

# Comparative Performance of Teacher-Student Cross-Lingual NER Models Versus Zero-Shot and Few-Shot Approaches on XLENT

Assignee Research

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## Abstract

Identifying user intents and their corresponding slots is the first step in the utterance interpretation pipeline of many task-oriented conversational AI systems. A multilingual system that does not adequately address unbalanced issues may provide unsatisfactory experiences for users who communicate in low-resource languages, limiting the system's usability. Since data collection of machine learning models for this task is time-consuming, it is desirable to make use of existing data in a high-resource language to train models in low-resource languages. However, the development of such models h

## 1 Introduction

This paper examines: A Benchmark of Zero-Shot Cross-Lingual Task-Oriented Dialogue Based on Adversarial Contrastive Representation Learning. Research question: How does the performance of teacher-student cross-lingual NER models compare to zero-shot and few-shot learning approaches on the XLENT benchmark when trained on diverse high-resource languages?.

## 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. 8 claims extracted; 7 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
Identifying user intents and their corresponding slots is the first step in the utterance interpretation pipeline of man	✓	0.33
The Cross-Lingual Task-Oriented Dialogue (CLTOD) Dataset is comprised of 19k annotated utterances.	✓	0.34
The CLTOD Dataset covers 10 low-resource languages.	✓	0.18
The CLTOD Dataset covers 12 intent types.	×	0.13
The paper proposes an Adversarial Contrastive Zero-Shot Learning for Cross-Lingual (2ACL) training strategy.	✓	0.26
The proposed model significantly outperforms state-of-the-art baselines under zero-shot settings.	✓	0.20
The proposed model significantly outperforms state-of-the-art baselines under few-shot settings.	✓	0.16
Other models can improve performance by up to 200% with fine-tuning on the CLTOD data.	✓	0.18

## References

- <https://www.semanticscholar.org/paper/1639f54297483cc779fbe1528830c32ef63a80f8>
- <https://arxiv.org/abs/2411.08785>
- <https://www.semanticscholar.org/paper/a914c4b00b7a1314b3fef1eca85acf8062d7530c>