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IDIOMATICITY AND AI – WORK-RELATED PHRASEOLOGICAL UNITS IN BULGARIAN AND THEIR TRANSLATION EQUIVALENTS IN ENGLISH

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ABSTRACT: In a world where technology is rapidly gaining popularity and is increasingly fulfilling various functions, the issue of machine translation is also becoming a matter of importance. Artificial Intelligence (AI) is quickly turning into a necessity as far as speed and accuracy are concerned. And if AI translation tools come in handy in almost all spheres of rendition from a source (SL) to a target language (TL), there are some challenges when transferring certain types of phrases, sentences and texts. With the assistance of AI tools, translation is becoming a quicker way to handle general phrases, language chunks and texts, yet a personal knowledge of culture and culture-specific competence is needed when phraseological units are concerned. They are culturally-bound units, whereby linguistic knowledge, lexical fluency and ready-made grammatical constructions are not enough to accurately convey the message of the unit. A knowledge of the culture, background and ideology of a social group or people is necessary so as to achieve adequate rendition of ideas and thoughts. Researchers (Mercan, 2024; Shalevska, 2025) have placed the importance of MT, yet they have focused on the significance of the human factor as well. The current study is thus an attempt to delve into the matter of translating phraseological units from Bulgarian into English with the assistance of AI translation tools, thus unveiling the degree to which they can be serviceably and relevantly transferred from one language into another and seeing as to what extent the meaning behind the units has been preserved.

KEYWORDS: Artificial Intelligence, proverbs, translation, phraseology, Machine Translation, translation equivalence, culture

Introduction

Phraseology is a branch of linguistics which deals primarily with fixed expressions, and its scope encompasses phrasal verbs, idioms and phraseological units. Ivova (2021) defines phraseology as a reflection of the cultural peculiarities of a certain ethnic group. Proverbs, at hand, are considered phraseological units which are culture-specific items holding the wisdom, traditions and values of a

certain people, community and nation. Dealing with the origin, structure and meaning of proverbs, paremiology mainly focuses on the interpretation, social, cognitive roles and structure of proverbs. Dabaghi et al. (2010) defines proverbs as possessing a significant rhetorical force in different modes of communication which are to be found not only in friendly environment, but also in poetry, novels, mass media and politics. “Proverbs are in fact everywhere, and it is exactly their ubiquity that has led scholars from many disciplines to study them from classical times to the modern age” (Dabaghi et al, 2010, p. 811). Proverbial constructions also carry the model attitude of social groups, it provides knowledge concerning issues of general importance and can often bring to the fore ideas related to various aspects of life.

Subject-related to spheres of general knowledge, proverbs bring an insight into matters of everyday discussion and food for thought. Bulgarian language and culture have turned to the wisdom of proverbs and their meaning on various occasions in time and they have proven wells of solution to matters of overall importance. Given also the fact that work is a daily matter in the life of the average Bulgarian, work-related proverbs are ubiquitous. Therefore, the subject of research in the current paper is work-related phraseological units and their translation equivalents in English. For the purpose of the analysis, a corpus of 74 examples in Bulgarian (69 proverbs and 5 phraseological units)[1] have been excerpted and translated using four MT and AI translating tools, namely Google Translate, DeepL Translator, ChatGPT and Gemini. The analysis will showcase the degree to which machine translation is adequate with culturally-bound units, to what extent AI can understand and render the message of the idiomatic language and which machine translation tool is suitable for transferring of cultural units. The final question under investigation is whether there is room for proper and precise translation of phraseological units by MT and AI or human thought is needed for concise understanding of specific entities.

Theoretical background

Machine translation appeared as an alternative to human translation. Having been created to facilitate global communication, it has made it possible for people to talk, interact and understand each other even when they speak different languages. “Early machine translation worked from fixed grammatical rules and dictionaries, then improved with statistical models that learned from huge volumes of human-translated text” (Weglot, 2026). Therefore, the translated texts provided by the machine translation tools are to be adequate, precise and as close to the original text as possible. With the advancement of technology, the machine translated texts sound more and more natural and human-like. The latest version of DeepL Translator, for example, uses specialized Large Language Models (LLMs) when translating a text and as a result, it does not translate a text word-for-word, but “analyzes the full sentence or paragraph at once to understand

[1] A complete list of the Bulgarian examples is provided in Appendix 1.

context, idioms, and grammar before generating a natural, human-like response" (DeepL Team, 2021).

Further, with the appearance of Artificial Intelligence and the many translation tools using AI, the process of translation became faster and more precise. Moreover, using AI tools became more sophisticated based on the conversational mode in such tools. "In the field of AI, training refers to the process of teaching a computer system to recognize patterns and make decisions based on input data, similar to how a teacher gives information to their students and then tests their understanding" (Coursera Staff, 2026).

Without any attempt to be meticulously precise, the history of machine translation witnesses a vast and quick development and improvement. Researchers point to the idea of machine translation being thought of back in the seventeenth century (Hutchins, 1995, as cited in Mercan et al., 2024), but elicit the early 2000s as a standpoint in its broader distribution (Jolley & Maimone, 2022; Mercan et al., 2024, Sakareva, 2024; Shalevska et al., 2025).

