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THE PATTERNS AND ISSUES OF MACHINE TRANSLATION: THE CASE OF REALIA TRANSLATION

BACHELOR THESIS

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CONTENTS

INTRODUCTION

Nowadays, when people can freely travel through the world and countries communicate with one another more than ever before, the necessity to translate foreign texts is increasing. New ways to translate source language texts into the target language are produced. One of them is a machine translation. Machine translation has both advantages and disadvantages. Nobody doubts that it is the easiest way to translate unknown words. However, the computer program can not recognize all words, especially cultural realia. Cultural realia is defined as a word or a phrase which is used by one culture but is alien to another. The professional translators and linguists use various strategies in order to transfer the meaning of words with cultural implications. Unfortunately, the tools of machine translation are still not able to transfer specific language units.

The object of the work is cultural realia translated by a machine and by a human being.

The aim of the work. The aim of the present paper is to compare cultural realia translated by a machine and by a human being.

Objectives of the work. In the course of the research the following objectives have been set up:

1. To define the notion of cultural realia and to analyze translation strategies proposed by different scholars.
2. To provide a brief review of history and patterns of machine translation.
3. To compare cultural realia that were translated by a machine and by a human being.

Taking into account the aim and objectives of the research paper, the **hypothesis** that the tool of machine translation can not propose the right Lithuanian equivalent for words with cultural implications may be formulated.

In this research paper the term cultural realia sometimes is used interchangeable with terms words with cultural implications or culture-bound words. The machine translation should be understood as fully automatic machine translation.

Methods of the research. Research methods used in this paper includes:

1. The method of metaanalysis, which helped to review the conclusions made by other authors about the translation of cultural realia;

2. The contrastive method, which enabled to compare the cultural realia translated by a machine translation and by a human being.

3. The descriptive method, which provided a possibility to analyze the examples of cultural realia translated by a machine and by a human being.

Research data. The examples of were taken from two novels:

1. Austen, J. (1956) *Pride and Prejudice*. Boston: The Riverside Press Cambridge
2. Harris, J. (2007) *The Lollipop Shoes*. UK

The examples were translated using the computer program created by Vilnius Vytautas Magnus University.

The scope of the work. The research paper includes 126 sentences from both novels.

The structure of the work. The paper is comprised of 3 main parts. The first and the second parts provide theoretical background for further analysis of cultural realia translation using the tool of machine translation. The first part deals with concept of cultural realia and translation strategies. The second part reviews the history, types and patterns of machine translation. The third part of the present paper deals with the contrastive analysis of cultural realia translated by a machine translation and by a human translator.

The practical value of the work. Students conducting research in the area of translation may use the data that are presented in the paper. In addition, the conclusions made in this work may encourage scientists to improve the tools of machine translation.

1. THE NOTION OF CULTURAL REALIA

Translation is a kind of communication between two languages. Routledge dictionary defines the translation as the transferring of the meaning of the source language text into the target language text using appropriate equivalents and various translation strategies (Baker 1988:1222). Ambrasas-Sasnava (1978:8) describes translation as a transformation of written or oral text into the text of another language. However, this work is not as easy as it seems to be at first glance. To quote Thriveni (2001), "there is a distinction between meanings built in and the meanings that must be captured or expressed." Usually, different countries incline their people to pay attention to different aspects of environment (Thriveni 2001). Following Danytė (2006:195), translated texts could be a window to other cultures, but it is impossible to make them completely transparent. In addition to this, readers form their opinion about country based on literature translations.

The process of translation involves not only two different languages, but also two different cultural lives. Translation theorists, professional translators, philosophers, historians, linguists and other scientists emphasize the importance of the cultural knowledge. Danytė (2006:195) claims, that "translation is not only a linguistic process but also a cultural one." There is a big variety of definitions of the word culture proposed by different scholars. All of them reflect understanding of the notion of culture but all of them include such concepts as customs, traditions, habits, environment, feelings and beliefs, national literature especially legends and myths, geographical boundaries, religious elements, folklore. In general, the three most significant categories which are involved in the concept of culture would be artifacts i.e. material culture, norms i.e. the behaviuor of inhabitants, and values i.e. spiritual, intellectual and emotional traits of a society. Cultural realia gives the country the feeling of unity, whereas the language helps to reflect this unity. For instance, Lithuania as the old Indo-European country has a strong agricultural background and Lithuanian language is therefore influenced by agricultural environment. Consequently, many people conceptualize our country as a state of agriculture (Baranauskienė et al. 2005:201).

