ФОРМИРОВАНИЕ МАШИННОГО ПЕРЕВОДА И ЕГО НАСТОЯЩИЙ СТАТУС В АЗЕРБАЙДЖАНЕ

© 2020

ORCID: 0000-0004-5791-1456N
Алекберова Наргиз Шакир кызы, аспирантка
*Институт языкознания им. И.Насими Национальной академии наук Азербайджана
(AZ1145, Азербайджан, Баку, пр. Г.Джавида 115, e-mail: aim.2020@mail.ru)*

Аннотация. В статье рассматриваются история, этапы развития и роль машинного перевода, который стал одним из важнейших вопросов нашего времени с проникновением компьютера в нашу жизнь, .в мире и в Азербайджане. Интенсивное развитие международных отношений еще больше ускоряет процесс устранения ряда проблем с этим типом перевода. Цель исследования — проследить историю исследований, связанных с машинным переводом в мире, и их проявление в Азербайджант, и анализировать проблемы в данной сфере. Научная новизна статьи, в том, что здесь рассматриваются ряд вопросов, связанных с проблемой машинного перевода, всесторонне объясняются и комментируются направления развития и перспективы этих вопросов в Азербайджане. Вопросы, перечисленные в связи с научными инновациями, могут быть использованы для практических целей в существующих системах машинного перевода в Азербайджане. Такая практическая апробация может быть очень полезна с точки зрения дальнейшего совершенствования системы. Как известно, машинный перевод имеет ряд преимуществ перед переводчиком-человеком. В отличие от переводчика-человека, эта система перевода способна переводить очень большие тексты в короткие сроки. Программы машинного перевода могут использоваться индивидуально разными пользователями. В процессе перевода может потребоваться последующее редактирование. В исследовании использовались такие методы, как лингвистическое описание, сравнение, формализация, а также системный подход. В заключение делается вывод о том, что текущую ситуацию в Азербайджане следует переоценить, проанализировать и сделать прогнозы, изучив происхождение машинного перевода в мире и в Азербайджане и его историческое развитие в целом.

Ключевые слова: машинный перевод, лингвистический анализ, программное обеспечение для перевода, Азербайджанский язык, фразеологические соединения

THE FORMATION OF MACHINE TRANSLATION AND ITS PRESENT POSITION IN AZERBAIJAN

© 2020

Alakbarova Nargiz Shakir, PhD student in Phylology
*Institute of Linguistics named after Nasimi of Azerbaijan National Academy of Scences
(AZ1145, Azerbaijan, Baku, H.Javid ave. 115, e-mail: aim.2020@mail.ru)*

Abstract. The article explores the history, development stages, and role of machine translation in the world, and in Azerbaijan, which has become one of the most important issues of our time, with the penetration of computer into our lives. The intensification of international relations further accelerates the process of eliminating a number of problems with this type of translation. The purpose of the study is to follow the history of machine translation-related research in the world, and its manifestation in the context of Azerbaijan and to give analysis of these issues . The scientific novelty of the article can be considered as a new interpretation of the issues related to the problem of machine translation, a comprehensive explanation and comment on the development directions and prospects of these issues in Azerbaijan. The issues listed in connection with scientific innovation can be used for practical purposes in the existing machine translation systems in Azerbaijan. Such practical approbation can be of great benefit in terms of further improvement of the system. As you know, machine translation has a number of advantages over a human translator. Unlike a human translator, this translation system is capable of translating very large texts in a short time. Machine translation programs can be used individually by the user. Subsequent editing may be required during the translation process. The methods such as linguistic description, comparison, formalization, and techniques of engineering programming and a systematic approach have been used in the research. In conclusion, it is concluded that the current situation in Azerbaijan should be re-evaluated, analyzed and the forecasts should be made by investigating the origin of machine translation in the world and in Azerbaijan, and its historical development in the past.

Keywords: machine translation, linguistic analysis, translation software, Azerbaijan language, phraseological compounds

INTRODUCTION

Today, machine translation is becoming more widespread in the world after the advent of the first electronic computing machines (modern computers). The integration of the world countries has made this issue even more relevant and has attracted the attention of many scholars. The following processes were the main stimulus for the emergence and development of this area at today's level. For example, specialists have spent 5 years, several laboratories and $ 200,000 of funds for the development of relay circuits in America. At the end of the project, it became clear that the research was carried out many years ago by scientists from the Soviet Union. However, American scientists were aware of this only in 1955. There are hundreds of examples of such cases.

