

## TRANSLATION OF METAPHORS IN OFFICIAL AND AUTOMATIC SUBTITLING AND MT EVALUATION

Maral Shintemirova

*University of Málaga, New Bulgarian University*

*maral.shintemirova@gmail.com*

### Abstract

One of the main aims of this work is to compare and analyse the translation of metaphors in subtitles as performed by human translators and by machine translation, and conduct MT evaluation.

The work considers two YouTube videos of a *Cyberpunk 2077* (2020) videogame walkthrough. The first video is in the original language (English) with English subtitles and the second one is an officially translated video in Russian, with Russian subtitles. Both videos have the same content, but in different languages.

Metaphors were extracted manually from selected audiovisual material in English by the usage of MIPVU (Metaphor Identification Procedure Vrije Universiteit). In order to achieve our aims, first the translation of these metaphors in the official Russian subtitles were analysed; secondly, their automatic translation into Russian as it appears on YouTube by Google Translate were analysed as well; after that the results were compared to find the similarities and the differences between the automatically translated version of the

metaphors on YouTube and the translated metaphors in the official subtitling. Another aim is to perform Machine Translation (MT) evaluation using the BLEU (Bilingual Evaluation Understudy) algorithm and to determine the errors made by MT while translating metaphors in the analysed subtitles.

Three examples, which were taken from the videos, are presented in the format of cases. The cases show different metaphors and the situations they were used in and analyse why these metaphors were used in that particular situation, how metaphors were identified there, how they were translated and why they were translated exactly in this way. Furthermore, the machine translation of the same metaphors is analysed and a comparison between them is made. The topic of the speech recognition process and the metaphor identification procedure is also touched upon.

The results demonstrate that although machine translation is able to translate frequently used, popular metaphors, or metaphors, the literal translation of which retains the meaning, it is still difficult for the machine to recognise original author's metaphors or to translate using the context of the situation. The results could encourage training the machine to recognize metaphors and to create a larger database of metaphors to identify them.

**Keywords:** *metaphor, machine translation, MT evaluation*

## Introduction

### The relevance of the topic and research problems

In the era of globalisation, automatic systems do not stand still. The main task for machine translation technologies is to ensure accurate translation, depending on the context, as well as application of technologies to particular areas.

A tremendous amount of content has started to appear in English, a lot of which is audiovisual content. Nowadays, visual materials have gained certain popularity and continue to do so. Watching movies, TV shows, series and videos has become a significant source of entertainment in recent years. According to the Statista website, over three billion internet users watched at least one streamed or downloaded video every month in 2020 (Statista.com). This indicates a vast audience that very often consumes various audiovisual content.

When it comes to the audiovisualisation of communication in today's technologically driven multimedia culture, the value of moving images,

complemented by sound and text, is critical. We are surrounded by screens in both our professional and personal lives, as they are a frequent element of our socio-cultural milieu. We spend a lot of time in front of screens – at home, at work, in public places, in libraries, cafes, restaurants and cinemas – and we consume a lot of audiovisual products in order to be entertained, to get information, to do our jobs, to learn and develop, and improve our professional careers. The abundance of moving images and their impact on our lives illustrate the audiovisualisation of communication in our time and age (Díaz Cintas and Remael, 2013).

Video materials are included in the field of Audiovisual Translation (AVT). AVT is defined as “...all translations – or multi-semiotic transmission – for production in any medium or format, as well as new areas of media accessibility” (Díaz Cintas, Orero, Remael, 2007). Several perspectives on the translation of video materials lead to the main goal of AVT: to create a translation that respects the cultural identity of the source language, while remaining accessible to other target audiences. In order to achieve this goal, it is necessary to use different translation procedures for audiovisual materials. There are about ten different ways of translating audiovisual materials, yet there are “three main ones: dubbing, subtitling and voice-over” (Díaz Cintas, Remael, 2007). This paper will concentrate on subtitling as one of the most popular and frequently used ways of translating audiovisual content. Díaz Cintas and Remael’s definition of subtitling is as follows:

Subtitling may be defined as a translation practice that consists of presenting a written text, generally on the lower part of the screen, that endeavours to recount the original dialogue of the speakers, as well as the discursive elements that appear in the image (letters, inserts, graffiti, inscriptions, placards, and the like), and the information that is contained on the soundtrack (songs, voices off).