Meanwhile, talking about translation every country has its own national features and the language is full of words and phrases with specific cultural implications. According to Bulgarian linguist Florin (1993:129) the terms culture specific items, words with cultural implications, culture-bound words or simply realia are used to name concepts and objects that characterize the way of life and thinking, culture, social and even historical developments of the country unfamiliar to another. To quote Robinson (2003:186), "words and phrases that are so heavily and exclusively

grounded in one culture are almost impossible to translate into the terms – verbal or otherwise - of another." Baker (1992:21) agree to this idea and emphasizes the fact that one concept in the source language may be totally unknown and unfamiliar to the target culture. Baker illustrates it by giving an example of British cultural coloured word *cream tea*. The expression *cream tea* has no equivalents in other languages, because people in any other culture do not drink tea and eat scone with jam or clotted cream in the afternoon. Many Lithuanian words such as *bernas, bulviakasis*, *cepelinai* etc are also alien in other cultures. Following Newmark (1988:94) every speech community uses a large sum of terms related to an activity or sphere popular in their country. For instance, English cricket words, French words related to cheese and wines, German words denoting sausages etc. Such terminology is less familiar to foreign people, because they need less terms to describe phenomena outside their culture. People who go in for translation face some challenges while transferring both the sense of fiction texts and the meaning of the texts from national organizations, travel offices etc. The translator should not only have good foreign language knowledge but also be acquainted with customs, traditions, habits, norms, values and even the way of thinking of the auditorium to whom he translates (Baranauskienė et al 2005:202).

Considering the fact that every culture has a particular set of cultural realia, a number of linguists put their own point of view how to divide words and expressions denoting cultural implications. Different scholars propose different classification systems. The most informative classification was proposed by English scholar Newmark. He mentions five areas. The first category is ecology. It consists of everything associated with nature (flora, fauna, winds etc.). Then follows material culture i.e. national food, cloths, artifacts, transport, houses, towns. The third group is social culture (leisure and work). The fourth category includes political and social organizations, legal life, religious customs and artistic ideas. The last area is gestures and habits (Newmark 1988:94-103). The nearest to our mindset would be a classification of Lithuanian linguist Gudavičius. Besides material things and historical realia, the scholar distinguishes spiritual culture: feasts, folk dances and songs, myths, national cloths, traditions and customs, national cuisine. This group of cultural realia also includes values, behaviuor, symbols, moral norms, mentality, rules of everyday life, superstitions, gestures, etc. According to Gudavičius (2000:79), terms denoting spiritual culture have no equivalents in other languages. Mikutytė (2005) entitled realia of spiritual culture as situational realia and nonverbal elements. Moreover, the linguist attributes to cultural realia allusions to folk, literature, philosophical, art, religious and scientific traditions of the country. Many discussions are made about proper nouns. In the Routledge Dictionary of Language and Linguistics (1996:958) proper noun is described as "semantically

defined class of nouns that unequivocally identifies objects and states of affairs within a given context." Generally, proper nouns are names of people, geographical places, periodicals, literature and art works, goods and companies, streets and squares. Not all translation strategies used for translation of cultural realia fit for the translation of proper nouns. To quote Mikutytė (2005), the way in which proper nouns could be properly translated depends on the type of the name i.e. is it a real name or simple fictitious. Usually, names and titles are transcribed or written in italics. However, proper nouns will not be a matter of this research paper. Another classification proposed by Mikutytė (2005) is based on the criteria of occurrence. She differs micro realia, local realia, national realia and international realia. Mikutytė (2005) observes, that some words with cultural implications are typical to a small circle of people, while others are used in the whole region. Furthermore, it is possible to describe cultural realia as contemporary and historical (Mikutytė 2005). All words and phrases that are called cultural realia may not have equivalents in other cultures or may be expressed in different forms. Besides, the same culture-bound word might have a different meaning and association in the target text than that in the source text (Mikutytė 2005).

When a target language does not have phenomena that exist in the source language, the translator deals with a question how to explain the meaning of culture specific lexical items to a receiver of the text.