Mercan et al. (2024, p. 106) suggest that machine translation was initially developed in view and hope of an easier, cheaper, automated system which contains the information of a bilingual dictionary. The traditional MT was based on and used linguistic rules as well as dictionaries to transfer meaning between languages. Shalevska et al. (2025) distinguishes MT from statistical machine translation (SMT), which originates from the early 2000s to unburden and improve the quality of translation. She further traces the path of SMT, which works on the basis of predictions made as a result of comparison and analysis of pieces of bilingual corpora, into the introduction of neural machine translation (NMT), which integrates artificial neural networks to translate sentences the way a human would. In her view, NMT, being "powered by deep learning and artificial neural networks, has become the dominant approach in modern AI translation" (Shalevska et al., 2025, p. 61). NMT, in Shalevska et al.'s opinion, however, "despite these advancements, many challenges persist in MT – challenges such as translating figurative language, cultural references, and ambiguous expressions, among else" (Shalevska et al., 2025, p. 61).

As far as the historical development of MT is concerned, Mercan, Akgün & Odacıoğlu (2024, pp. 108-109) distinguish among several periods of its expansion, starting from *Rule-based MT* in 1950s, which operated with linguistic models, continuing with *Transfer-based MT, Interlingual MT, Corpus-based, Example-based MT* to reach to the establishment of *Statistical MT* in 2000 and *Neural MT* and *Hybrid MT* to the present day. Starting with fixed models, passing through intermediary language (Interlingual MT) and parallel corpuses (Corpus-based and Example-based MT), the enhancement of MT reaches deep learning neural networks to improve MT to the state people use it today.

Yet, the vast change and advancement of technology proved the need for better and 'deeper' translation tools and it was then that computer-assisted translation (CAT) tools and machine-aided human translation (MAHT) as well as human-aided machine translation (HAMT) systems were introduced. However,

this division caused ambiguity and the general term CAT is now used to refer to both.

CAT tools present software applications to assist humans into converting a certain chunk of text into a meaningful unit, thus providing a more effective and efficient translation. The process of rendition involves dividing the content into segments and storing the data of approved translations for future use. CAT tools started as using translation memory, managed certain terminology, used segmentation so as to translate a text. More enhanced CAT tools involve the combination of MT and Large Language Models (LLMs) to review, craft and align translation with the intended meaning.

The four AI translation tools used for the analysis were chosen on the basis of their frequent use for different types of tasks daily. They are by far the most commonly utilized ones in Bulgaria, executed freely and offering a wide variety of functions to match every task given to them. In addition, they all have free versions, making them widely accessible and readily available to users. Google Translate was the first NMT system used in Bulgaria for text translation; however, advances in AI translation technology have subsequently brought the other three to the fore. DeepL Translator is comparable to Google Translate in the aspect that they are both NMT tools and are mainly applied in translation of general texts. ChatGPT and Gemini are LLMs which are quite similar in functions, providing users with a myriad of options, involving translation, suggestions, advice and even human-like conversation. The reasons to compare and contrast these four tools lies in the strive to find the relation and "behavior" of these tools when given the same task.

Out of the four translation tools used for the purpose of the analysis, they can be subdivided into MT systems and LLMs, with Google Translate and DeepL Translator being NMT tools, and ChatGPT and Gemini – LLMs respectively.

Medvedev refers to Google Translate as "one of the easiest and most accessible tools to help users meet their translation needs" (Medvedev, 2016, p. 183). It is the first system developed by the Russian Sergey Brin which originated as a statistical MT system to include only translation between English and Arabic, Chinese or Russian. Having started with ready-made linguistic models, based on official documents, Google Translate improves with the introduction of neural MT in 2016, thus allowing the translation of whole sentences to handling over 100 languages and 100 billion words per day. Sakareva points out that "Google Translate, which employs statistical methods and neural networks, is highly accessible and versatile for general use but may struggle with accurately translating domain-specific terminology in technical or legal documents" (Sakareva, 2024, p. 203).

DeepL Translator is the second NMT system, launched in 2017 by a German AI research company and favoured among professionals due to its accuracy and capability of nuancing. Before the launch of DeepL Translator, the company developed a translation search engine which stored data for future training of AI models. This allowed DeepL to introduce a new generation of neural

network adding more languages to its database and even releasing a specialized LLM in 2025 to use voice-to-voice translation and translating over 40 languages and language variants. Sakareva (2024) refers to DeepL as a top choice for specialized translations.

ChatGPT is by far the most common LLM nowadays, with easily accessible and handy services. It was developed by Open AI and launched in 2022, quickly improving and offering versions to become the fastest growing technology product in history. Used not only for translation, but also for creative ideas, summarization and conversation, it operates with transformer-based models to provide nuanced translations, yet showing variable effectiveness with specialized texts depending on their specificity (Sakareva, 2024).

The last AI translation tool used for the current study is Gemini, previously known as Bard, which was developed by Google DeepMind and launched in 2023. Inspired by NASA's Project Gemini, it hopes to be the bridge towards future AI inventions and developments. It is constructed to process text, computer codes, images and video at the same time, which makes it a multi-model tool. It can also analyze large databases, such as documents and document archives in one prompt.

