



EVALUATING TRANSLATION QUALITY IN SIMULTANEOUS AND MACHINE TRANSLATION

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ABSTRACT

Translation quality plays a crucial role in effective multilingual communication. With the increasing use of both simultaneous translation and machine translation in international business, education, diplomacy, and media, evaluating translation quality has become an important area of research. Simultaneous translation relies on human interpreters who translate spoken language in real time, while machine translation uses artificial intelligence and computational models to automatically convert text or speech between languages. Although both methods aim to facilitate communication across language barriers, they differ significantly in terms of accuracy, speed, contextual understanding, and adaptability. This paper examines the criteria used to evaluate translation quality in simultaneous and machine translation, highlighting their strengths, limitations, and the challenges involved in assessment.

Introduction

Globalization has increased the demand for fast and reliable translation services. As organizations and individuals communicate across linguistic boundaries, the quality of translation directly affects understanding and decision-making. Traditionally, human translators and interpreters have been responsible for bridging language gaps. However, advances in artificial intelligence and natural language processing have led to significant improvements in machine translation systems.

Simultaneous translation, often used in conferences, international meetings, and live broadcasts, requires interpreters to listen and translate almost at the same time. Machine translation, on the other hand, employs algorithms and neural networks to generate translations automatically. Since both approaches are widely used, evaluating their quality is essential to determine their effectiveness in different contexts.

Criteria for Translation Quality Evaluation

Translation quality is generally assessed based on several key criteria: accuracy, fluency, adequacy, consistency, and cultural appropriateness.

Accuracy refers to how correctly the translated message conveys the meaning of the source text or speech. In simultaneous translation, interpreters may occasionally omit details due to time constraints, but they often preserve the overall meaning. Machine translation systems can produce highly accurate translations for common language pairs but may struggle with complex sentence structures or ambiguous expressions.

Fluency measures how natural and grammatically correct the translation sounds in the target language. Human interpreters typically produce more natural speech because they understand linguistic nuances and conversational patterns. Although modern neural machine translation systems have improved significantly, some outputs may still sound unnatural or overly literal.

Adequacy evaluates whether the translated content includes all important information from the original message. Simultaneous interpreters sometimes summarize information to maintain pace, whereas machine translation generally attempts to translate every element of the source text. However, this does not always guarantee correct interpretation.

Consistency is particularly important in technical, legal, and scientific contexts. Machine translation systems can maintain consistent terminology across large volumes of text, while human interpreters may vary word choices depending on context and audience.

Cultural appropriateness involves adapting language to fit cultural expectations and norms. Human interpreters generally outperform machines in this area because they can recognize idioms, humor, and cultural references that may not translate directly.

Comparing Simultaneous and Machine Translation

Simultaneous translation and machine translation each offer unique advantages. Human interpreters excel in understanding context, speaker intent, emotions, and cultural subtleties. They can adjust translations dynamically based on audience reactions and situational factors. This flexibility makes simultaneous translation particularly valuable in diplomatic negotiations, legal proceedings, and high-level business meetings.

Machine translation, however, provides unmatched speed and scalability. Modern AI-powered systems can translate large amounts of text instantly and support dozens of languages simultaneously. This capability makes machine translation highly useful for websites, customer support, social media, and international e-commerce.

Despite these advantages, machine translation still faces challenges. Ambiguous language, idiomatic expressions, and domain-specific terminology can result in inaccurate translations. Similarly, simultaneous interpreters may experience cognitive overload, especially during lengthy or highly technical presentations, which can affect translation quality.

To evaluate performance objectively, researchers often use automatic metrics such as BLEU (Bilingual Evaluation Understudy), METEOR, and TER (Translation Edit Rate) for machine translation. Human evaluation methods, including expert assessment and user satisfaction surveys, are commonly used for both machine and simultaneous translation. Combining automatic and human evaluation methods often provides the most reliable results.

Conclusion

Evaluating translation quality is essential for ensuring effective communication in multilingual environments. Simultaneous translation and machine translation each have strengths and limitations that influence their performance. Human interpreters generally provide superior contextual understanding, fluency, and cultural adaptation, while machine

translation offers speed, consistency, and scalability. As artificial intelligence continues to advance, the quality gap between human and machine translation is narrowing. However, comprehensive evaluation methods remain necessary to assess translation effectiveness accurately. Future developments will likely involve greater collaboration between human expertise and AI technologies, resulting in more accurate and efficient translation solutions.

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