(Díaz Cintas, Remael, 2007).

When mentioning audiovisual materials, it is assumed that they can be accessible to everyone. To do this, they must be available in different languages so that people who speak other languages can also understand the content. In this case, translators act as bridges that help people comprehend the material. In order to facilitate and speed up the work of translators, machine translation is sometimes used. Machine translation (MT) of natural languages, which was initially proposed in the seventeenth century, is now a reality (Hutchins, 1995). Computer programmes generate translations –

not perfect translations, because sometimes not even human translators can achieve that goal. As Hutchins (1995) explains,

it is quite clear from recent developments that what the professional translators need are tools to assist them: provide access to dictionaries and terminological databanks, multilingual word processing, management of glossaries and terminology resources, input and output communication.

MT faces the global task of translating content into various languages for a wide audience, while maintaining not only the meaning and the style, but also the emotional overtones. With the development of translation as a discipline and its rotation to a 'cultural turn' in the 1990s, the operational unit of translation was not a word or a text, but a whole culture (Bassnett, 1997). From that moment on, the object of translation was the text integrated into the network of relations between the source and translating cultural signs (Bassnett, 1997). After the advent of the 'cultural turn,' linguists were faced with the task of creating a system that recognises the cultural context, turns of speech, and language figures.

The translation of subtitles is not an easy task for translation programmes, therefore, when programme generates a script, a hybrid approach is often used, where, after the translation program has translated the audiovisual material, the human translator is in charge of editing and post-processing. Subtitles must appear in sync with the image and the original dialogue, provide a semantically acceptable explanation of the source language dialogue, and remain visible on the screen for viewers to read (Díaz Cintas, Remael, 2007) and these are tasks that MT cannot yet do. Also, in terms of space, screen sizes are limited, and the target text will need to adjust to fit the screen width. This means that the subtitle will be between 32 and 41 characters per line in a maximum of two lines (Díaz Cintas, Remael, 2007). However, some programs do this automatically themselves, such as YouTube (<https://support.google.com/youtube/answer/7296221?hl=en>).

The translation of subtitles cannot be verbatim, as literal translation almost always results in a poor translation. The audiovisual content and the subtitles should fully harmonise with each other for a high-quality translation, but no MT engine relies on visual content (Díaz Cintas, Remael, 2007).

Translators take into account the features of speech transmission, style, emotions, terminology, dialects, and even gender and age, while MT cannot determine these criteria. One of the most challenging tasks is adapting or reflecting culture, because the translation must be understandable for the people whose culture differs from the culture in the source material. If the

translator is faced with the task of leaving the cultural aspects as they were in the original and bringing the viewer closer to the audiovisual content, then MT cannot take into account the aspects of speech turnover.

Some of the representatives of culture are figures of speech, such as puns, irony, satire, euphemism and others (Regmi, 2015). The difficulty lies in the fact that they are culturally coloured, and that becomes an even more significant challenge for the translator. One of the inevitable difficulties of AVT is the presence of metaphorical utterances in the source text. James Dickins defines the metaphor as follows:

‘Metaphor’ is defined [...], as a figure of speech in which a word or phrase is used in a non-basic sense, this non-basic sense suggesting a likeness or analogy [...] with another more basic sense of the same word or phrase.

(Dickins, 2005)

Many works have been written about metaphors and their translation: “The Translation of Metaphor” by Peter Newmark (1980), “Biblical Metaphors and Their Translation” by Jan De Waard (1974), “Metaphor and Translation” by Richard Trim and Dorota Liwa (2019), etc. The problem of translating metaphors is one of the most complex and essential ones since a metaphor is the embodiment of original, emotionally coloured images that perform one of the most critical tasks in the text and audiovisual materials – influencing the reader’s or viewer’s imagination.

