Cross-lingual Inference with A Chinese Entailment Graph

Abstract:
This paper delves into the intricate realm of unsupervised predicate entailment detection, focusing on the challenges and opportunities presented in a cross-lingual environment. The primary goal is to unravel the inherent relationships between predicates in natural language, exploring how one statement implies another. The paper introduces a robust methodology that combines Chinese and English entailment graphs, showcasing a new state-of-the-art in unsupervised predicate entailment detection.

Introduction:
Unsupervised predicate entailment detection involves uncovering implicit relationships between predicates without labeled training data. This paper extends this task into a cross-lingual context, aiming to understand the subtle connections across different languages.

Methodology:
The methodology employs ensemble strategies between Chinese and English entailment graphs. Notably, the Ensemble AVG emerges as the most effective, demonstrating substantial improvement on the test set. Ablation studies confirm the importance of entity typing and the necessity of careful consideration in handling cross-lingual data, highlighting the significance of cross-lingual complementarity.

Key Findings:
1. The ensemble between Chinese and English entailment graphs sets a new state-of-the-art, outperforming both monolingual graphs.
2. Entity typing proves crucial for disambiguating predicates in entailment graphs.
3. Cross-lingual complementarity is a significant factor in the success of the ensemble, while the synonym effect from translation is marginal.

Implications and Future Directions:
The findings open avenues for future research:

1. Multilingual Entailment Graph Alignment: Exploring further improvements by ensembling strong entailment graphs in more languages.
2. Alternative Approaches for Predicate Disambiguation: Investigating different strategies beyond the current methodologies.

Conclusion:
In conclusion, the paper presents a comprehensive exploration of cross-lingual unsupervised predicate entailment detection. The success of the ensemble approach, coupled with insightful ablation studies, not only advances the current state-of-the-art but also provides valuable insights into the intricate dynamics of predicate relationships in natural language.