The close scientific and cultural relations, information exchange, and new scientific and technological discoveries of the world states are once again underscoring the enormous role that machine translation plays in our daily lives. Today, in Moscow, the capital of Russia, 18 departments at the Union Chamber of Commerce , which main task is to develop the country's economy, are engaged only in translation works. In those departments, texts consisting of approximately 3 billion lexical units are translated from native language into a foreign one each year. This figure represents only a small part of the task at hand. To cope with such large volume of orders made the usage of machine translation inevitable. Generally, the creation of electronic computing machines has been a huge impetus for such a process.

The history of machine translation dates back to 1946. However, this fact does not indicate that scientists understood the necessity of machine translation only in the nineteenth century. Simply political economic relations between hegemonic countries in the world accelerated this process. However, in the seventeenth century German mathematician G.W.Leibnitz and R. Descartes put forward the idea of the possibility of translation through a number of mechanisms, before computers came into existence. They were trying to create a dictionary composed of digital codes.

In 1949, for the first time, the director of the Rockefeller Foundation, Warren Viver, put forward the idea that the translation, that is now available to the whole world, can

be made by using digital computers [11, p. 52]. Viver's translation memorandum is probably can be considered the most authoritative publication for the begining of machine translation research first in the United States and then around the world, when most people had no idea what computers might be capable. Viver argued that the issue was possible from a linguistic point of view, and his colleague Claudia Shannon worked on a mathematical model of machine translation. This model was the beginning of modern science of cryptography. Thierry Poibeau in his book called "Machine translation" explains his views in this way:

"In Weaver and Shannon's model, a message is first encoded by a source (which can be a human or a machine), sent and then decoded by a receiver. For example, a message can be coded in morse code, transmitted by radio, and then decoded in order to be comprehensible by a human. This model is the foundation of cryptography" [11, p. 52].

The memorandum was the starting point for Joshua Ba Hillel of Jewish-origin to initiate extensive machine translation research at the Massachusetts Institute of Technology (MIT) in 1951. As a result of the studies, Y.B. Hiller held his first conference at the MIT in June 1952, and a new Machine translation system was introduced to the public in 1954 as a result of the joint efforts of the Georgetown MT research team and IBM. In this conferance " a set of 49 Russian sentences was translated into English using a relatively simple dictionary (a dictionary of only 250 words and six grammar rules). The impact of the demonstration was considerable and contributed to the increase in financial support for machine translation. There was also extensive media coverage of the event which helped attract public attention" [6, p. 46].

At the time, much of the initiative for the creation of such a system — MT in the US was related to the interest in watching the events in Russia. The MT research groups were formed in Russia and Japan in 1955, and the first machine translation conference was held in London in 1956. In general, at the conferences in the United States and the United Kingdom in the early 1950s and 60s, this topic was one of the most pressing and often debated.

At a conference in Teddington, England, in 1961, most of American scholars' reports focused on transformative analysis, the problems of polysemy and etc. Also, speech recognition and automatic reading of text have been raised as a matter of principle. In those years, machine dictionaries and glossaries (explanatory dictionaries of multilingual words) of the Russian language have been developed in the UK using electronic computing machines, In France, the issues of more efficient use of a memory device have been explored, while Japan focused on the theoretical problems of MT [2, p. 33].

As a result of all the research done in this field, the United States established the Computer Linguistics and Machine Translation Association in 1962. In 1964, the US National Academy of Sciences established an ALPAC (Automatic Language Processing Advisory Committee) — a committee to expand research in this area. The same committee, in its 1966 report (ALPAC), recommends to stop the funding for research because MTs cannot compete with human translation quality, is slow, inaccurate and costly. But research in this area continues: In 1960-1971, a working group led by Bernard Vogus of the University of Grenoble in France created Interlingua (international language) machine translation system to translate scientifically-related texts on mathematics and physics from Russian into French. Here Interlingua played the bridge. Thus, the source language to be translated was first translated into the international language, and the target language was also derived from that language. This system was developed in Texas in the 1970s under the name METAL. One of the biggest successes of MT in these years can be considered the Systran-Russian translation system created in 1970 at the initiative of the US Air Force. It was an invaluable tool for translating scientific and technical texts to the US, which was at the war with

Russia at that time. In addition, the well-known Xerox Corporation used the Systran translation system (1978) to translate technical instructions. Trados (1984) was one of the first translation companies to develop and market the translation memory technology at that time.