The advancement of technology inevitably leads to the excessive use of tools to assist the quicker and more effective process of translation. However, there are certain 'specialized' fields which require a thorough knowledge of the culture, customs and peculiarities of a nation so as to translate and render specific entities. Such field is the one of idioms and proverbs. Having gathered the ideology of a certain social group, these phraseological units need more attention and precise approach when rendered from a source to a target text. Darwish et al. (2025), quoting Al-Shawi and Mahadi (2012), suggests that translating idiomatic expressions, requires a detailed acquaintance of each language's culture. He further mentions the difficulty MT might face in the rendition of idiomatic expressions, since "they are built on social, historical, and cultural contexts" (Darwish et al., 2025, p. 3).

Translation of Proverbs and Sayings

Proverbs are an inherent feature of any modern language and culture. They are customary, specific and diverse at the same time, thus collecting the understanding, norms and values of a certain social continuum. "They show speakers' linguistic creativity, and culture, as well as their societal norms, and collective experiences" (Shalevska et al., 2025, p.60). As part of the culture of every nation, having brought the wisdom, creativity and peculiarity, phraseological units are thus specific and require attention not only related to their general meaning, but also when being translated. Proper rendering of proverbs, sayings and idioms shows the capacity of the translator, yet it provides the reader with an incentive into the authenticity of a certain social community. That is why, the challenges that translators face is the rendition of these phraseological units are to be taken into consideration. They are specific and unique word combinations characteristic of a language reflecting the history, traditions, mood, spirituality of people speaking a certain language. As such, proverbs and sayings

may be considered non-equivalent in other languages, which makes them difficult to translate.

Proverbs and sayings have always been a challenge for the non-native speakers of a language, as they are part of the culture and an integral part of the vernacular of a nation. Zhukov defines sayings as “short folk sayings that have both a literal and a figurative meaning or only a figurative meaning and in grammatical terms constitute complete sentences; while proverbs are short folk sayings that have only a literal meaning and in grammatical terms constitute complete sentences” (Жуков/Zhukov, 2004, p. 539). Boyadzhiev emphasizes that “the difference between proverbs and sayings is that proverbs are used in speech as independent judgments, while sayings receive a definitive form only in context, i.e. they are part of a judgment” (Бояджиев/Boyadzhiev, 2002, p. 304). Arnold (1959) draws attention to the fact that proverbs usually have a metaphorical meaning, e.g. *Too many cooks spoil the broth* (in Bulgarian, *много баби, хилаво дете* “*many grannies – a skinny child*”), while sayings as a rule have no metaphorical meaning, e.g. *Where there is a will, there is a way* (in Bulgarian, *Има ли желание, има и начин*). Given the definitions for both proverbs and saying and complying with their characteristics, the current study would adopt the term proverbs to refer to the culturally-bound units under investigation.

Unlike idioms, which are common words or phrases with a culturally understood meaning that differs from what their composite words' denotations would suggest, many proverbs can be translated word-for-word into another language and their meaning will be clear. However, if the speaker of the target language is unfamiliar with the specific context in which the proverbs appear in the source language, they may not understand its ‘the hidden message behind the phrase’. The national-cultural specificity of the source language and its imagery is also to be taken into account.

The presence of a relevant proverb in the TL is not always sufficient to correspond to the meaning of the proverb in the SL. The relevance in form of the proverb in the TL does not necessarily convey the same meaning or the same emotional or stylistic nuancing as in the SL. Boyadzhiev defines proverbs and sayings “as set expressions also because they have in most cases a communicative rather than a nominative meaning” (Бояджиев/Boyadzhiev, 2002, p. 310). Consequently, when rendering them into another language, emphasis is placed on their communicative function and imagery, not so much on their form.

As a result, it is the responsibility of the translator to decide how to render the imagery of the proverb and how to communicate the same function and meaning to the TL as the proverb has in the SL. According to Vlahov and Florin (1990), the approaches to translating proverbs into another language are as follows:

1. Translation by an equivalent or „a historical calque“.
2. Translation by an analogue.
3. Translation by a calque, i.e. literal translation.

4. Translation by retelling or a descriptive translation.

These approaches are suggested for a human translator who reads a text, analyzes the possible approaches and decides on the most appropriate one for the context. Moreover, the translator should consider not only the lexical context but also the cultural, social, historical background so that the choice of the translation technique of rendering proverbs will be adequate, appropriate and acceptable by the readers. Bagasheva (2021) analyzes the translators' approaches when rendering proverbs from Bulgarian into English and Russian, emphasizing on the different techniques human translators used depending on the specifics of the three languages.

However, when MT or AI is used, the algorithm is quite different. Who, or rather, what decides how to translate the proverbs?

Translating phraseological units in general and proverbs in specific presents a challenge not only because it necessitates the preservation of the figurative meaning, but also because they are deeply rooted cultural entities and fine adaptation is needed to convey the message a proverb intends to hold. Because as in Sakareva's words "Even when a translation is grammatically correct, it may still fail to convey the intended meaning due to the inherent complexity of the source material" (Sakareva, 2024, p. 25).

