RESEARCH ARTICLE

Asian Research Association

Indian Journal of
LANGUAGE AND LINGUISTICS

DOI: 10.54392/ijll2522

Human vs. Machine Translation – Benefits and Drawbacks

Elitsa Stoichkova [a, *]

[a] "Prof. Dr. Paraskev Stoyanov" Medical University – Varna, Shumen Affiliate, Department of Health Care, Shumen 9700, Bulgaria
[*] Corresponding author Email: elitsa_stoichkova@abv.bg
DOI: https://doi.org/10.54392/ijll2522
Received: 27-02-2024; Revised: 01-05-2025; Accepted: 12-05-2025; Published: 17-05-2025

Abstract: With the advances in the field of computer and information technologies (CIT), Artificial Intelligence (AI), which revolutionized the machine translation process, has become part of our lives over the last years. There has been a shift from tasks based on human intelligence to such based on AI. Living in the era of the global reach of science and technology, it was impossible for the field of translation to be left unaltered. The review focuses on the quality of Machine Translation (MT) output in terms of the complexity and diversity of Bulgarian as the source language and English as the target language. MT quality is analyzed in terms of fidelity, adequacy, lexicon and cultural uniqueness. Furthermore, the purpose of this article is to outline the drawbacks of MT in the cultural and linguistic context of Bulgarian. Some concluding remarks will be made about the dimensions and boundaries of MT. This article, however, contributes to the description of translation as the canvas on which subtle nuances and tender strokes turn into a masterpiece. Literature review was adopted as the main research method. Based on the review of 47 articles, three books and a thesis, I conclude that translation is still a domain that is a privilege to humans. Machines can only accelerate the process of human translation but they cannot serve as a universal replacement. While machine translation that operates through a computer code cannot be combined with social and cultural background, high quality translation can be stimulated through the synergy between artificial and human intelligence.

Keywords: Translation, Machine Translation, Human Translation, Artificial Intelligence

1. Introduction

Translation is the process of rendering the meaning of a written text from a source language into another target language keeping the original meaning and the text style and register, a concept that cannot be encapsulated in a single definition. Cumulatively, over the period between the late 16th and early 18th centuries to the present, when the British Empire was at its height, English has dominated the world as the language of world literature, science and technology, business and trade, it also opens doors to the academic world. Not surprisingly, English has become a global language, which was impossible without the development of translation. Digitalization has also contributed to its omnipotent omnipresent influence.

When I was a student, the only way to translate a text from your native language into a foreign language and vice versa was to look up words in the dictionary for hours, and – based on your own knowledge of grammar, syntax and vocabulary – structure a text. Things have changed since then and the same job could be done in the twinkling of an eye with the help of digital technologies. With the advances in the field of computer and information technologies (CIT), Artificial Intelligence (AI) has become part of our lives over the last years. There has been a shift from tasks based on human intelligence to such based on AI. Living in the era of the global reach of science and technology, it was impossible for the field of translation to be left unaltered.

The first Machine Translation (MT) experiment was conducted in 1954 at Georgetown University and since then MT has had a promising career. Over the past 70 years, Machine Translation (MT) has made it possible to overcome barriers between languages based on the understanding of natural language functioning. Wilks (2009:v) considers MT the "ultimate testbed of all linguistic and language processing theories."

Since its launch back in 1954, MT has undergone dramatic changes and its progress has ended up with appearing on the web. Okpor (2014:159) states that Google Translate translates as much text as to fill 1 million books a day (2012). The subtlest part of translation – interpreting the specifics of semantic units in the relevant cultural context is still a privilege to humans. Transferring the language is just one aspect of translation while transferring the culture is still impossible to achieve for machines.

