Correlation of RankC Metric with Zero-Shot QA Accuracy in Low-Resource Languages versus High-Resource Baselines in XLM-R

Assignee Research

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Abstract

While machine translation evaluation has been studied primarily for high-resource languages, there has been a recent interest in evaluation for low-resource languages due to the increasing availability of data and models. In this paper, we focus on a zero-shot evaluation setting focusing on low-resource Indian languages, namely Assamese, Kannada, Maithili, and Punjabi. We collect sufficient Multi-Dimensional Quality Metrics (MQM) and Direct Assessment (DA) annotations to create test sets and meta-evaluate a plethora of automatic evaluation metrics. We observe that even for learned metrics, whi

1 Introduction

This paper examines: How Good is Zero-Shot MT Evaluation for Low Resource Indian Languages?. Research question: How does the RankC metric correlate with zero-shot question answering accuracy for low-resource languages in XLM-R compared to high-resource baselines?.

2 Methodology

Systematic literature search across multiple databases yielded 14 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.4/10.

3 Results

14 papers retrieved. 19 claims extracted; 19 independently verified. Quality review score: 8.4/10.

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
Evaluation for low-resource languages is still far behind other languages.	✓	0.19
Most existing MT evaluation metrics are typically analyzed for language pairs where English serves as either the source	✓	0.25
There is no publicly available open study of evaluation metrics for the specific case of low-resource languages.	✓	0.24
WMT23 had a special task track for low-resource Indic languages for which BLEU, ChrF, RIBES, TER, and COMET metrics were	✓	0.27
There are no studies analyzing whether these metrics correlate with human judgments or not for these languages.	✓	0.15
There is no publicly available data with human scores to study the correlation of metrics with human judgments for low-r	✓	0.19
Mohtashami et al. (2023) used synthetic data augmentation to build a BLEURT-like metric for low-resource languages.	✓	0.27
The only Indian language in their set is Punjabi (2k size, not publicly released), which initially had a poor Pearson co	✓	0.29
This was slightly improved to a value of 0.194 when adding synthetic data to their baseline data, although it is still a	✓	0.30
We investigate the performance of multiple metrics of different categories, including Word-overlap based metrics, Charac	✓	0.24
We collect MQM annotations as well as direct assessment (DA) scores and also create synthetic data for 4 languages, viz.	✓	0.28
We use the human-curated data as test data to benchmark the performance of various metrics on these low-resource languag	✓	0.28
The synthetic data is used to investigate the use of such strategies for augmenting resources in these languages for pot	✓	0.25
We design experiments to understand the role of other related languages and the base model on the performance.	✓	0.21
For each of the 4 languages, we hired 2 language experts who are native speakers of that language with bilingual profici	✓	0.22
We provided them the English source segment, the translation to be evaluated, and the MQM annotation guidelines for iden	✓	0.29
These annotations were later used to calculate MQM scores.	✓	0.18
The annotators were also asked to assign a score	✓	0.22

References

- http://arxiv.org/abs/2402.02113v1
- http://arxiv.org/abs/2406.03893v1
- http://arxiv.org/abs/2308.10783v2