Methods and Data Analysis

In order to test how MT and AI translation tools work with culturally-bound units, to what extent they can detect a phraseological unit, understand the context and translate its metaphorical meaning, we did a research and analyzed how four translation tools, namely Google Translate, DeepL Translator, ChatGPT 4.0 and Gemini 3.6, translated a number of Bulgarian proverbs into English. The reasons why these four applications were chosen for the purpose of our study were two: 1. Google Translate and DeepL Translator were the most preferred applications for machine translation with a free access online; and 2. ChatGPT and Gemini are the two most popular AI translation applications also with a free access online.

To achieve this goal, 74 work-related Bulgarian proverbs and phraseological units were excerpted from online sites. Then, the proverbs and phraseological units were translated by the four translation tools. To analyze the different approaches used by the translation tools as well as to discuss the specifics of each translation version, we employed the descriptive method for the qualitative analysis, the contrastive method to outline the similarities and differences in the translation techniques applied by the translation tools and the method of philological analysis to discuss the results.

1. Google Translate

The first translation tool used in the research was Google Translate.

Table 1. Google Translate data

Translation strategy	Number of proverbs	Percentage
Literal (word-for-word) translation	71	95.9%
English equivalent	3	4.1%
Total	**74**	**100%**

As can be seen from Table 1, all 74 Bulgarian proverbs were translated through this application and the results showed that in 71 cases (95.9%) the proverbs were translated literally, i.e. word-for-word translation was employed; in 3 cases only (4.1%) an English equivalent of the proverb was given, e.g. *Той има пръст в тази работа*. – ***He has a hand in this work;*** *Триж мери, веднъж режи.* ***– Measure twice, cut once.*** As can be seen, there is a difference in some lexical elements (*hand* was used instead of *finger/ пръст*; *twice* instead of *three times/триж*) but the semantics was preserved with the description of the same concept.

One proverb appeared to be a famous aphorism from the Bible and as such, it exists in many languages in a similar form, e.g. *Който не работи, не трябва да яде.* – ***He who does not work should not eat.***

In almost all cases – 71 out of 74 (95.9%), the literal translation was applied for the proverbs. As it was mentioned above, rendering a proverb word-for-word from a ST to a TT does not always convey the 'hidden message' or the metaphorical meaning of the proverb. As much as the overall understanding can be perceived in a TL, the specific nuances may be lost. An example of this case is *На мързеливия все зимата му се копа царевица, а пък лятото му се рине сняг.* – ***The lazy man digs corn all winter, and in the summer he gets snow.*** The Bulgarian phrase *все му се* implies the idea of willingness or enthusiasm to do something, yet in this context it describes a person who shows false eagerness to fulfill a job at an inappropriate time. This specific nuance is missing in the English translation.

Many Bulgarian proverbs contain words which are used in some dialects, or are utilized in a metaphorical sense, despite having a literal meaning as well. Expectedly, they were not translated in the best possible way into English, e.g. *Който се хвали, не пали; който мълчи, той върши работата.* – ***He who brags does not light; he who keeps quiet does the work.*** In this translation of the proverb, the verb *пали* was translated as *to light*, which is the literal translation of the verb, but in the proverb the verb is used metaphorically with the meaning *to work*. In another example a similar inaccuracy was attested, e.g. *За лудо е трудът, кога си забравил реда*. – ***Work is for the crazy, when you have forgotten the order.*** In Bulgarian the phrase *за лудо* means *in vain,* which was not recognized as such by Google Translate and was translated literally.

In yet another case of literal translation, the metaphorical meaning was not recognized at all and thus the phraseological unit was translated as a sentence the meaning of which is left vague, e.g. *Спукана ми е работата.* – ***My work is broken.*** This Bulgarian expression means 'to be in a bad, hopeless situation' and is always used idiomatically. It has no literal meaning.

In the same trend the phraseological unit *Хубава работа, ама циганска* was translated as ***Good work, but gypsy,*** which did not convey the metaphorical meaning of 'not doing the job properly, expressing criticism' as this proverb commonly suggests.

Similarly, the literal translation of the phraseological unit *Пораснала му работата*. – ***His work has grown*** did not render the figurative meaning that this phrase presupposes in Bulgarian, namely 'a person who has taken a higher position in society or in a company, and as a result, he gets conceited'. This phrase has a derogative meaning, which is not caught in the translation.

Another challenge for Google Translate appeared to be homonymous words, i.e. words which have the same form but different meaning, e.g. *Работата краси човека, мързелът го грози.* – ***Work adorns a person, laziness threatens him.*** The Bulgarian verb *грозя* has two homonyms – 1. Грозя, загрозявам (make somebody/something ugly) and 2. Грозя (threaten somebody). In the proverb the first meaning of the verb is used, whereas in the translation the second one was applied. Thus, the second part of the proverb was not translated appropriately.

Grammatical peculiarities of the Bulgarian language were also not detected by Google Translate. In Bulgarian the subject of the sentence may be omitted because the verb forms are inflected for person and number. As a result, two proverbs were translated word-for-word preserving the Bulgarian sentence structure without a subject, e.g. *Яде като мечка, работи като буболечка.* **–** ***Eat like a bear, work like a bug;*** *Яде много, но работи малко.* – ***Eat a lot, but work a little.*** As a result, translated proverbs are grammatically incorrect in English.