In 1996–2012, Machine Translation is experiencing a new era in the WEB with a leading position. Machine translation started in the Internet these years with free-text translation of small texts, such as Systran (1996), and then began to develope with programs such as, AltaVista Babelfish (1997), which collected 500,000 daily users. Franz-Joseph Och (future head of translation development project at Google) won the DARPA fast MT race (2003) (3, p. 385). MOSES MT engine (2007), a text / SMS translation service for Japanese mobile phones (2008), and mobile phones (2009) with English, Japanese and Chinese languages for speech translation, were the most recent developments in the field of translation. In 2016, Google announced that Google Translate translates about 1 billion words a day (4). This is unbelievable, and we see that all the negative talk about MT has been forgotten by an incredible, advanced technology. Sometimes its quality is lower than human translation, but no one can deny that it has no good, practical use.

Machine translation is a long and complex process which involves many stages. The first step is the preparation of precise formal rules for the regularities of the language, followed by the design of the language algorithm, and finally the last step is programm setting with the help of mathematicians.

There are 4 main approaches to machine translation in our time: Rule-based MT (RBMT) , Example-based MT (EBMT) , Statistical MT(SMT), Neural MT (NMT). The Rule-based MT, the first-generation MT (RbMT) , is based on countless algorithms based on grammar, syntax, and phraseology of a language. "Conventional rule-based machine translation system suffers from its weakness of fluency in the view of target language generation" [3, p. 318] and its paves the way for the creation of the new system.

Example-based MT was introduced by Makato Nagao in Japan in 1984 after observing certain delays in rule-based translation systems:

— the system tries to find fragments of the sentence to be translated in the corpora available for the source language. All the relevant fragments are collected and stored;

— the system then looks for translational equivalences in the target language, thanks to the bi-texts used for translation;

— the system finally tries to combine the translation fragments to obtain a correct sentences in the target language [11, p. 80].

Statistical system MT (SMT-Statistical MT) is different from the above mentioned systems with search and large databases. Due to the large number of parallel texts in the system, designers have created sample-relevant reference documents to find the most statistically relevant translations. This system works faster than RbMT and rely on language material available for reference. Lately, Google Translate, which is ,in my opinion leaves behind other translation programs with its advanced and sophisticated translations, based on a translation process that operates on the basis of predictive algorithms. Google Translate, which has been working on this system for a long time, has switched to the Neuron Machine Translation method since 2016, taking into account incompatibility with grammatical rules when translating from one language into another one.

Neural MT (NMT) software uses machine learning technology to achieve the best results. This process takes a great deal of processing power and is therefore often used in graphical units of CPUs, central processors. Neuron MT began to appear in 2016. Many MT providers are now transitioning to this technology. As mentioned above, Google translate service has been ranked among the highest rates of translation programs by users translating 100 billion words a day according to 2018 statistics [12]. The biggest advantage of the neural MT (NMT) is the direct translation

of the sentence, not word by word translation.

The combination of two different MT methods is called the Hybrid method. "Hybrid approach uses the synergy effect of the strengths of the three previously mentioned approaches. More commonly, hybrid approaches combine statistical and rule-based translations using two methodologies: rules post processed by statistics and statistics guided by rules" [4, p. 229]. Thus, it combines the Statistical machine translation system that selects the most consistent option in the data provided by the Rule-based translation system, which guides the semantic, syntactic, and grammatical regularities of both languages when translating from source language to target language.