1.1 Objectives and research questions

The aim of this paper is threefold. The main purpose of the review is to evaluate the role of human translators as some voices question whether there will be translators in the future. Furthermore, it attempts to outline the drawbacks of machine translation in the context of Bulgarian. Ultimately, it is hoped that the utmost purpose of this paper will be to raise our awareness of the indispensability of human intelligence. In order to achieve these goals, the following research questions were addressed:

1. Could machines replace people for fully automated translations?
2. Can machines render the diversity and complexity of natural languages?
3. Can post-editing enhance the quality of MT?

2. Methods

Literature review was carried out aiming at assessing the role of human translators and addressing the research questions. The primary search included the review of 47 articles, three books and a thesis. Reconsidering their relevance to the topic, the most pertinent articles were selected. The secondary stage resulted in picking out the most relevant 17 articles, 3 books and a thesis after careful examination of the reference list of each of the selected articles. The data were collected from several databases, including SpringerLink, ResearchGate, JSTOR and ScienceDirect based on the search for "translation", "human translation" and "machine translation". Google Translate was adopted as the most common and one of the most reliable machine translation tools.

2.1 Background

Translation, in the broad sense, is a multidimensional concept with its characteristic features. Two axes can describe the landscape of translation – the first one is professional human translation and the second is original machine translation.

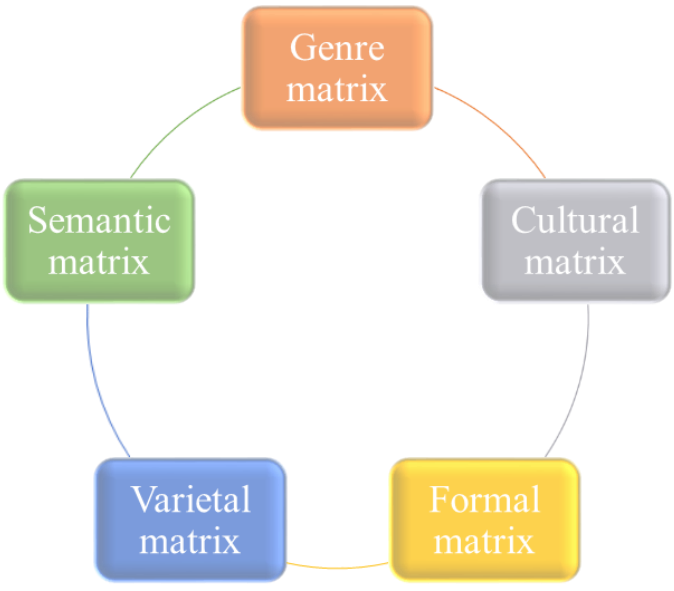

Figure 1. The five matrices involved in text translation

The two axes can make up a whole if we consider the prospects and the potential of the collaboration between humans and machines. Since its launch 70 decades ago, MT has undergone tremendous changes. Yet, the author's interest was fueled by having come upon Google Translate failures many times. Eszenyi et al. (2023:107) claim that at the time of conducting their study, translation agencies do not have available post-editor positions, but on the contrary, they prefer translators to carry out post-editing tasks. They list new translation roles, such as the emerging professions of the post-editor and translation technologist (ibid.:106). These implications trigger a number of questions on the future of translation and translator competences as well as their training. Further research could be done on the new roles in the translator's profile.

Generally speaking, Dickins et al. (2002:3), consider the division of texts for translation into five matrices (Figure 1).The first matrix, the text type in terms of Genre, is related to literature, philosophy and religion. Izquierdo & Montalt (2021:135) suggest that genre is the first step of translation as well as its objective. The Cultural matrix is associated with the culture bound idioms, similes and proverbs. According to Baker, (1992:65) idioms are fixed phrases whose meanings cannot be figured out by the separate words constituting them. Similes and proverbs also function as a whole. Baker (1992:65) goes on postulating that idioms act like a unit and, consequently, should be translated like a unit.