2. DeepL Translator

The same 74 proverbs and phraseological units were translated by DeepL Translator and the results revealed that in 54 cases (72.9%) the proverbs were translated word-for-word; in 13 cases (17.6%) the proverbs were provided with a semantic translation; 7 proverbs (9.4%) were translated by eliciting English equivalents.

Table 2. DeepL Translator data

Translation strategy	**Number of proverbs**	**Percentage**
Literal (word-for-word) translation	54	72.9%
Semantic translation	13	17.6%
English equivalent	7	9.4%
Total	**74**	**100%**

Unlike Google Translate, DeepL Translator recognized the semantic load of the proverbs more accurately and thus suggested literal translations of the proverbs which sound more natural because they contain English collocations, e.g. *Кривата нога изкривява обувката, а опаките хора изкривяват работата.* –

A crooked leg warps the shoe, and crooked people warp the work. In the English translation the adjective *crooked* has two meanings, both of which were used in the proverb – 1. Not straight (a crooked leg); 2. Dishonest (crooked people). The verb *warp* also has two meanings used in the translation – 1. Physical deformation (to warp the shoe); 2. Distortion (to warp the work). Compared to the variant suggested by Google Translate, ***A crooked foot distorts the shoe, and perverse people distort the work,*** clearly the proverb suggested by DeepL sounds more genuine.

More examples of semantic translation can be found in the proverbs *Ако работата беше хубаво нещо и дядо владика щеше да работи.* – ***If work were a good thing, even the bishop would work****; След добра работа – добро ядене.* – ***After a good day's work comes a good meal****; Хубава работа, ама циганска.* – ***Nice work, but it's half-assed*** (half-assed – informal – do something with little effort or care, poorly done); *Трудът прави човека достоен, мързелът го загрозява.* – ***Hard work makes a person worthy; laziness brings disgrace;*** *Който се хвали, не пали; който мълчи, той върши работата.* – ***He who boasts doesn't get anything done. He who keeps quiet gets the work done,*** etc.

In 7 cases DeepL Translator found English equivalents, e.g. *Той има пръст в тази работа.* – ***He has a hand in this****; Работи от тъмно до тъмно.* – ***He works from dawn till dusk****; За лудо е трудът, кога си забравил реда.* – ***Work is a fool's errand when you've forgotten the proper order****; Делата са по-важни от думите.* – ***Actions speak louder then words,*** etc., whereas Google Translate operated with word-for-word translation: ***He works from dark to dark; Work is for the crazy, when you have forgotten the order; Deeds are more important than words.***

Although not many word-for-word translations were obtained for DeepL Translator compared to Google Translate, there are still a number of cases when DeepL did not suggest equivalents. Consequently, the Bulgarian structure of the proverb/phraseological unit is preserved, which sometimes leads to incorrect meaning, e.g. *Ръцете хвалят лицето.* – ***The hands reflect the face*** (actually, it should be the other way round); *Спукана ми е работата.* – ***My work is ruined****; Пораснала му работата.* – ***His workload has grown.***

However, unlike Google Translate, DeepL Translator conveyed grammar structures correctly, and those two examples, which lacked the subject when translated by Google Translate because they followed the Bulgarian structure sentence word-for-word, were grammatically correct in this version, e.g. *Яде като мечка, работи като буболечка.* – ***He eats like a bear, works like a bug;*** *Яде много, но работи малко.* – ***He eats a lot, but works little.***

On the whole, if we compare the results from these two translation tools, DeepL Translator gives better versions of the proverbs and even if there are not so many English equivalents suggested, the literal translations are semantically and structurally closer to English sentences. In our opinion, DeepL Translator is a better translation tool than Google Translate when MT and the rendition of proverbs are concerned. It once again proves the ideas suggested above that the

introduction of neural MT as well as the capability of nuancing gives better results when specific texts are to be translated.

3. ChatGPT and Gemini

Developed as LLMs, these applications fulfill many functions among which also having the capacity to maintain human-like conversation by asking questions and giving answers. In contrast to machine translation systems, which function only as translators of texts, AI tools offer an array of functions, one of which is translating a text, if given such a prompt. For the purpose of our study, we used the same two prompts with ChatGPT 4.0 and Gemini 3.6 and analyzed their answers.

Prompt 1: Translate these sentences from Bulgarian into English.

ChatGPT

By giving this general prompt our idea was to verify to what extent the phrases of interest would be identified as phraseological units or proverbs. Before providing translation of the proverbs, ChatGPT gave the following explanation: "**Here is the complete English translation with the meaning preserved. Where possible, I've used equivalent English proverbs rather than literal translations".** This means that ChatGPT identified these sentences as proverbs. As a result, only in 10 cases (13.5%) English equivalents were suggested, e.g. *Бързата работа – срам за майстора. –* ***Haste makes waste****; Орташката работа вълци я яли. –* ***Shared work is often neglected/ Everybody's job is nobody's job****; Спукана ми е работата –* ***I'm in trouble/ My situation is hopeless****; Работата му сама го хвали. –* ***His work speaks for itself,*** etc.