METHODODLOGY

The study of the problem of machine translation in Azerbaijani computational lingustics began in the late 60's. One of the most important phases of the system the issues such as the synthesis of words, an automatic compilation of dictionaries were reviewed, the irregularities common to agglutinative languages, vowel harmony , morpheme sequence in a word form, formal description of morphological changes at the border of the root and morphemes was given and program which was installed on the base of the given algorithm was tested by the computer, the desired results were achieved. To be more precise, the vowel harmony was followed during the synthesis process when the root and the affixes were combined. In addition, morphological changes were followed during the sequencing of morphemes and correct word forms were formed.

In the late 1970s, the morphological analysis stage, which occupies a special place in the MT system, was touched. Unlike the synthesis process, here in morphological analysis word forms word forms are subdivided into differential units. Thus, a list of morphemes to automatically separate them into the classes they belong to, and the grammatical features of the bases, is included in the computer memory as a linguistic base. In addition, remarkable effects on MT systems are involved in the study, not only by analyzing and translating individual word forms, but also as a semantic component that examines the correctness and interpretation of fixed word combinations in the text [13, p. 63].

Here, the formal analysis of the text by the meaning, that is, the provision of automatic interpretation of the text, assumes two basic operations. Detection of semantic relationships between words and their description in one or another form of information search thesaurus also performs these functions, as the thesaurus is primarily intended to reveal the relationship between the semantic units of the search language that describes the subject area [1, p. 38-39].

The 90 s of the XX century can be considered as a complicated stage in the history of MT systems in Azerbaijan. Thus, at this stage, the syntactic analysis and synthesis of the sentence has been suggested as one of the most important issues. One of the main objectives of the research was the development of formal language models at different levels. The research resulted in the development of formal models of the language at the morphological and syntactic levels, as well as formal models of the sentence types.

Speaking of MT, first of all, electronic dictionaries come to our mind. Glossaries from this group have been developed before being posted on the internet and have the ability to provide information based on a user's request. These types of dictionaries function both independently and are included in the electronic space as part of translation systems.

— AzerDict is a free online dictionary that has gained great popularity in Azerbaijan. Translation in the dictionary is available in Azerbaijani-English or English-Azerbaijani [14];

— Intelsoft ▬ belongs to the company of the same name and this system automatically converts any text from Azeri into Russian [17];

— Linqvosoft is a system of English-Azerbaijani, Azerbaijani-English, Russian-Azerbaijani, Azerbaijani-Russian dictionaries [16].

Google Translate — is a translation program embracing over 109 languages, which is able to translate from Azerbaijani-English, English-Azerbaijani, Russian-Azerbaijani, etc into other languages vice versa [18].

Polyglot Azerbaijani Dictionaries

This program is one of the most popular systems in Azerbaijan, one of the systems that has won the wide popularity of many users with a lexical base of over 200,000 words and phrases. The system includes dictionaries of German-Azerbaijani, English-Azerbaijani, French-Azerbaijani, Russian-Azerbaijani, or vice versa-German, Azerbaijani-English, Azerbaijani-French, English-Russian and Russian-English. Although this program is richer than Dilmanc in terms of language diversity, it is based on word-for-word translation rather than a direct sentence like Dilmanc. In addition, the program is equipped with a jigsaw puzzle game that will instill new vocabulary to adults and children in an entertaining way. To complete any form described in the puzzles, you need to find the little puzzles that the image is being made, and to find those little puzzles, you need to translate word from Azeri into English.

More than 8-9 book dictionaries have been used for the preparation of the electronic version of the dictionary. It should be emphasized that this electronic dictionary system ranked 5th in the list of the 10 most used books on the site "Book.Az" on February 12, 2013 [5, p. 86].

Dilmanc project

Dilmanc is the first electronic dictionary in the machine translation system of Azerbaijan [15]. The first serious steps in the field of automation of translation process from mother tongue into other foreign languages were implemented in Azerbaijan in 2003 under the leadership of academician A.M. Abbasov. During this period, the translation of texts from Azerbaijani into other languages, or vice versa, was carried out on the basis of a numerical modeling method, which was a special modeling method, and the foundation of the Azerbaijani-English machine translation system was laid.

The project was launched in 2005 on the initiative of the Ministry of Communications and Information Technologies of the Republic of Azerbaijan.