There are two non-verbal channels in an audiovisual text: an auditory one and a non-verbal visual one, which encompasses everything people see on screen, in addition to the verbal channels of discourse, spoken language, and written language. When a metaphor is identified in subtitles and it does not have an analogous expression in the target language, these complications become much more severe (Pedersen, 2015).

### **Research question**

This work will focus on MT evaluation of metaphors in official subtitles and in MT, on the comparison between the translation performed by humans and that provided by a MT engine. Two videos from the YouTube web service with the videogame walkthrough are taken into consideration. The name of the videogame is *Cyberpunk 2077*. The content of both videos is identical; however, they are in different languages – the original video is in English and officially translated video is in Russian. In these videos subtitles are displayed on the screen. Metaphors are identified manually from

in the English subtitles. After that, the official Russian translation of those metaphors in subtitles are analysed, as well as the same metaphors automatically translated into Russian in YouTube by Google Translate. The results are compared and evaluated by means of the BLEU (bilingual evaluation under-study) algorithm in order to determine the errors made by MT while translating metaphors in subtitles.

The process of identifying metaphors can be a difficult task. In such cases, technology could help. However, as Saldanha (2009) argues, “a number of metaphor retrieval computer tools have been developed, but they have not made an impact in the field, partly because they are not widely available and partly because their performance is still not particularly high.” Despite the fact that technologies are developing rapidly, not all areas use them yet. This indicates a lack of attention to this problem, which nevertheless exists. In this regard, as already mentioned above, all metaphors for this research were identified and assembled manually.

This study aims to find out how the machine translates metaphors in subtitles, whether the machine translation of official subtitles differs significantly from human translation, whether it is possible to use the MT of metaphors without a human translator editing them for further usage, if there is much to strive for in the refinement of MT of metaphors.

**The subject** of the study are two videos from the YouTube web service of the *Cyberpunk 2077* videogame walkthrough from PaNiKeR player’s YouTube channel in the original language (English). The source language of the material is English, the target is Russian.

### **Aims and tasks**

**The aims** of this study are to analyse the official translation and the MT of metaphors in subtitles, to compare them, and to determine the errors made by MT while translating those metaphors.

To achieve these goals, the study solves the following **tasks**:

- 1.) considering both metaphor and metaphorisation processes;
- 2.) identifying metaphors by means of the MIPVU (Metaphor Identification Procedure Vrije Universiteit);
- 3.) studying two videos of the *Cyberpunk 2077* videogame walkthrough on YouTube;
- 4.) analysing the official translation of metaphors;
- 5.) analysing MT of metaphors in subtitles;
- 6.) comparing and analysing the two translations;

7.) evaluating the results as provided by the BLEU algorithm (bilingual evaluation understudy).

The length of the video material is about 9 hours. The total number of metaphors is 269.

### Methodology

When gathering and analysing the material, the following **research methods** are used: general approach, discourse analysis, stylistic analysis, definition analysis, component analysis. Both primary and secondary data will be used in this work. Moreover, we apply the product-oriented research methodology which investigates the translation product, in my case subtitles in target language, from different perspectives. It also includes critical discourse analysis, which can be also applied by means of a quantitative or a qualitative method (Saldanha and O'Brien, 2013). Both quantitative and qualitative methods are used in this study, as we describe the processes of identification and translation of metaphors, as well as provide figures using the BLEU algorithm for the evaluation of MT.

As for the research aims, we use basic research aimed at developing knowledge, as well as applied research aimed at analysing how translation tools translate metaphors.

For **data research**, we use the qualitative type, which involves gathering and analysing non-numerical data, such as videos, to understand concepts, opinions, or experiences. It is used to gather in-depth insights into a problem and generate new ideas for research. We collect existing data in the form of texts and phrases for this study and future projects.

These works build the foundation of the paper, providing the basic concepts of AVT, translation of metaphors, features of the translation of subtitles and, separately, the features of the translation of metaphors, as well as the general study of MT and MT of metaphors. They help to understand the functioning of the software, the web services and the specifics of the translation of metaphors.

