German) to create a **multilingual ontology** [5] that benefits from the formal descriptions of RetFig & GRhOOT and the cognitive aspects of the Ploke ontology it is based on. The figure on the left shows how the ontologies are interlinked. An example of the ontology's properties is shown below for the figure "epizeuxis".

APPLICATIONS

The ontologies are a collection of information about rhetorical figures. In GRhOOT, a **decision tree** for the identification of figures of repetition was created. Experienced users can extract knowledge from the ontologies with the query language **SPARQL**, but it requires understanding of both the ontological structure (see figure on the right) and SPARQL.

We envision a **graphical application**: If users suspect a rhetorical figure in a sentence, they can select the **properties from the ontologies** in the application, e.g., repetition of a word in the beginning and end of a sentence. In the background, the properties are **converted into SPARQL** and executed on the ontology. Matching figures (i.e., name, examples, cognitive effects) are presented to the users, who can then **annotate** the sentence with the proper figure (here: "symploke").

In the future, we want to **further develop** the application, create **annotated datasets,** and build **similar ontologies** for other languages.
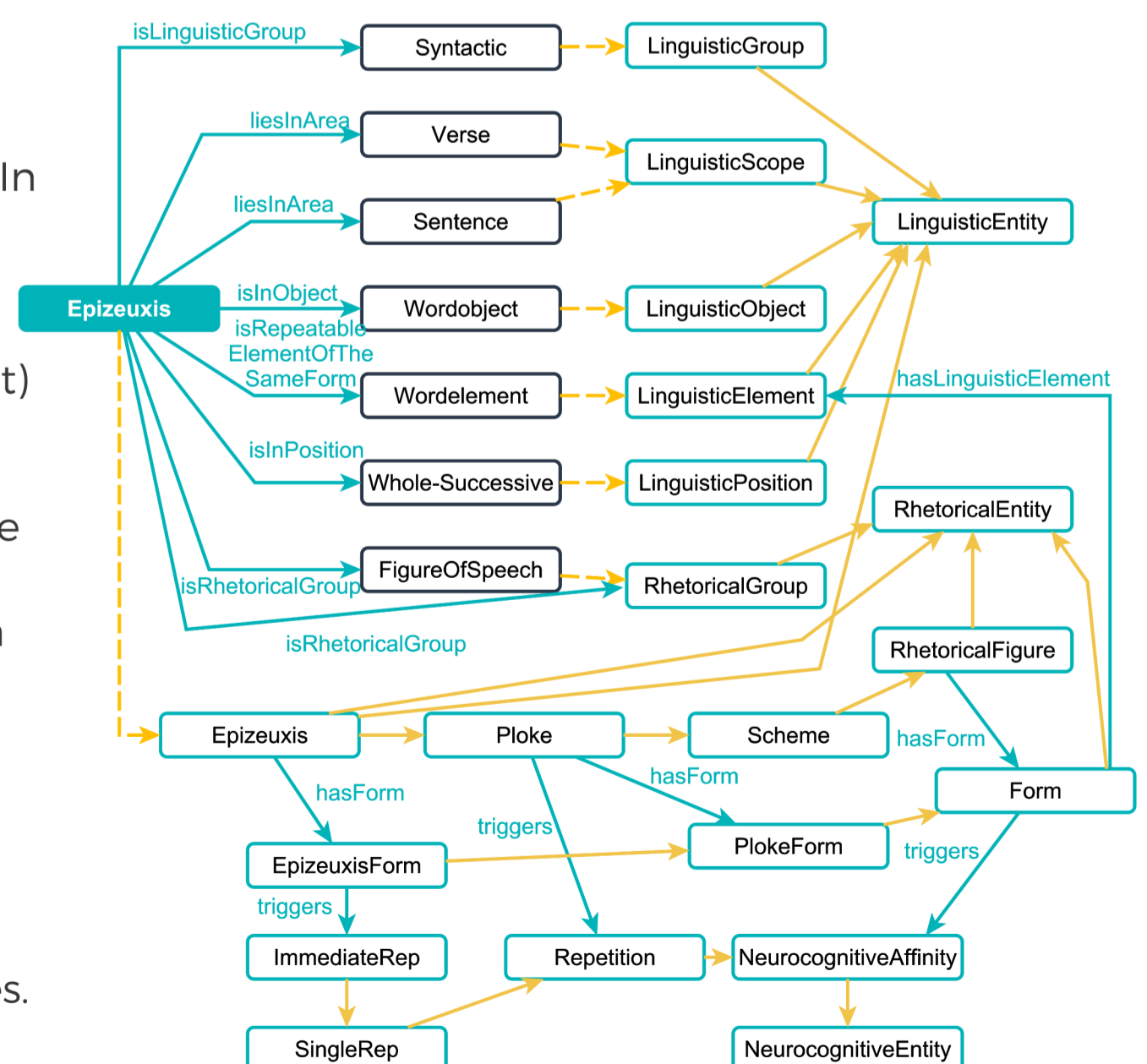
[1] Kelly, A. R., Abbott, N. A., Harris, R. A., DiMarco, C., & Cheriton, D. R. (2010, September). Toward an ontology of rhetorical figures. In Proceedings of the 28th ACM International Conference on Design of Communication (pp. 123-130).
[2] Kühn, R., Mitrović, J., & Granitzer, M. (2022, June). GRhOOT: Ontology of Rhetorical Figures in German. In Proceedings of the Thirteenth Language Resources and Evaluation Conference (pp. 4001-4010).
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