Scientific consultant — Academician Ali Abbasov, Ph.D. Abulfat Fatullayev, consultants in the field — Doctor of Philology, Professor Masud Mahmudov (Linguistics), Doctor of Technical Sciences, Professor Bayram Ibrahimov played an invaluable role.

The lexical base of the system includes more than 250000 common words and forms and is a great help to the user in translating large texts. This dictionary is one of the most important and weighty projects in the history of Azerbaijani machine translation and has been made available to the public for free. Positive results have been obtained from the scientific research provided by the project and the following technological innovations have been obtained.

The following sub-sections were developed within the project:

Automatic translation and vocabulary systems – this is an online service that implements the translation process in Azerbaijani, English and Russian and has a dictionary in all three languages. These systems can be downloaded by visiting dilmanc.az site .

Speech Recognition System - this sytem automatically converts made verbal speech in Azerbaijani language into written speech, supported by Windows and Android operating systems.

Text-to-speech system is able to read in human language with the correct pronunciation of the computer text. Users can access this system, including computers, on mobile phones.

Mobile Translator — automatically translates verbal speech into Azerbaijani, English and Russian, combining the above systems.The users of this program can use it for free. Everyone can benefit from the program: a local tourist traveling abroad or foreign tourists visiting our country will

be able to cope with widespread problem, language barrier, which most of them frequently face with.

The program, which has a database of more than one million words, has taken more than a year. Only in 2015, the program had more than 70,000 users.

Voice-Controlled Computer — this is a very well thought out system for people with visual impairments. Thus, this mobile computer is voice controlled and responds to the user aloud. The system was implemented by a joint project of the Ministry of Communications and Information Technologies and the Heydar Aliyev Foundation.

RESULTS

As a result of research on the above technologies, the project team has made many scientific achievements, which have been presented at many international scientific conferences and published in reputable scientific journals. The European Machine Translation Association also included the Dilmanc project in the list of European research groups. The articles of the project team have been included in the IEEE electronic library, mt-archive.info and other libraries [15]. The preparation of this electronic dictionary has many advantages, including the features listed above. So that, translating large volumes of texts within a short time from their native language into English, Russian, and other languages, and the implementation of this process in verbal speech is an admirable aspect of the program. At the same time, the problem facing Google translate translation program, which also has a large number of users worldwide, remains unresolved in Dilmanc. So, if we explain the problem in detail, we will see, first of all, that we encounter this problem mostly in literary translation. In general, since the literary style reflects the national artistic thinking of each nation, it should not come as a surprise when we consider that the object of translation is not a living human, but a inanimate machine. It would be better to draw a few examples to clarify our point. We encounter an interesting point when translating a short poem by the American writer Theodore Roetke by Shahla Nagiyeva. So that, in the poem "Wish for a Young Wife" the lines:

My lizard, my lively writher,
May your limbs never wither

So in the first line, the phrase "*my lizard*" is literally translated by the machine and sounds in Azeri language like "*mənim kərtənkələm*" during the literal translation from English into Azerbaijani. So according to azeri culture lizard is an animal which is disliked by most of people. So such a translation will create confusion and remain dark for the Azerbaijani-speaking reader what the writer wants to convey. While for English reader this is a phrase which is used to fondle someone.

For example, "*You are my lizard*" is a sentence used to fondle someone in English and is translated by machine directly as "*Sən mənim kərtənkələmsən*". So according to azeri culture lizard is an animal which is disliked by most of people. So such a translation will create confusion and remain dark for the Azerbaijani-speaking reader what the writer wants to convey. However, professor, translator, philologist Shahla Nagiyeva, as a person who is familiar with American culture and folklore, has translated the combination into azeri like "*Mənim körpə quzum*" which sounds as "*My lamb*" in English. Such translation convey real meaning of the phrase and it becomes clear to azeri reader that the writer uses the word not to insult but cherish someone [10]. We frequently run into such cases specially in translation of proverbs or phrases. "*A Bird in the Hand is Worth Two in the Bush*". — The English proverbs is translated by the machine word-for-word as "*Əlindəki bir quş, koldakı iki quşdan daha dəyərlidir*". However, it becomes even clearer when this proverb is translated as "*let it be onion, but paid by cash*" for an Azerbaijani reader. The English proverb "*I'm afraid of the Greeks even when bringing gifts*" is translated by the machine word by word ,which doesn't convey the same idea properly.