The results of this study can be used by specialists in the field of translation and linguistics for further research, to assist in the translation of metaphors in subtitles, as material for analysis in educational institutions or in practical English language teaching, as well as for studying metaphors for general or specific purposes. In addition, this study can help in the further study and improvement of both MT in general and MT of metaphors specifically. It can also help in improving the evaluation system or developing the tools for evaluating metaphors, and may contribute to the development

of technologies that will help identify the metaphor in subtitles, and help in translation.

## The process of identifying and translating metaphors

### Metaphor identification procedure

The study of metaphor in recent decades has become one of the most widespread trends in linguistics. Despite the fact that these studies were based on the correlation of language, thinking, and the modelling of knowledge about the world through metaphor, it became a problem to identify metaphors. Attempts to solve this problem have led to the creation of various metaphor identification procedures, which differ both on theoretical grounds and procedurally (Mishlanova, Suvorova, 2017).

### Metaphors in the *Cyberpunk 2077* videogame

*Cyberpunk 2077* is an action-adventure computer game in the Open world (virtual world), developed and released by the Polish studio CD Projekt, in which players are free to explore and achieve their goals. The genre is cyberpunk. The game is partly interactive, *i.e.* players choose one of the suggested actions or phrases. Each decision taken leads to different storylines and game endings. The plot takes place in 2077 in Night City, a fictional North American city from the Cyberpunk universe (cyberpunk.net). Gamers control a customisable protagonist named V, whose gender can be chosen. The character works as a mercenary and has hacking and combat skills. The game was released on December 10, 2020 on PlayStation 4, Stadia, Windows and Xbox One<sup>1</sup>.

The original video game is in English and it was the basis for all versions of the localisation into other languages. The game has been translated into 18 languages, 10 of which are dubbed. The Russian translation was based on the original version in English. The translation process lasted a year and a half and the company considers it one of the most ambitious translation projects in gaming industry (en.cdprojektred.com).

The Russian version of the game is quite aggressive, the translators inserted foul language even if there were no such phrases in the original version, and added slang to intensify the atmosphere of the game. By that, players may experience the environment of the characters' and city's decadence, the style of street life and gang warfare, where every population group swears differently.

There are some examples in which metaphors are identified and their official translation in the subtitles to the video is analysed. Metaphors are

<sup>1</sup> For more detailed information – <https://en.cdprojektred.com/>; [cyberpunk.net](https://www.cyberpunk.net).



defined manually while watching the videos and reading subtitles. They are analysed following the steps of MIPVU procedure.

*Case.* At timecode: 9.57 V is in a car with Sebastian Padre Ibarra, who can 'fix' any problem. People come to him, asking for help to rob, hack a system, eliminate a person. He gives the order to a contractor who performs the task. V is having a conversation with him about life. V was born in Heywood, went to live in Atlanta for several years, but returned to his hometown.

Padre: "You know Heywood. It has strong roots – ever watered by the same blood<sup>2</sup>."

The metaphors are '*it (city) has strong roots*' and '*(city) ever watered by the same blood*.' The lexical units of this sentence are the following: 'it has strong roots,' 'it ever watered by the same blood,' 'same blood.' We consider 'it has strong roots' and 'it ever watered by the same blood' units. Both phrases are related, the second phrase complements the first.

*'It (city) has strong roots.'*

a) **Contextual meaning:** As the roots are nourished or watered, they become strong. The city is made stronger by the events, taking place in it.

b) **Modern basic meaning:** Strong (adj.) – powerful; having or using great force or control; root (n.) – the part of a plant that goes down into the earth to get water and food and holds the plant firm in the ground; roots (n.) – family origins, or the particular place you come from and the experiences you have had living there<sup>3</sup>. In a direct sense, it means that the plant has strong roots, stands firmly in the ground, and grows for a long time unshakably.

c) **Contrast and similarity:** A city cannot have roots, but it, like roots, can become stronger.

This is a 'stock metaphor,' *i.e.* an ordinary metaphor with an aesthetic function, and there may be equivalents in translation.

