Cross-lingual Transfer Accuracy on XTREME-B with Logographic vs. Alphabetic Source Languages

Assignee Research

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Abstract

Naively assuming English as a source language may hinder cross-lingual transfer for many languages by failing to consider the importance of language contact. Some languages are more well-connected than others, and target languages can benefit from transferring from closely related languages; for many languages, the set of closely related languages does not include English. In this work, we study the impact of source language for cross-lingual transfer, demonstrating the importance of selecting source languages that have high contact with the target language. We also construct a novel benchmark

1 Introduction

This paper examines: CORI: CJKV Benchmark with Romanization Integration – A step towards Cross-lingual Transfer Beyond Textual Scripts. Research question: How does zero-shot cross-lingual transfer accuracy on XTREME-B vary when using non-English source languages with logographic scripts compared to alphabetic scripts?.

2 Methodology

Systematic literature search across multiple databases yielded 12 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.5/10.

3 Results

12 papers retrieved. 12 claims extracted; 11 independently verified. Quality review score: 8.5/10.

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
Current cross-lingual efforts concentrate on transferring from a single source language (EN) to multiple target language	✓	0.19
Cross-lingual transfer has been shown to be biased towards high-resourced languages which share similar scripts and poss	✓	0.28
Recent works attempt to bridge the gap between languages across different scripts by introducing phonemic transcription.	✓	0.21
The introduction of the International Phonetic Alphabet (IPA) to this process requires additional pre-training objective	✓	0.22
The work leverages natural Romanized transcriptions to capture phonemic properties.	×	0.13
Contrastive Learning (CL) has been widely leveraged as an effective representation learning mechanism.	✓	0.23
In Natural Language Processing (NLP), CL has been adopted in various contexts ranging from text classification to questi	✓	0.20
The work leverages two language modalities (orthographic and Romanized transcriptions) to generate multi-view augmentati	✓	0.23
The work encompasses a comprehensive set of Natural Language Understanding (NLU) tasks among CJKV languages.	✓	0.23
The work includes Sentence-level Task (PAWSX, XNLI) and Token-level Task (UDPOS, PANX) and Question Answering (XQuAD, ML	✓	0.24
The code and datasets are publicly available at https://github.com/nhhoang96/benchmark_cjkv.	✓	0.19
The benchmark results for EN to ZH include PAWSX Acc: 73.53 $\pm$ 6.86, XNLI Acc: 68.35 $\pm$ 2.05, UDPOS F1: 79.61 $\pm$ 5.24, PANX	✓	0.27

References

- http://arxiv.org/abs/2404.12618v1

- http://arxiv.org/abs/2009.05166v3
- http://arxiv.org/abs/2003.11080v5