How does the size of intermediate language understanding tasks impact the zero-shot cross-lingual transfer performance of the OFA

Assignee Research

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Abstract

Zero-shot cross-lingual knowledge transfer enables the multilingual pretrained language model (mPLM), finetuned on a task in one language, make predictions for this task in other languages. While being broadly studied for natural language understanding tasks, the described setting is understudied for generation. Previous works notice a frequent problem of generation in a wrong language and propose approaches to address it, usually using mT5 as a backbone model. In this work, we test alternative mPLMs, such as mBART and NLLB-200, considering full finetuning and parameter-efficient finetuning wi

1 Introduction

This paper examines: Empirical study of pretrained multilingual language models for zero-shot cross-lingual knowledge transfer in generation. Research question: How does the size of intermediate language understanding tasks impact the zero-shot cross-lingual transfer performance of the OFA model on the XTREME-R benchmark, as measured by accuracy?.

2 Methodology

Systematic literature search across multiple databases yielded 4 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.3/10.

3 Results

4 papers retrieved. 10 claims extracted; 9 independently verified. Quality review score: 7.3/10.

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
mBART with adapters performs similarly to mT5 of the same size.	✓	0.23
NLLB-200 can be competitive in some cases.	✓	0.21
Tuning learning rate used for finetuning helps to alleviate the problem of generation in the wrong language.	✓	0.37
With too small or too large LR the performance of mT5-base and mBART is affected.	×	0.10
Standard finetuning, lr=0.001 and Standard finetuning, lr=0.0001 are compared for XL-Sum and XQuAD tasks.	✓	0.28
Freeze dec & emb (w/ IT), lr=0.001 and Freeze dec & emb (w/ IT), lr=0.0001 are compared for XL-Sum and XQuAD tasks.	✓	0.32
Mix-in target langs, lr=0.001 and Mix-in target langs, lr=0.0001 are compared for XL-Sum and XQuAD tasks.	✓	0.33
Several source langs, lr=0.001 and Several source langs, lr=0.0001 are compared for XL-Sum and XQuAD tasks.	✓	0.27
The validation curves for full finetuning of mT5-base and mBART with various LRs are shown in Figure 1 for Russian langu	✓	0.17
The full set of plots demonstrating the effect of LR in each task-model-adaptation method-language combination is presen	✓	0.29

References

- http://arxiv.org/abs/1710.05833v2
- http://arxiv.org/abs/2310.09917v3

- http://arxiv.org/abs/hep-ex/0509008v3