*'(City) ever watered by the same blood.'*

a) **Contextual meaning:** The city is in turmoil, with people dying because of gangs or newcomers. 'Blood' means the blood of dead people, and 'same' means the deaths of local people who cannot defend themselves. Murders and robberies make the city's gangs stronger.

b) **Modern basic meaning:** Ever (adv.) – at any time; watered (v., passive v.) – to pour water onto plants or the soil that they are growing in; same (adj.) – exactly like another or each other; blood (n.) – the red liquid that is sent

<sup>2</sup> <https://www.youtube.com/watch?v=TTQ1L5qpVwM&t=1294s> – at timecode: 9.57.

<sup>3</sup> [dictionary.cambridge.org](http://dictionary.cambridge.org).

around the body by the heart, and carries oxygen and important substances to organs and tissue, and removes waste products<sup>4</sup>.

c) **Contrast and similarity:** The phrase has a direct meaning of the word ‘blood,’ but in this case there is a metaphorisation – just as water nourishes the roots of a plant, so the deaths of people make the city and gangs stronger.

This statement is metaphorical and is of ‘original type’ expressing the creator’s idea.

### **Analysis of the official Russian translation of metaphors in subtitles**

Regarding the decomposition of the translation process into certain stages and procedures, there is no single view, just as there is no single definition of the terms ‘strategy’ and ‘translation technique’. Each translator can have their own translation strategy, allowing them to decide what is less important and can be omitted in a particular translation situation, or how to conduct a translation (Garbovskii, 2007). Therefore, we consider the provided translation of the game in the video, trying to understand how the translator translated the metaphor and what guided them during the process. We take the stages of metaphor translation proposed by Newmark as a basis while we analyse metaphors translation from the video.

When analysing the translation in subtitles, it is important to take into account the fact that depending on the genre of the game, the number of dialogues may be different, respectively, and the length of the subtitles may vary as well. Since subtitles can act as a shortened version of the original, they look concise and compact on the screen in order to complement the action of the game, and not to draw attention to themselves (Chandler, 2006). Therefore, in some unimportant moments, the translator may omit a metaphor or shorten it, thus it will look different in translation.

We consider the translation into Russian, presented in the Russian subtitles of the video, of the same cases that were discussed above.

#### *Case.*

Padre: “You know Heywood. It has strong roots – ever watered by the same blood.”

Падре: «Это же Хейвуд. У него корни крепкие. И кровь их питает все та же».

The metaphor ‘*it (city) has strong roots*’ was translated as «у него (города) корни крепкие» (*it (city) has strong roots*). Being ‘a stock’ metaphor, it describes an abstract concept that has an emotional impact on the viewer. In Russian, there is a metaphor «иметь сильные корни» (*to have strong roots*),

<sup>4</sup> [dictionary.cambridge.org](https://dictionary.cambridge.org).

which means to be in good relationships with the family, to be strong because one's connection to the family is strong. The metaphor in the video refers to the city, but it is strong not because of good conditions, but because of the blood that 'fuels' it and because of the gangs that run the city. The phrase was translated verbatim, but it remains metaphorical; the viewer understands the message. The first and second metaphors of this case are related, and although the phrases have opposite meaning in English and Russian, the viewer senses the negative meaning from the context – blood makes the city strong. The translator used 1 and 2 translation techniques, a metaphorical image was left and a Russian equivalent was chosen.

The second metaphor '(city) ever watered by the same blood' was translated as «КРОВЬ ИХ ПИТАЕТ ВСЕ ТА ЖЕ» (the same blood still feeds them). Grammatically, the sentence was changed a bit, the original is in the passive voice, the translation is in the active. As this is 'an original' metaphor, the translators had to use creativity to choose the right translation. There is no such metaphor or equivalent in Russian. The metaphor is neither paraphrased nor has an extra explanation, but it was translated while retaining the metaphorical image. The player and the viewer understand the meaning from the context and in conjunction with the first metaphor.

## Results

Translating video game subtitles is a difficult and at the same time creative task. The translator must take into account a large number of factors before starting to translate. It has to be taken into consideration that the translation of video games differs from the translation of books to a greater extent by the genre and style of conversation, and from films by the size of subtitles and the purpose of subtitles. If subtitles complement the plot in the film, helping to delve into it, then in the game they can distract, so it is necessary to think about the way of translation and the size of the lines.