According to Dickins et al. (2002:3), the Semantic matrix is associated with the meaning of collocations and metaphors. Much effort has been put in fruitful research on metaphor within the area of translation studies. Almaani (2018:1) points out that metaphor can sometimes be a great challenge for translators due to the linguistic and cultural differences when translating them. Collocations can be viewed as lexical patterns whose meaning in the source language should be neglected in order to achieve high quality fluent translation in the target language. Dickins et al. (2002:3) go on defining the Formal matrix as related to grammar and syntax, the latter reigning the language natural functioning. As Baker (1992:86) stresses, the differences between grammatical patterns may significantly affect the way the information or message is conveyed. Differences between languages can be observed at different levels and grammar is not an exception. Finally yet importantly, is the Varietal matrix, which Dickins et al. (2002:3) associate with dialects, social and tonal register. That final blush on the translation canvas adds value to the variety of language in the particular context.

3. Results and discussion

The analysis of the data obtained from the research outlined six characteristic features and qualities of a good translation (Figure 2).

Figure 2. The qualities and characteristic features of a good translation

Accuracy is the cornerstone of a good translation, which, according to McDonald (2020:21), is assessed based on the comparison between the messages of the source and target languages. An accurate translation is supposed to convey the meaning of the original text and, based on the five matrices, is grammatically, lexically and stylistically correct. Unfortunately, machine translation sometimes fails in this regard. Although it is doubtful whether any translation could be 100 % accurate, mastering an accurate translation means gaining a lot of field expertise. Due to the nature of the field of medicine, medical translations need higher accuracy. For example, the simple sentence "She was in labor for 2 hours." is translated by Google Translate as: *Тя роди два часа* instead of: *Тя роди за два часа.* The example given proves that Google Translate (GT) is far from being accurate or correct. It distorts the original meaning of the source sentence, which results in the misleading *She gave birth to two hours* in the target language message due to the omission of the preposition *за*.

Fluency is crucial in order to ensure the translated text coherence. Welnitzova et al. (2021:223) postulate that fluency depends on the grammar of the source language and influences the comprehensibility of the text the most. Furthermore, the fluency of the source language text and the target language text are intertwined, depending on the type of text. Snover et al. (2009:260) point out the correlation between errors in tense and the possible evaluation of translation as less fluent. The category of tense is a complex one and the lack of equivalence between the source and the target language in terms of tense might not affect the fluency of the translation but the adequacy would suffer. The following example demonstrates the same idea: *I work in a lab* in the Present Simple Tense and *I am working in a lab* in the Present Continuous, are translated by GT in the same way in Bulgarian *Работя в лаборатория* without clear distinction between the permanent situation in the first sentence and the temporary situation in the second. The grammatical category of gender also seems to be problematic as there are masculine, feminine and neuter gender adjectives in Bulgarian. The title *Not Too Old* is translated as *Не е прекалено стар* instead of the feminine gender adjective *стара*, which is easy for a human to detect by looking at the context and the rest of the text: *A woman who became Britain's oldest test-tube mother….*

Kukkola (2002:32) sheds light on the different opinions about the meaning of fidelity or faithfulness of translation as "transmitting "the message" of the original text while for others it is evoking "the same" feelings and provoking the same "effects" on the readers of the translation as on the receivers of the original text". In order to achieve the same effect, a human translator can search for a sound effect or alliteration and rhyme. For example, Chao (1969:109) replaces "fidelity, lucidity and beauty" with "fidelity, fluency and elegance" in search for sound effect. A conclusive argument to the issue comes from the following example of alliteration and its translation *The twinkling stars twirled in the night sky*. GT suggests *Блестящите звезди се въртяха в нощното небе.* On second thought, I propose *Искрящите звезди озариха небесния свод.* Apart from transmitting the original meaning, the human version creates the same effect as the original.

