Introduction

- **Tigrinya** is a low-resourced language that is spoken by more than 10 million native speakers mainly in Tigray, Ethiopia and Eritrea.
- In recent years, we have seen some progress in the development and deployment in production of MT systems for a handful of African languages.
- Evaluating the quality of such systems is fundamental to accelerating progress in Machine Translation systems.
- In this work, we evaluated the current status of state-of-the-art MT systems that support the translation of Tigrinya to and from English: Google translate, Microsoft translator, and Lesan.

Main Contributions

- Evaluate current state of Tigrinya-English Machine Translation Systems.
- Quantify the most common translation issues present in current machine translation systems for Tigrinya to and from English.
- Through a comprehensive analysis of their weaknesses, we provided practical suggestions for improvement.

Data Collection

- The data is gathered from 4 domains: Arts and Cultures, Science and Technology, Politics, and Business and Economics.
- From diverse data sources including News sites, social media platforms, text books, Wikipedia articles.
- The dataset contains 100 article snippets from each domains as well as direction.
- In total 805 snippets (403 Tigrinya and 402 English).

Methodology

- We used the Multidimensional Quality Metrics (MQM) and Dynamic Quality Framework (DQF) standard error typology.
- Provides a common vocabulary for translation errors, and it was standard topology in MT evaluation.
- MQM-DQF error categories: Accuracy, Fluency, Terminology, Style, Design, Locale Convention, Verity.
- Two experts participated in the evaluation process. The annotators had 72% inter-reliability agreement on labeling the error types.

Findings

- 61.2% had translation quality issues.
- Most common error types are Mistranslation and Omission with 66.2%.
- The translation systems perform poorly when translating Tigrinya sources to English.
- Arts and Culture is the most challenging followed by Science and Technology in current systems.

Implications

- Current Tigrinya MT systems perform relatively well on particular domains such as Politics, and Business and Economics.
- Increasing domain diversity to the training sources.
- Incorporating of abbreviations and named entities in to avoid code mixing.
- Utilization of diverse data sources may aid in addressing issues with handling multiple dialects and styles.