Numerous elements found in the text are localised and translated: game names, proper names, invented words and expressions, metaphors or units that do not have counterparts in other languages, the translation of which in some cases requires a special skill and creativity. One of the main goals of translation of videogames is the linguistic and cultural adaptation of video games, or the transfer of cultural information in the process of translation.

The author's 'original' metaphors are the most difficult to translate, since in most cases there is no equivalent in TL and the creators invented them themselves. Out of 269 metaphors in *Cyberpunk 2077*, more than 150 were 'original' metaphors and the translators, not finding a suitable equivalent, translated some of them as they considered correct, replacing them with

phrases close in meaning or removing them, while preserving the style and meaning of the utterance. Since the dialogues were in an informal street style, there was a lot of obscene metaphorical vocabulary, and they were intertwined. The translators managed to translate mostly verbatim, while maintaining metaphorical images.

Since there is no general technique for defining metaphors, it can be a complex task to distinguish whether a phrase is metaphorical or not. Sometimes a metaphor becomes an integral part of a conversation and is not noticeable. In other cases, the authors may add new, previously unseen original metaphors to works of art. The situation is complicated by the fact that there is also no general technique for translating metaphors, there are only recommendations.

Translators have to rely on their own guesses, intuition and experience and try to find suitable equivalents. If this is not possible, then they either have to explain the metaphor, which eliminates the aesthetics and ruins the style, or omit the metaphor, which can also harm the style and possibly make the meaning of the sentence incomprehensible. Translators take the decision to save or remove a metaphor based on what type of subtitles they work with, the number of individually authored metaphors in the text (whether the text is overloaded) and how appropriate it will be in a particular situation to resort to metaphorisation at all. Therefore, translators have to decide whether to preserve a metaphor, reproduce the corresponding construction in translation or omit it, compensating in some other, no less expressive way. However, in videogame subtitles, the stylistic effect is as important as the idea of the plot itself. Sometimes translators do not take risks and translate verbatim, referring to the viewers' understanding of the context. Therefore, the translation of metaphors is a real art.

## **MT analysis and MT evaluation of cases**

### **Analysis of MT of metaphors in the *Cyberpunk 2077* YouTube video**

As previously stated, automatic YouTube subtitles appear on the screen after automatic speech recognition (ASR). After speech has been recognised, it is translated. YouTube creates a translation of subtitles using Google Translate. However, as mentioned earlier, the translation algorithm of Google Translate is confidential information.

Machines are trained to recognise expressions, and many of them are already embedded there, so it is not difficult for the machine to translate common metaphors. However, difficulties may arise when translating adapted,

original and author's metaphors, since they are unique. As was mentioned earlier, we considered MT using the example of a video of the *Cyberpunk 2077* game walkthrough in English with automatic subtitles in Russian enabled.

After watching the videos and making a list of metaphors and a list of officially translated metaphors in subtitles, we proceeded to create a list of the automatically translated metaphors on YouTube, which was performed manually as well. Having manually created separate files with the original text in English, the official translation in Russian and MT in Russian, we uploaded them to the website and the calculation was performed. In the initial stage, we took 269 metaphors. The human translation is considered to be 100.00, and the calculation formula described in the previous paragraphs is used to derive the result of MT evaluation – 39.79 BLEU score. Each column in the following picture describes a different metaphor: the higher the column, the higher the similarity between human translation and MT. **Picture 1.** represents overall results of the analysis of 269 metaphors.



**Picture 1.** BLEU score of 269 metaphors<sup>5</sup>

In order to compare the translation of subtitles made by humans and the MT of automatic subtitles on YouTube, we performed an analysis using the BLEU metric of the same examples from the cases which were examined in the previous section.

#### Case.

Padre: “You know Heywood. It has strong roots – ever watered by the same blood.”

Metaphor ‘*it (city) has strong roots*’: the official Russian subtitles (OS) are «у Хейвуд крепкие корни» (Heywood has sturdy roots), while the MT of subtitles is «У Хейвуд сильные корни» (Heywood has strong roots) has

<sup>5</sup> <https://www.letsmt.eu/Bleu.aspx>.