It would be more appropriate to say, "*İtlə dostluq edən*

çomağını yerə qoymaz*" which means "*If you make friends with dogs, never lie down your bludgeon*" The other proverb "*First catch your hare, then cook him!*" is translated by the program into azeri like "*Əvvəlcə dovşanı tut, sonra bişir*", which is word -for-word translation. However it is not the right equivalent for this proverb. It would be more appropriate to translate it, as "*Don't say hop before you jump the canal*". Another proverb, "*Walls have ears*" is translated by the Dilmanc program as "*Divarların qulağı var*" which is close to the equivalent of the target language, while Google translates it as "*The Earth has ears*" — "*Yerin də qulağı var*" which completely coinside with azeri version.

In addition, we face with such phenomena specially in translation of realias — word groups that mean objects and concepts specific to one nation's culture and history and don't exist in other languages. For example, it is better to translate the words such as "dolma" "qatıq" "dovga", yogurt, and dill, which express the national meals of Azerbaijani cuisine by giving the explanation or equivalent, to give an idea about these concepts in a foreign tourist. For example, in Google translate, the word "qatıq", which does not exist in the life of the English people, is given as "yogurt" and "sour clotted milk", as well as "Caucasian milk". In my opinion, such words can be placed in the dictionary of the Dilmanc program, as they do not make up a large part of the Azerbaijani dictionary. This approach can be used to solve the problem of translating proverbs or phrases that I have given above.

The study of phraseological units from the semantic aspect plays an important role in the study of the way of thinking of the people to which they belong, its stages of development, historical and cultural traditions of this people, language features [13, p. 72]. Given that phraseological units reflect the national image of the language, it is impossible not to see or imagine the difficulties it creates in the translation process, especially in the system of machine translation [7, p. 37].

We would like to share with you some interesting facts that we encounter when translating phraseological or fixed phrases. Thus, although the phrase "*skeleton in the closet*" is translated by Dilmanc literally as "*şkafdakı sklet*", it would be correct to translate it as "*a family secret that will be firmly protected*". In addition, the phrase "*to fall at someone's feet*" is also literally translated, however, it would be more correct to give an appropriate equivalent as "*to be in good condition after having a bad or difficult experience*".

In short, in order not to face problems when translating such words and combinations, it is necessary to include their appropriate translation options and equivalents in the knowledge base of the system. Of course, this process requires a certain amount of time and effort. Recently, I think that there are several elements that we can benefit from the "Google translate" translation program, which has won the sympathy of a large number of people in Azerbaijan, and we can apply it to our national translation program Dilmanc. One of them is the "improve translation" item (or button) in that program. Thus, a user who is sure that any phraseological combination or word is not translated correctly is given the opportunity to enter into the system the translation option that he knows correctly for the benefit of other users. I came across this situation while translating the phrase "*frequency dictionaries*". So, in the electronic Google translation program, it is given as "*speed*", while the word doesn't refer to any machine or mechanism, but it is related to the frequency of words. So that, I have included the word "*frequency*", which I know to be the most appropriate equivalent of this term to the database of this system. I would like to express my opinion that if such technical capabilities were created by programmers in the Dilmanc translation system, and each user could include the option in the system's knowledge base, then no additional time and manpower would be required to update the system's dictionary database. But if we do not have such a technical opportunity, it would be better to place a limited number of compounds with rich national elements and reflect our culture directly in the base of Dilmanc Translation

program. In this way, we will not only benefit users, but also achieve great success in instilling and expressing our national culture. Then I think that every employee who joins this useful work will only enjoy it.