Table 3. ChatGPT data

Translation strategy	**Number**	**Percentage**
Literal (word-for-word) translation	51	**68.9%**
Semantic translation	13	**17.6%**
English equivalent	10	**13.5%**
Total	**74**	**100%**

In 13 cases (17.6%) the semantics of the proverbs was transferred, out of which 8 cases presented an English reinterpretation of the proverb, and in 5 cases additional comments on the meaning appeared in brackets, e.g. *Не оставяй днешната работа за утре, ако можеш да я свършиш вдругиден. –* ***Don't put off today's work until tomorrow, if you can put it off until the day after tomorrow (humorous)****; Хубава работа, ама циганска. –* ***Nice work – but done like a gypsy (This is a traditional proverb containing an ethnic stereotype);*** *Ръцете хвалят лицето. –* ***Hands praise the face (Good work enhances one's reputation);***

Сетила се буля за къделя, пък то било срещу неделя. – ***She remembered the flax only when it was almost Sunday (Too late to start working)***, etc.

At any rate, in 51 cases (68.9%) word-for-word translation was employed. Although the quality of the word-for-word translation was much better than that translated by Google Translate and DeepL Translator with an appropriate wording, proper collocations and correct English word order, there were still cases when the figurative meaning of the proverb was not rendered or the Bulgarian word order was preserved, which hindered the English sounding of the phraseological unit, e.g. *Пораснала му работата.* – ***His workload has grown;*** *Работата да се бои от тебе, не ти от нея.* – ***Let the work fear you, not you the work***.

Gemini

Applying the instructions of the first prompt, Gemini provided the following results of the 74 proverbs: in 67 cases (90.5%) word-for-word translation of the proverbs was used, which means that this application answered the prompt strictly and did not recognize any phraseological units in the list. Only in 2 cases (2.7%) English equivalents were suggested, e.g. *Който не работи, не трябва да яде.* – ***Those who do not work should not eat****; Работи от тъмно до тъмно.* – ***Works from dawn till dusk***. In the second example, despite using the equivalent 'from dawn till dusk' the sentence follows the Bulgarian sentence structure and lacks the subject.

Table 4. Gemini data

Translation strategy	**Number**	**Percentage**
Literal (word-for-word) translation	67	**90.5%**
Semantic translation	3	**4.1%**
English equivalent	2	**2.7%**
Grammatically incorrect literal translation (subject omitted)	2	**2.7%**
Total	**74**	**100%**

In two more cases (2.7%), Gemini followed the Bulgarian sentence structure and omitted the subject, thus making the sentence grammatically incorrect, e.g. *Яде като мечка, работи като буболечка.* – ***Eats like a bear, works like a bug****; Яде много, но работи малко.* – ***Eats a lot, but works little.***

In 3 cases only (4.1%), Gemini applied semantic translation, e.g. *Ако работата беше хубаво нещо и дядо владика щеше да работи.* – ***If work were a good thing, even the bishop would work;*** *Кой през лятото пладнува, през зимата гладува.* – ***Those who loaf in summer will starve in winter*** *(to loaf 'to spend time idly or lazily'); Всеки трябва да се труди, за да има право на прехрана.* ***– Everyone should work to have the right to livelihood.***

In the majority of cases word-for-word translation was a good option and the meaning of the proverb was coherent. Yet in cases when the proverb had a metaphorical meaning, literal translation failed to render it, e.g. *Той има пръст в тази работа. –* ***He has a finger in this matter;*** *Спукана ми е работата. –* ***My work is ruined****; Който се хвали, не пали; който мълчи, той върши работата. –* ***Those who boast do not ignite; those who are silent do the work****; Пораснала му работата. –* ***His work has grown;*** *Хубава работа, ама циганска. –* ***Good work, but it's gypsy's work.***

In the cases of literal translation, one example was attested whereby the application used the inappropriate homonymous meaning of a word, e.g. *Работата краси човека, мързелът го грози. –* ***Work beautifies a person, laziness endangers him,*** where the homonym *грозя* is used in its second meaning of *endanger somebody*, while the Bulgarian proverb presupposes the concept of the first meaning employed – *make somebody/something ugly* and thus the message fails to be fully and adequately rendered.

By analyzing the results after the first prompt, it is clear that ChatGPT suggests better translations of the proverbs and the number of the recognized proverbs is higher. The translations offered by Gemini proved literal, and very often either fail to render the metaphorical meaning or present grammatically incorrect sentences in English.

Prompt 2: Give English equivalents for these proverbs.