35.36 score. The number of words matches (four words), the name of the city (Хейвуд) and the verb tense (Present Simple) are translated in the same way, plural number, sequence of words (preposition + subject noun + adjective + object noun) are also the same. However, there are lexical inconsistencies: «крепкие» (OS) (sturdy) and «сильные» (MT) (strong). Although they have close meaning, in Russian they are some differences. «Крепкий»<sup>6</sup> (OS) means “durable”, such as when referring to something that is difficult to break or tear; «сильный»<sup>7</sup> (MT) means possessing great physical strength, being powerful. That is, while «Крепкий» (OS) means that something is sturdy and hard to break, «сильный» (MT) means that this object/person can break something. If we talk about a person, they can be sturdy (крепкий), but it does not mean that they are strong (сильный). Despite the difference, the metaphors persist, since these metaphors are present in both languages.

Score	BLEU	Length ratio	Text
Source	-	-	Heywood (city) has strong roots
Human	100.00	1.00	у Хейвуда крепкие корни
Machine	35.36	1.00	у Хейвуда сильные корни

**Table 1.** BLEU score of ‘it (city) has strong roots’ metaphor.

The second metaphor appearing in this example, ‘(city) ever watered by the same blood’ is «кровь их питает все та же» (the same blood still feeds them) in the OS and «их питает та же кровь» (they are nourished by the same blood) in the MT. The metaphor is preserved in both versions, and the meaning is identical, but BLEU showed only a 26.16 score. The similarities are the verb tense (Present Tense) and the meaning. The differences are the following: number of words (six in the OS and five in the MT); a word «все» (still) added in the OS, that reinforces the meaning that this is still happening; the OS is in the active voice, the MT is in the passive voice; depending on the active/passive voice, the structure and the sequence of the words have changed.

Score	BLEU	Length ratio	Text
Source	-	-	(city) ever watered by the same blood
Human	100.00	1.00	кровь их питает все та же
Machine	26.16	0.83	их питает та же кровь

**Table 2.** BLEU score of ‘(city) ever watered by the same blood’ metaphor.

<sup>6</sup> Ozhegov dictionary (ТекстоЛогия) – <https://ozhegov.textologia.ru/definit/krepkiy/?q=742&n=176804>.

<sup>7</sup> Ozhegov dictionary (ТекстоЛогия) – <https://ozhegov.textologia.ru/definit/silniy/?q=742&n=203153>.

## Results

As stated above, MT can significantly save time and, in general, modern neural translation systems perfectly cope with the task of translating the general meaning of a message. However, they have not yet reached the level of perfection when human participation is completely excluded from the translation process.

The biggest problems with the results of MT are related to semantics, since the translation of semantic constructions requires databases that are not currently developed. In addition, translations of complex grammatical, syntactic and lexical constructions cause considerable difficulties. Further development of automatic translation is associated with the possibility of a holistic assessment of texts performed using computer translation systems. It is an adequate and complete assessment that will help to identify and systematise all the shortcomings of the programs so that these problems can be solved in the future.

The most popular metric when analysing the quality of MT is BLEU, but like any metric, it is only close to human translation, but not identical.

According to the results gained after calculation by the BLEU algorithm on the website, MT coincided by 39.79 points with human translation, which is quite a high indicator, although far from perfect. Out of the 269 metaphors found in the videos, 111 showed a result of more than 50%, of which 57 showed a 100% match. Although 158 metaphors showed results below 50%, 81 of them were even below 10.00 score. According to such data, it can be concluded that MT translation does not cope very well with metaphors, especially with author's ones, and needs further refinement and training.

Translating metaphors is not an easy task for a human translator. Besides the fact that the metaphor needs to be defined, it needs to be translated correctly. MT often makes mistakes and is not very good at translating fiction or text in which there is live or recorded everyday speech, where there are no clichés, but rather a lot of artistic turns and figures of speech. Metaphors in such texts are sometimes created by individuals and they may not even be immediately identified, therefore, the machine cannot always recognise and translate them. The question remains, is it worth leaving such a complex and creative work as translating metaphors to a machine, or should a person do it anyway?

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