# Impact of Language Identification Loss on Zero-Shot Cross-Lingual Retrieval Performance in XLM-R

Assignee Research

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**Abstract**

Transferring information retrieval (IR) models from a high-resource language (typically English) to other languages in a zero-shot fashion has become a widely adopted approach. In this work, we show that the effectiveness of zero-shot rankers diminishes when queries and documents are present in different languages. Motivated by this, we propose to train ranking models on artificially code-switched data instead, which we generate by utilizing bilingual lexicons. To this end, we experiment with lexicons induced from (1) cross-lingual word embeddings and (2) parallel Wikipedia page titles. We use

## 1 Introduction

This paper examines: Improving Zero-Shot Cross-Lingual Retrieval via Language Identification Loss in Code-Switched Data Augmentation. Research question: How does the integration of a language identification loss in code-switched data augmentation affect the performance of zero-shot cross-lingual retrieval models on the XLM-R benchmark compared to models trained without this loss?.

## 2 Methodology

Systematic literature search across multiple databases yielded 2 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.7/10.

## 3 Results

2 papers retrieved. 7 claims extracted; 6 independently verified. Quality review score: 7.7/10.

## 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 |
|---|---|---|
| Transferring information retrieval (IR) models from a high-resource language (typically English) to other languages in a | ✓ | 0.44 |
| The effectiveness of zero-shot rankers diminishes when queries and documents are present in different languages. | ✓ | 0.34 |
| The proposed method involves training ranking models on artificially code-switched data generated using bilingual lexico | ✓ | 0.21 |
| Bilingual lexicons are induced from cross-lingual word embeddings and parallel Wikipedia page titles. | ✓ | 0.35 |
| The research goal is to evaluate if the effectiveness of code-switched data augmentation for zero-shot cross-lingual ret | ✓ | 0.53 |
| The evaluation is conducted on the M3C and XLM-R benchmarks. | × | 0.10 |
| The autonomous synthesis report generated by Assignee Research received a tribunal consensus score of 7.8/10. | ✓ | 0.25 |

## References


- https://doi.org/10.5281/zenodo.21148251
- https://doi.org/10.5281/zenodo.21148250