Sechrest et al. (1972) as cited in Papadakis et al. (2022:2) identified idiomatic equivalence in translation as problematic. Cultural Adaptation is related to the Cultural matrix where idioms reside. The idiomatic expression *gravy train* is not recognized by GT and its literal translation sounds ridiculous. Giving the floor to humans, the use of the idiom demands previous knowledge to render its meaning as *making money easily and quickly.*

Huang (2023:1) recognizes domain or subject knowledge as a fundamental element of translator competence. The author relates the Subject-Matter Expertise to the phenomenon polysemy, which can be represented by the following example: *Antenatal surgery is the place where pregnant women are monitored.* GT finds it difficult to keep to the original meaning and mistranslates the sentence as *Антенаталната хирургия е мястото, където се наблюдават бременните жени.* As an ESP teacher in the fields of Nursing and Midwifery, the author recognizes *antenatal surgery* as the place where antenatal visits take place – *Женска консултация е мястото, където се наблюдават бременните* – instead of the machine translation suggestion meaning *fetal surgical procedure*.

Style and Register are also worth considering as a characteristic feature of a good translation. Langeveled (1983:323) defines the broad concept of style as "the way someone handles the language". "Handling" the specifics of a translation is once again a privilege to humans. In Bulgarian there two different forms of address – formal and informal: *Вие* and *ти.* My myopic attitude reflects the idea that English uses *You* for both. GT prefers the formal address in the sentence *You are supposed to know the answer.* Depending on the situation, a human quickly and without hesitation shifts between the two forms setting the text tone.

The research questions comply with the ideas and thoughts generated in the Results section

Question 1: Could machines replace people for fully automated translations?

Lihua (2022:6) believes that human translators are aware of the creative use of language such as puns, metaphors and slogans while machines feature shorter processing time and faster speed. The social and cultural background is still *terra incognita* for machine translation, statement proved by the aforementioned examples. All in all, human intelligence is still superior to artificial intelligence.

Question 2: Can machines render the diversity and complexity of natural languages?

Rayhan & Rayhan (2023:3) delve deep down in Natural Language Processing as a way to generate meaningful and contextually relevant coherent text. The advances in the field have brought about changes in human-machine interaction but the researchers highlight the lack of improvement in featuring complex emotionally tinted linguistic phenomena such as sarcasm, irony, and metaphors (ibid.:8). Toliboboeva (2020:1204) states that the competent stylistic transfer of emotionally colored words influence the result of literary translation, a privilege to human translators even though it is considered to be one of the most difficult. Vinogradov (2001) as cited in (ibid.:1206) also considers the perception of the emotional impact of the text in addition to its comprehension. Fortunately, machines cannot mimic creativity and human activity and there is still an abyss in this regard.

Question 3: Can post-editing enhance the quality of MT?

Although MT quality is getting better and better, the major benefit of human post-editing is enhancing the quality of translation. Vieira (2019:320) identifies the key concepts of quality and effort as pivotal in most research on post-editing. Vieira (ibid.:321) concludes that post-editing requires less effort in comparison with from-scratch translation without having harmful effect on target-text quality.

4. Conclusion

In conclusion, Google Translate, as an example of a machine translation tool, fails in all the matrices. The examples given highlight the importance of human intelligence aided by machines. These two axes complement each other for a fulfilled quality translation. While machine translation that operates through a computer code cannot be combined with social and cultural background, high quality translation can be stimulated through the synergy between artificial and human intelligence to reach the degree of "fidelity, fluency and elegance".

References

Almaani, B.O.S. (2018). The Arabic/English translation of King Abdullah II's speeches: a conceptual metaphor approach. *The University of Leeds School of Modern Languages, Cultures and Societies,* 1-237.

Baker, M. (1992). In Other Words: A Coursebook on Translation. *Routledge,* New York.

Chao, Y. R. (1969). Dimensions of Fidelity in Translation with Special Reference to Chinese*. Harvard Journal of Asiatic Studies*, 29, 109–130. https://doi.org/10.2307/2718830

Dickins, J., Hervey, S., Higgins, I. (2002). Thinking Arabic translation: A course in translation method: Arabic to English. *Routledge*, New York.