2. TRANSLATION STRATEGIES OF CULTURAL REALIA

We might say, following Thriveni (2001), that the writer's captured and projected cultural elements should be reflected in the translated text. Kalėdaitė (2005:32) points out that the selection of an appropriate translation method of culture-bound words depends on various factors. Firstly, the translator should catch the aim of the target text. Secondly, the importance of the cultural realia should be noticed. Lastly, the translator should pay a regard to the readership and how the receivers will interpret the translated version of the source text. Furthermore, the scholars propose to have in mind two types of readers. According to James (2001), the ideal source language text reader has knowledge about the specific aspects of his or her cultural traits and historical events of the motherland, so there are no problems to understand the writer's ideas. While the target language text reader is supposed to know the history of foreign country but do not have enough comprehension about specific cultural situations described in the text. According to Danytė (2006:195), it is not realistic to think that target text readers will understand culture-bound words in the same way as the source language readers. Therefore the main goal of a translator is to give a complete explanation of what the writer intended to express using alien notions. As noted by Robinson (2003:189), texts usually move in space and time. Cultural differences are the result of their movement. On this he points that when we realize that we have moved from one culture to another, we begin to search the handiest way to look at the meaning of the text.

Since ancient Rome there was a discussion how to transfer cultural specific items – so-called realia – of the source language text into the target language text (Robinson 2003:186). To be precise, the hardest thing in translation is to find right equivalents for words with cultural implications. In the theory of translation this problem is called as untranslatability. Baranauskienė et al. (2005) claims, that cultures have not developed at the same time and assumed the same characteristics, as a result the translatability and equivalents are not possible.

Strategies proper to translate words with cultural implications vary. As a matter of fact, there are many terms for translation processes. Bardaji (2009:126) listed all concepts characterizing the work of translator. It includes procedures, techniques, strategies, methods, processes, rules, plants, etc. There is no united opinion about the classification and meaning of terms. Translation theorists and professional translators use different words and they are free to choose which term fits the best. In this research paper the term method will be used as a synonym to the word strategy. The option will be made according to what term is used in literary sources.

The most frequent way to transfer the alien meaning of the concept is to explain what it is. Applying explanatory method, the Lithuanian dish made only in the region of Žemaitija *kastinys* would be a bitter cream dish. Lithuanian word *rūpintojėlis* is described as a wooden statue of the Christ of Sorrows. The example of descriptive equivalent in English may be the word *machete.* The definition of it is a "Latin American broad heavy instrument" (Newmark 1988:83). It must be noted following Newmark (1988:83), that description is the main element of explanation.

Newmark (1988:91) also distinguishes the strategy of notes, glosses and additions. It is very similar to explanatory method. In other literary sources this method is sometimes called the strategy of explanation as a footnote (Kalėdaitė 2005:33). The translator may wish to add additional information: cultural, technical or linguistic. Extra notes may be written in various forms: within the text, at the bottom of the page, at the end of a chapter, or as a glossary at the end of the book (Newmark 1988:91). Danytė (2006:206) states, that addition includes all types of supplementary material and emphasizes that footnoting is very common among Lithuanian translators. Notwithstanding the fact that sometimes explanations may interrupt the reader's attention, the additional information will give the better understanding (Kalėdaitė 2005:33).

To avoid the interruption of the reader's attention Baker (1992:31) suggests the strategy of translation by cultural substitution. Danytė (2006:207) names this method as the strategy of localization. The translator replaces the source language culture-bound word or expression with a word or expression of a target language, which does not mean the same but has a similar influence to the reader (Baranauskienė et al. 2005:204). Newmark (1988:83) agrees that cultural equivalents "can be used in general texts, publicity and propaganda, as well as for brief explanations to readers who are ignorant of the relevant source language culture". Though the translation is not accurate, the advantage is that the unfamiliar concept becomes more or less clear.

Taking the last points into consideration, the method of generalization makes the cultural realia understandable too. Generalization is the way of translation using more general or more common and neutral equivalent. For instance, Lithuanian *valsčius* becomes a county (Baranauskienė et al. 2005:204). In other literature sources this strategy is named globalization (Danytė 2006:205). Almost every word with cultural implications may be translated applying cultural substitution or a generalization and one may say that these methods are the most popular.

