OECM: A Cross-lingual Approach for Ontology Enrichment

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Introduction

RQ: How can a target ontology (***T***) be enriched using another source ontology (***S***) in a different natural language?

- Given two ontologies ***S*** and ***T***, in two different natural languages L_1 and L_2.

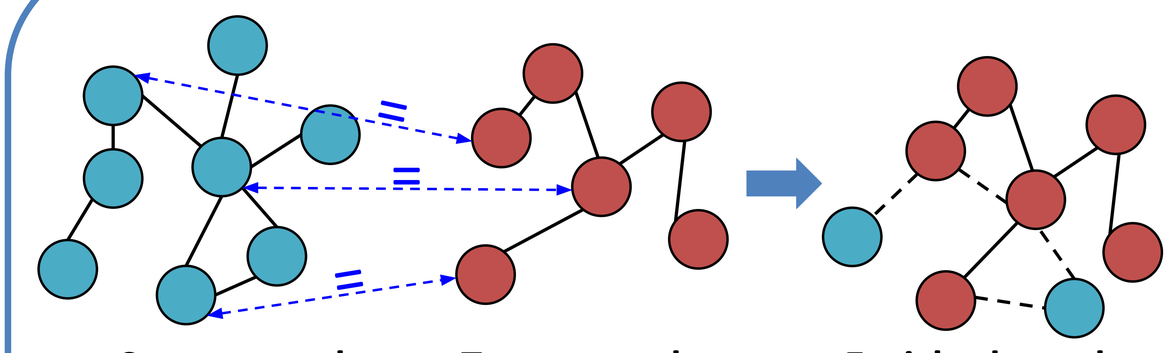
  Goal: Get the complementary information in ***S*** to enrich ***T***

$$\mathcal{T}_e = S - (S \cap T)$$

Features:

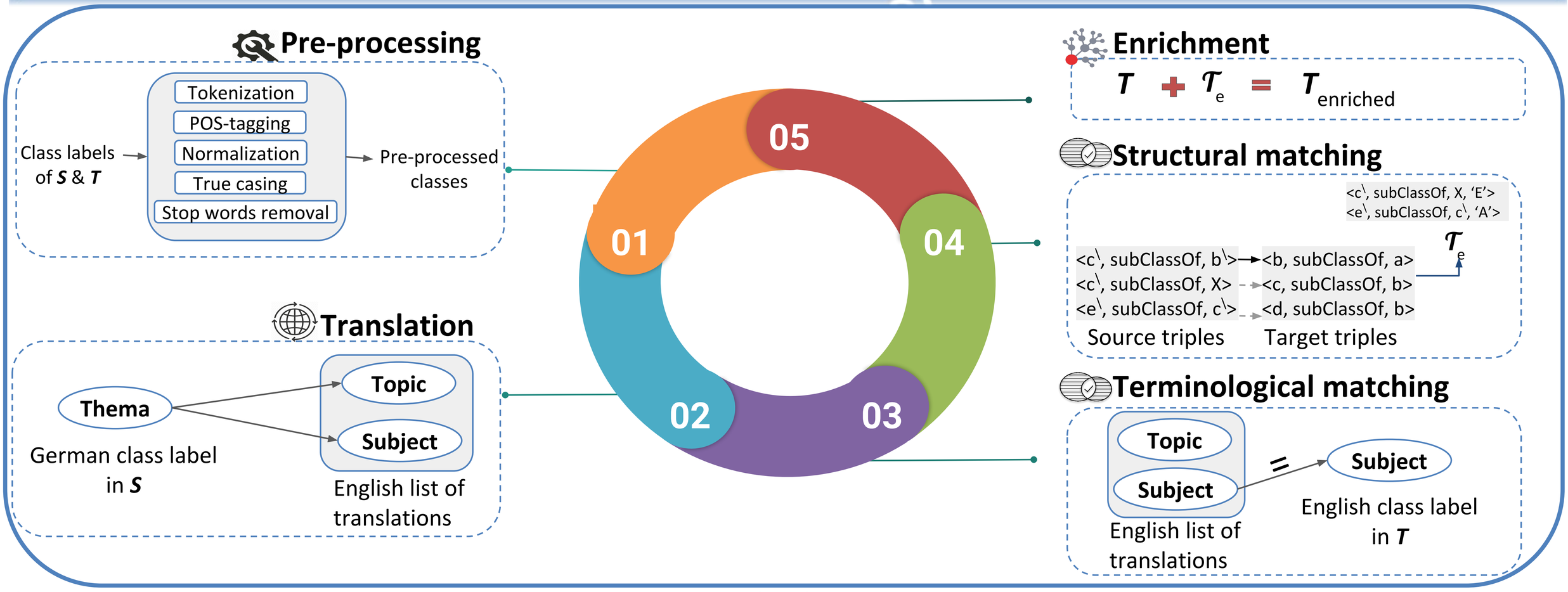
- Selecting the best translation between all available translations when matching classes among ontologies.
- Using ontologies as the source for the enrichment process.

Goal



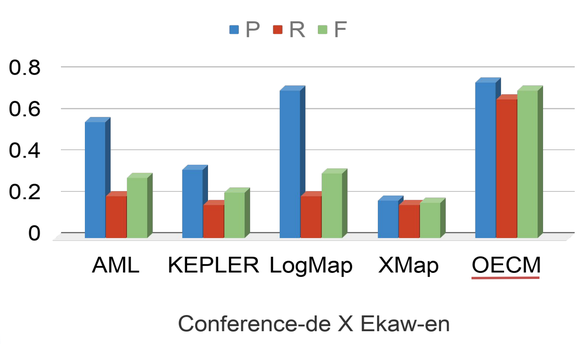
- OECM considers multiple translations for each concept

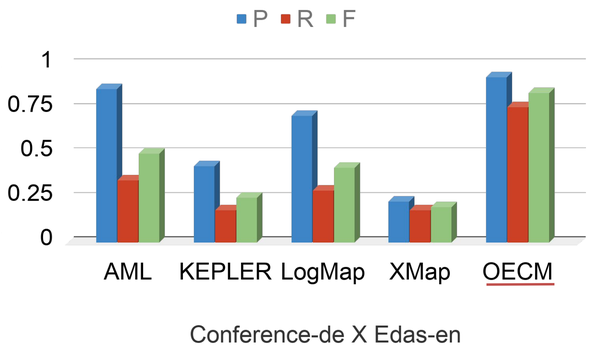
Methodology



Evaluation

- The MultiFarm benchmark is used to measure the quality of the cross-lingual matching process.
- OECM outperforms all other systems in terms of precision, recall, and F-measure.





Conclusion & Future Work

- OECM enriches ontologies using other ontologies in different natural languages.
- Selecting best translations among available translations significantly improves the quality of the matching process.
- OECM discovers new alignments, which were missing in the gold standard.
- We are investigating the usage of semantic similarity between terms in the matching process.
- We are planning to consider other non-standard semantic relations and individuals in the enrichment process.

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