Eszenyi, R., Bednarova-Gibova, K., Robin, E. (2023). Artificial Intelligence, Machine Translation & Cyborg Translators: A Clash of Utopian and Dystopian Visions. *Orbis Linguarum*, 21(2), 102–113. https://doi.org/10.37708/ezs.swu.bg.v21i2.13

Huang, J. (2023). Exploring Students' Perception of Subject and Translation Integrated Learning (STIL) as an Innovative Approach to Translation Instruction: A Case Study. *SAGE Open*, 13(4). https://doi.org/10.1177/21582440231212261

Izquierdo, I.G., i Resurrecció, V.M. (2021). Translating into Textual Genres. *Linguistica Antverpiensia, New Series – Themes in Translation Studies*, *1*, 135-143. https://doi.org/10.52034/lanstts.v1i.12

Katarina, W., Barbara, J., Roman, K. (2021). Human-Computer Interaction in Translation Activity: Fluency of Machine Translation*. Text of scientific article on the specialty "Linguistics and literary studies,* 18(1), 217-234. https://doi.org/10.22363/2313-1683-2021-18-1-217-234

Kukkola, K. (2002). On Faithfulness in Translating. *Paragraph*, 25(3), 32–41. https://doi.org/10.3366/para.2002.25.3.32

LANGEVELD, A. (1983). Style and Translation. *Studies in Slavic and General Linguistics*, 3, 323–345. https://www.jstor.org/stable/i40044359

Lihua, Z. (2022). The Relationship between Machine Translation and Human Translation under the Influence of Artificial Intelligence Machine Translation. *Mobile Information Systems*, 2022(1), 9121636. https://doi.org/10.1155/2022/9121636

McDonald, S.V. (2020). Accuracy, readability, and acceptability in translation. *Applied Translation*, *14*(2), 21–29. https://doi.org/10.51708/apptrans.v14n2.1238

Okpor, M.D. (2014). Machine Translation Approaches: Issues and Challenges. *International Journal of Computer Science Issues*, 11(5), 159.

Papadakis, N.M., Aletta, F., Kang, J., Oberman, T., Mitchell, A., Stavroulakis, G.E. (2022) Translation and cross-cultural adaptation methodology for soundscape attributes – A study with independent translation groups from English to Greek. *Applied Acoustics*, 200, 109031. https://doi.org/10.1016/j.apacoust.2022.109031

Rayhan, A., Kinzler, R., Rayhan, R. (2023). Natural Language Processing: Transforming How Machines Understand Human Language. RG. In Conference: The development of artificial general intelligence, *Natural Language Processing.*

Sechrest, L., Fay, T.L., Zaidi, S.H. (1972). Problems of translation in cross-cultural research*. Journal of cross-cultural psychology*, 3(1), 41-56. https://doi.org/10.1177/002202217200300103

Snover, M., Madnani, N., Dorr, B., Schwartz, R. (2009). Fluency, Adequacy, or HTER? Exploring Different Human Judgments with a Tunable MT Metric WMT@EACL. *In Proceedings of the fourth workshop on statistical machine translation*, 259-268.

Toliboboeva, S.J. (2020). Features of the Translation of Emotionally Colored Vocabulary. *Academic research in educational sciences*, (3), 1204-1210.

Vieira, L.N. (2019). Post-Editing of Machine Translation. *The Routledge Handbook of Translation and Technology, Routledge*. 319-335. https://doi.org/10.4324/9781315311258

Vinogradov, V. (2001). An introduction to translation studies (general and lexical aspects). *Moscow: Institute of General Secondary Education Publishing House,* 224.

Wilks, Y. (2008). Machine Translation. Its Scope and Limits. *Springer, Heidelberg*. https://doi.org/10.1007/978-0-387-72774-5

Funding

This study did not receive any funding.

Has this article been screened for Similarity?

Yes

Conflict of interest

The Author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

About The License