However, while using a cultural equivalent or a more general variant something may be lost or gained in the result of translation i.e. the author's intentions might be modified. Therefore, many scholars propose to borrow a source language word or expression and apply it to a target language text. For example, the word *perestroika* was borrowed by western part of the world to

indicate the political changes in Russia at the end of the 20th century (Baranauskienė et al 2005:205). Linguists call this strategy a borrowing technique. As a matter of fact, the example given above may illustrate the usage of a loanword. According Baker (1992:25) loanword is often used due to their prestige value. Moreover, some loanwords such as *au pair, dilettante* are known in many countries and there is no problem to understand them. Newmark (1988:84) prefers a term through-translation or a term *calque* to denote the translation method using a loanword. The example of a loanword could be *supermenas* in Lithuanian. Cultural borrowing sometimes is called preservation. In translation from western European languages to Lithuanian preservation of place and brand names is used extensively (Danytė 2006:205). The borrowing technique could be considered to be a strategy of transference. According to Newmark (1988:82), "names of all living and most dead people, geographical names <…> unless they already have recognized translations, names of periodicals and newspapers, titles of untranslated literary works, plays, films, names of companies and institutions, <…> street names, addresses, etc." should be transferred. It may be done by rendering of sounds or by a rendering of letters of a foreign language using sounds or letters of the alphabet of receiving culture. These two sub-methods are called transcription (transmission of sounds) and transliteration (transmission of letters) (Baranauskienė et al 2005:205). In literary texts transcribed or transliterated lexical units gives a local atmosphere.

Newmark (1988:103), additionally, recommends some more translation procedures of cultural realia: paraphrase; reduction and expansion; translation label (new term written in inverted commas); componential analysis (it means a division of a lexical unit in sensible components); deletion or to say in other words omission; etc. Omission is suggested for those translators who can not fully understand the specific word or phase and do not want to distort the meaning of a paragraph or an entire text giving incorrect equivalent (Danytė 2006:204). Paraphrasing means translating using a related word or in other words to say the same word written in different form (Baker 1992:37). Sometimes it is worth to mix several translation strategies in order to achieve a satisfactory result.

Danytė (2006:204) mentions the strategy of creation. This method requires a deep examination of the text. It is quite a radical way to compensate culture-bound words in poetry and sometimes in fiction.

The above given theoretical review illustrates a significant number of strategies used in transferring the meaning of words with cultural implications. Summarizing the facts, we can make a list of the most frequent strategies. It will be used in the practical part of the work to clarify the strategies applied in concrete cases. The list is the following:

- Explanation (when the realia is explained in general words);
- Addition (footnotes, glosses ant the bottom of the page, in the end of the book, in the text);
- Generalization (when a translator uses a more general equivalent or a word that have not the same but similar meaning, globalization, paraphrasing i.e. using related word, cultural substitution i.e. when the translator uses an equivalent which have not the same meaning, but similar influence, localization);
- Borrowing (loanword, transference i.e. transliteration and transcription);
- Omission (the realia is simply omitted from the text).

Indeed, the translator makes a great mental work choosing the translation method for cultural-specific items and then describing their meaning to the target reader. It is the job that can not be done by devices designed for machine translation.

3. THE PATTERNS AND ISSUES OF MACHINE TRANSLATION

3.1. History of Machine Translation

The studies in the field of machine translation started in the early 20th century. The most eminent invention at that time was the electronic computer used to break codes during the war. Since then, scientist began developing an idea to create a machine that could translate from one language to another.

The theoretical and practical issues were first discussed in the conference in the middle of 20th century. The concept of machine translation expressed by Alan Turing and Warren Weaver intrigued many scholars all over the world. The largest sums of money for the investigation and development were invested mainly by the USA and the Soviet Union. However, the Automatic Language Processing Advisory Committee (ALPAC) published a report criticizing the slow, less accurate and expensive technologies of machine translation (Baker 1988:140).). For this reason, methods how to store linguistic data in a machine and then apply it during the process of translation should be analyzed in details and improved (Baker 1988:140-141).

A bit later Bar-Hiller expressed an idea that machine translation would be fully automatic and successful, if computers could access real – world knowledge. The efforts were successful. TAUM group at Montreal created METEO system translating weather news from English to French. The second most notable invention of this time was the SYSTRAN system used by NASA, which translated from Russian to English (Baker 1988:141).

Until the end of the 20th century the discoveries related to machine translation were used by large companies and for the war purposes. During the next ten years the machine translation was improved. From big machines machine translation moved to small personal computers. Despite that, machine translation did not emerge as an ideal way to translate foreign texts, because some language peculiarities and structures were not understandable for a computer. For this reason, by the end of 1980s studies of machine translation included more than 100 researches from different places in Europe. Large started a number of projects related to machine translation. It was a realistic idea and at the same time the main aim to create inexpensive personal computer supplemented with modern writing tools, dictionaries and translation systems. Newmark (1998:197) states that, “improvement in MT will depend on linguistic research in particular language varieties, particularly in the frequency and currency of the various features.” Machine

translation activities were rapidly increasing and results met demands (Baker 1988:141-143). Meanwhile, the systems of automated translation are used not only by a monolingual reader, but also by a professional translator. The studies in the field of machine translation have been continued nowadays.

