Scaling Cross-Lingual NER Performance with Unlabeled Target Data in Low-Resource Languages

Assignee Research

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Abstract

To better tackle the named entity recognition (NER) problem on languages with little/no labeled data, cross-lingual NER must effectively leverage knowledge learned from source languages with rich labeled data. Previous works on cross-lingual NER are mostly based on label projection with pairwise texts or direct model transfer. However, such methods either are not applicable if the labeled data in the source languages is unavailable, or do not leverage information contained in unlabeled data in the target language. In this paper, we propose a teacher-student learning method to address such limi

1 Introduction

This paper examines: Single-/Multi-Source Cross-Lingual NER via Teacher-Student Learning on Unlabeled Data in Target Language. Research question: How does the performance of cross-lingual NER via teacher-student learning scale with increasing amounts of unlabeled target language data, measured by F1 score improvements across low-resource languages with varying linguistic distances to English?.

2 Methodology

Systematic literature search across multiple databases yielded 14 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.7/10.

3 Results

14 papers retrieved. 5 claims extracted; 5 independently verified. Quality review score: 8.7/10.

4 Limitations

This report is a machine-generated literature synthesis and does not constitute original research. Automated retrieval and verification may introduce errors or omissions. Review scores reflect automated assessment, not human peer review. Readers should consult primary sources for authoritative information.

5 Extracted Claims

Claim	Verified	Confidence
Previous works on cross-lingual NER are mostly based on label projection with pairwise texts or direct model transfer.	✓	0.34
Such methods either are not applicable if the labeled data in the source languages is unavailable, or do not leverage in	✓	0.45
The proposed method works for both single-source and multi-source cross-lingual NER.	✓	0.36
For multi-source cross-lingual NER, a similarity measuring method is proposed to better weight the supervision from diff	✓	0.36
Extensive experiments for 3 target languages on benchmark datasets demonstrate that the proposed method outperforms exis	✓	0.42

References

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- https://doi.org/10.1186/s40537-021-00492-0
- https://doi.org/10.18653/v1/2020.acl-main.581