In some cases, the translation requires the intervention of a human interpreter. This is especially true when it comes to gender issues. Thus, the pronoun "*O*" in the Azerbaijani language can be applied to both men and women. In English, the female gender is unambiguously pronounced "*she*" and the masculine gender "*he*". In Russian, the masculine gender is pronounced as "*он*", the feminine as "*она*", and the middle gender (often referred to as inanimate) as "*оно*". In different languages, such gender diversity is confused by the machine, and gender is often misinterpreted. For example, the sentences "***Əsnad*** *nə edəcəyini və hara gedəcəyini bilmirdi.* ***O,*** *bu hadisələrdən çox təsirlənmişdi və buna görə də, şəhəri tez tərk etmək istəyirdi.*" İs translated by the machine like "***Asnad*** *did not know what to do and where to go.* ***He*** *was deeply affected by these events and wanted to leave the city as soon as possible*". However, "*he*" refers to men, not women, while Asnad indicates to the female name. Such situations necessitate the intervention of a translator.

CONCLUSION

Finally, I would like to conclude that machine translation has many advantages, along with a number of shortcomings. One of these advantages is its versatility, and thanks to this feature, it is able to perform translations in all areas. The human translator is often specialized in a particular area and is well aware of the terminology of the field, while the machine translation is multifaceted and is able to carry out translations in all areas. At the same time, there are some factors that put the machine translation back from the human translator, so that's the reason why experts in the field are currently interested in solving these problems quickly.

DISCUSSION

Machine translation often succeeds in translating official business documents and scientific texts. The issue is relatively complicated when it comes to literary translation. Thus, in literary translation, it is often difficult to understand and interpret it by machine because it uses many words, frzeological combinations, idioms, and proverbs. These can also be attributed to the translation of realities. Because in order to translate such associations, it is necessary to know and know the customs, way of thinking, national spirit of the people of the association. While this is still a major problem facing machine translation, I think that in the next 5-10 years, there will be great success in this area. This can be achieved by placing those combinations into the knowledge base of machine translation systems. But in my opinion, even if the translation work is done efficiently by the machine, the factors that need to be considered by the person will be inevitable. For example, as the gender category in the different systems mentioned above.

REFERENCES:
1. Мамедова М.Г. О создании банка терминологических данных азербайджанского языка // Советская тюркология. [On the creation of a bank of terminological data of the Azerbaijani language // Soviet Turkology], 1990, №2, с. 84-89 (in Russian).
2. Chan, Sin-Wai. Routledge Encyclopedia of Translation Technology. Oxon: Routledge. 2015 , p. 385.
3. Ki-Young Lee and Young-Gil Kim, 26th Pacific Asia Conference on Language, Information and Computation, November 2012, Bali, Indonesia. pp. 318–324.
4. Jabesa D., Yaregal A. A hybrid approach to the development of bidirectional English — Oromiffa machine traslation // Advances in Natural language processing, 9th international conference on NLP, PolTal 2014, Warsaw, Poland, september 17-19, 2014. pp. 228-235. DOI: 10.1007/978-3-319-10888-9_24.
5. Mahmudov M. Kompüter Dilçiliyi. [Computer Linguistics], Elm və təhsil, Bakı-2013, 356 s. (in Azerbaijan language).
6. Melchuk I.A., Ravich R.D. Automatic translation (1949-1963) .M., 1967 520 p.
7. Mirzəliyeva M.M, Vəliyeva K.Maşın tərcüməsinin nəzəri problemləri. [Theoretical problems of machine translation], Bakı 2016, 120 s. (in Azerbaijan language).
8. Nağıyeva Ş.Poeziya tərcüməsinin bəzi məsələləri [Some issues of poetry translation], Bakı 2011 ,215 s. (in Azerbaijan language).
9. Poibeau Th., Machine translation, Massachusetts, 2017, 296 p.
10. Turovsky B. Ten Years of Google translate, 2016 URL: https:// blog.google/products/translate/ten-years-of-google-translate/ (Date of acceptance: 26.04.2019).
11. Vəliyeva K. Komputer dilçiliyinə giriş. [Introduction to computer linguistics], Elm və Təhsil , Bakı, 2018, 380 s. (in Azerbaijan language).
12. http://azerdict.com (Date of acceptance: 13.03.2019).
13. http://dilmanc.az/en/project/about (Date of acceptance: 13.03.2019).
14. http://www.linqvozone.com/ LinqvosoftOnline-English-Azeri-Dictionary (Date of acceptance: 21.03.2020).
15. http://translate.intelsoft.az (Date of acceptance: 08.04.2020).
16. https://translate.google.com/ (Date of acceptance: 13.03.2019).