ChatGPT

This tool again suggested an explanation before listing the translated proverbs, which read: "Here are the closest **English proverb equivalents** (or the nearest established English saying where an exact equivalent does not exist)". At the end of the list another explanation appeared: "Many of these Bulgarian sayings have **no exact English counterpart**, so the equivalents above are the **closest idiomatic English proverbs** conveying the same idea rather than literal translations" (the bolded parts were marked by ChatGPT). These two explanations actually reflect the process a human translator undergoes when deciding which approach is most adequate in a given context. As a result, all 74 proverbs were translated semantically, i.e. the idea-for-idea translation was applied, if the proverb has no English equivalent. In addition, in 6 cases an explanation was given in brackets which facilitates the understanding of the proverb by non-native speakers of the SL, e.g. *Яде като мечка, работи като буболечка. –* ***All appetite and no industry. (no exact equivalent)****; От работа не се хубавее, а се гърбавее. –* ***Hard work never killed anyone. (ironic opposite in English culture);*** *Хубава работа, ама циганска. –* ***A job worth doing is worth doing well. (avoids the ethnic slur in the original)****; Дето се пие много вино, друг им върши работата. –* ***While the cat is away, the mice will play (approximate),*** etc. In one example after the English equivalent ChatGPT emphasized this fact in

brackets, e.g. *Честният труд носи спокоен живот.* – ***Honest labor bears a lovely face (traditional English proverb).***

Gemini

Similarly, Gemini also included explanations before and after giving the list of translated proverbs: “Here are the English equivalents or proverbs that convey similar meanings to the Bulgarian sayings (before)/ These equivalents capture the essence of the original Bulgarian sayings while providing familiar English expressions (after)”. Unlike ChatGPT, Gemini offered two translations – first, a list of literal translations of the proverbs, and then the English equivalents. No additional explanations were included in brackets. As not all proverbs have equivalents in English, Gemini also suggested semantic translations for those that have no counterparts. These translations were close in meaning presenting the essence of the proverb, e.g. *Яде като мечка, работи като буболечка.* – ***All talk and no action****; Пораснала му работата.* – ***His responsibilities have increased****; Хубава работа, ама циганска.* – ***Looks good, but lacks substance****; Не се страхувай от работата – владей я.* ***– Embrace challenges,*** etc.

Developed on the basis of the translations provided as well as the explanations in brackets, the linguistic analysis of these two AI translation tools lead to the conclusion that when given the precise prompt, both of them translate the proverbs by looking for English equivalents first and suggesting a close counterpart for those which have no equivalents. However, ChatGPT is a better option because it includes additional explanations for understanding the context when needed.

Conclusions

Based on the investigated data of the four applications, the following conclusions may be drawn:

1. Although DeepL Translator proves effective for specialized translations, Google Translate and DeepL Translator are not quite precise when translating **proverbs** or **phraseological units in general**, because being established to work with ready-made linguistic models and database of dictionary entries, they are developed to use word-for-word translation and may fail to recognize metaphorical meaning in a phrase. Very rarely English equivalents were suggested – from 74 examples only 3 cases for Google Translate and 7 cases for DeepL Translator.

2. The specifics of the source language are also significant for MT using word-for-word rendition and may provide grammatically incorrect sentences. In the case of Bulgarian, the omission of the subject in the sentence, the free word order, the category of gender for all nouns, etc. are peculiarities, which, when translated literally, often lead to inaccuracies in the target text.

3. LLMs are preferable when translating idiomatic expressions. The precise prompt for exact instructions is also of importance so that the acquired data is most adequate.

4. Although AI translation tools are more accurate in translating proverbs than MT systems, there are still some language aspects, which they cannot yet recognize, for example, homonyms, cultural nuances, word play, connotations, mental images of a nation, etc.

5. AI translation tools like ChatGPT and Gemini are valuable for human translators since they assist the reception of adequate data in a matter of seconds, which saves their time and effort, but when not provided with the exact prompt, the result of the translated text may be misleading or even unreal. Moreover, AI tools function on prompts given by real people who may want to deliberately 'trick the system', which eventually will result in fabrication of data.

On the basis of the conducted research, it became obvious that although technology is a useful means of quicker and comprehensive translation, notwithstanding whether MT or AI tools are executed, the human mind and knowledge of the culture, language peculiarities and lexical diversity are needed to realize and comprehend the degree of idiomaticity, the cultural elements, the characterstics of the source and the target texts so that culturally-bound units be rendered in a way that the semantics, nuancing and meaning is preserved.

Limitations of the study

This study is only the first step into the issue of MT and AI translation and human translation and is intended to cast light on the general idea of the capability of AI and MT to 'understand' and decipher the meaning behind culturally-bound units. Therefore, the results of the research serve as a starting point for analysis and future investigation into the matter of translation of phraseological units in the age of technology and AI.

Future perspectives

The current research is an initial attempt to delve into a field of linguistics which crisscrosses language, translation and culture. As a pilot study, it placed the grounds for a future initiative to investigate English proverbs and idioms into Bulgarian, the extent to which the semantics of these proverbs and idioms will be understood and conveyed in the target language, as well as the capability of MT and AI into the opposite direction.

Disclosure Statement

As the author of this paper and member of the Editorial Team of Ezikov Svyat (Orbis Linguarum), Mariya Bagasheva declares that she has recused herself from all editorial discussions and decisions concerning this manuscript.

