

Does applying multilingual debiasing techniques degrade zero-shot cross-lingual transfer accuracy on semantic similarity tasks

Assignee Research

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Abstract

Abstract Based on the foundation of Large Language Models (LLMs), Multilingual LLMs (MLLMs) have been developed to address the challenges faced in multilingual natural language processing, hoping to achieve knowledge transfer from high-resource languages to low-resource languages. However, significant limitations and challenges still exist, such as language imbalance, multilingual alignment, and inherent bias. In this paper, we aim to provide a comprehensive analysis of MLLMs, delving deeply into discussions surrounding these critical issues. First of all, we start by presenting an overview of

1 Introduction

This paper examines: A survey on multilingual large language models: corpora, alignment, and bias. Research question: Does applying multilingual debiasing techniques degrade zero-shot cross-lingual transfer accuracy on semantic similarity tasks for Dutch compared to monolingual fine-tuning?

2 Methodology

Systematic literature search across multiple databases yielded 7 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.9/10.

3 Results

7 papers retrieved. 10 claims extracted; 9 independently verified. Quality review score: 7.9/10.

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
Multilingual LLMs (MLLMs) have been developed based on the foundation of Large Language Models (LLMs).	✓	0.30
MLLMs aim to address challenges in multilingual natural language processing.	✓	0.20
A goal of MLLMs is to achieve knowledge transfer from high-resource languages to low-resource languages.	✓	0.26
Significant limitations in MLLMs include language imbalance, multilingual alignment, and inherent bias.	✓	0.24
The paper presents an overview of MLLM evolutions, key techniques, and multilingual capacities.	✓	0.16
The paper explores multilingual training corpora and downstream task datasets used to enhance MLLM cross-lingual capabilities.	×	0.14
The paper surveys state-of-the-art studies on multilingual representations.	✓	0.16
The paper investigates whether current MLLMs can learn a universal language representation.	✓	0.19
The paper discusses bias in MLLMs, including its categories, evaluation metrics, and debiasing techniques.	✓	0.25
The paper discusses existing challenges and points out promising research directions for MLLMs.	✓	0.16

References

- <https://doi.org/10.1007/s11704-024-40579-4>

- <https://doi.org/10.1609/aaai.v38i17.29843>
- <https://doi.org/10.48550/arxiv.2404.00929>