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Appendix 1. Corpus of excerpted data

No.	Bulgarian example	Classification
1	**Бързата работа – срам за майстора.**	Proverb
2	**Орташката работа вълци я яли / Орташката работа и кучетата не я ядат.**	Proverb
3	**Той има пръст в тази работа.**	Phraseological unit (idiom)
4	**Спукана ми е работата.**	Phraseological unit (idiom)
5	**Ако работата имаше край, още дядо ти да я беше свършил.**	Proverb
6	**Ако работата беше хубаво нещо и дядо владика щеше да работи.**	Proverb
7	**Ако искаш добре свършена работа, свърши си я сам.**	Proverb
8	**От работа тежко, без работа – още по-тежко.**	Proverb
9	**На вълка затова му е дебел вратът, защото сам си върши работата.**	Proverb
10	**Питали вълка: защо ти е дебел вратът? Рекъл: защото сам си върша работата.**	Proverb
11	**Който се хвали, не пали; който мълчи, той върши работата.**	Proverb
12	**Работи така, като че ли ще живееш сто години, а живей така, като че ли ще умреш утре.**	Proverb
13	**Яде като мечка, работи като буболечка.**	Proverb
14	**Работата му сама го хвали.**	Proverb
15	**Накарай мързеливия на работа, да те научи на акъл.**	Proverb
16	**Имане без труд лесно се пилей.**	Proverb
17	**Всяка работа си хвали майстора.**	Proverb

No.	Bulgarian example	Classification
18	**Бързата работа – срам за майстора.**	Proverb
19	**Днешната работа не оставяй за утре.**	Proverb
20	**Работата краси човека, мързелът го грози.**	Proverb
21	**Работата на ум учи.**	Proverb
22	**Който не работи, не трябва да яде.**	Proverb (biblical proverb)
23	**Работи от тъмно до тъмно.**	Phraseological unit
24	**Пораснала му работата.**	Phraseological unit
25	**Който работи честно, живее лесно.**	Proverb
26	**От работа не се хубавее, а се гърбавее.**	Proverb
27	**Работата да се бои от тебе, не ти от нея.**	Proverb
28	**След добра работа – добро ядене.**	Proverb
29	**Не оставяй днешната работа за утре, ако можеш да я свършиш вдругиден.**	Proverb (humorous)
30	**Мързеливият два пъти работи, а скъперникът два пъти плаща.**	Proverb
31	**Хубава работа, ама циганска.**	Phraseological unit (fixed ironic expression)
32	**Ако внезапно те обземе силно желание за работа, седни и изчакай да ти мине.**	Proverb (modern humorous)
33	**Дето се пие много вино, друг им върши работата.**	Proverb
34	**Ръцете хвалят лицето.**	Proverb
35	**Трудът ражда доброто, а мързелът – злото.**	Proverb
36	**Кривата нога изкривява обувката, а опаките хора изкривяват работата.**	Proverb
37	**Ако го боли, както го мързи, отдавна да е умрял.**	Proverb
38	**Кой през лятото пладнува, през зимата гладува.**	Proverb
39	**На мързеливия все зимата му се копа царевица, а пък лятото му се рине сняг.**	Proverb
40	**Сетила се буля за къделя, пък то било срещу неделя.**	Proverb
41	**Всяка работа от майстора се бои.**	Proverb
42	**Триж мери, веднъж режи.**	Proverb
43	**Не оставяй днешната работа за утре.**	Proverb
44	**За лудо е трудът, кога си забравил реда.**	Proverb
45	**Зор се прави, лесно се разваля.**	Proverb
46	**Лозето не ще молитва, а иска мотика.**	Proverb

No.	Bulgarian example	Classification
47	**Работата никога не свършва напълно.**	Proverb
48	**Хората често избягват труда, дори да е полезен.**	Proverb
49	**Най-добре свършената работа е тази, която правиш сам.**	Proverb
50	**И с работа е трудно, но без нея е още по-зле.**	Proverb
51	**Самостоятелността прави човека силен.**	Proverb
52	**Делата са по-важни от думите.**	Proverb
53	**Трябва да работиш усърдно, но и да цениш живота.**	Proverb
54	**Яде много, но работи малко.**	Proverb
55	**Добрата работа сама говори за човека.**	Proverb
56	**Мързеливият често дава акъл без да работи.**	Proverb
57	**Богатството без труд лесно се губи.**	Proverb
58	**Майсторът се познава по работата.**	Proverb
59	**Прибързаната работа води до грешки.**	Proverb
60	**Не отлагай днешната работа.**	Proverb
61	**Трудът прави човека достоен, мързелът го загрозява.**	Proverb
62	**Чрез работа се учиш и развиваш.**	Proverb
63	**Всеки трябва да се труди, за да има право на прехрана.**	Proverb
64	**Честният труд носи спокоен живот.**	Proverb
65	**Трудът изтощава физически.**	Proverb
66	**Не се страхувай от работата – владей я.**	Proverb
67	**След труд идва награда.**	Proverb
68	**Когато някой се отдава на удоволствия, друг върши работата му.**	Proverb
69	**Трудът носи добро, мързелът – зло.**	Proverb
70	**Лошите хора развалят работата.**	Proverb
71	**Който не работи навреме, ще страда после.**	Proverb
72	**Майсторството се налага над работата.**	Proverb
73	**Без ред и организация трудът е напразен.**	Proverb
74	**Лесно се руши това, което трудно се прави.**	Proverb

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