3.2. Types of Machine Translation

In the era of new technologies new modern ways to translate foreign language texts are produced. The scientists exclude machine translation. Newmark (1998:196) claims, that computer is useful for translation of languages for special or specific purposes. On this the linguist writes: "an important difference between MT and human translation is that the MT user <…> is likely to want only the information contained in the SL text". Newmark (1998:197) emphasizes, that the user of machine translation does not pay much attention to the style, mood and author's conception. The main purpose of machine translation is to help the human translator to avoid the work with tiresome texts and make worldwide information dissemination easier and faster. The computerized and automatic translation tools are popular among ordinary foreign language readers, students, translators, linguists etc.

Translation market is constantly increasing with the growth of international trade and international politics. Obviously, the pressure for researches of machine translation is growing too. The perfect system is not yet created, but some methods are already successfully used. The scholars distinguish three types of translation where machines are used. It is a sensible argument that the different types of computerized translation depend on the criteria of automation i.e. it depends on the person's intervention in the process (Baker 1988:134). Types are the following:

- Machine aids for translators. In a narrow sense, machine aids includes such tools as term banks, dictionaries, word processors and other facilities which do not perform the translation process but helps to do it for a translator.
- Machine aided translation. Machine aided translation tool performs the translation task, but the human translator interferes in the process at various stages. The process of machine-aided translation performs three basic tasks. These tasks require various tools and operations and may be done simultaneously or not chronologically. The tasks are following:

1. Editing i.e. writing the source language text or a segment of a text in one part of the computer screen and having the translation in another.
2. Terminology management. The process of transferring the meaning of foreign texts includes the collecting of specific terms and entertaining the terminology in a machine readable glossary or a terminological database in order to use the words during later translation processes.
3. Translation proper. This task includes various tools which may support the human being in making a decision which equivalent to use. The example of such tool can be the terminology management system described earlier. There are also translation memory tools which can suggest an equivalent translation for a complex sentences and even larger paragraphs. Baker (1988:136) emphasizes, that translation memory tools ere useful only if the source language text has been once translated and the results of the translation stored in a computer memory. Then, starting to transfer the meaning of the second text the system automatically proposes equivalents for familiar language units.

In the early 1980s, Alan Melby designed a system of machine-aided translation, which included editing, terminology databases and glossaries. The main and the most important difference between machine-aided and machine translation is that machine translation might propose an equivalent for any segment of the foreign text not found in a memory databases (Baker 1988:136).

- Machine translation. The machine translation is understood as fully automatic translation (Baker 1988:135-136). It is interesting to note, that very high requirements are raised for the fully automated translation. However, the user must admit that the new technologies are not so innovative and sometimes machine can not understand simple language items. Though, the fully automatic machine translation is successfully used in many fields where the high quality of the translation is not required (Daudaravičius 2006:10).The applications of machine translation are divided into three types:
  1. Fully automatic. Fully automatic machine translation is the only kind of computerized translation of foreign texts where the process does not require any efforts from the user. However, this scenario is suitable where the text is already written and the consumer of it has only to copy and put in the system. Baker (1988:137) states, that fully automatic machine translation is successful only when the reader transfers the meaning of a text written in a naturally – occurring sublanguage, artificially controlled language and when a rough translation and possible errors are not possible. To use Baker's (1988:137)

expression, a sublanguage can be identified as a language “which is naturally restricted in its vocabulary and range of structures.” The most famous example of such fully automatic machine translation is the MATEO system, which enables to translate more than 40000 words related to weather forecasts from English to French language every day (Baker, 1988:137). One may say that it is a translation of fixed phrases. Newmark (1998:197) accepts that when a reader or a translator has an opportunity to use a computer for translation of fixed expressions, he or she saves both time and money. Where the sublanguage is not available, a similar effect may be achieved by the author of the text. Usually, the writer uses appropriate vocabulary, style and grammatical structures. The typical application of this style of writing is technical texts. The restricted style of writing is successful when the consumers are non-native speakers. Another case occurs when some documents (e.g. user manuals, instructions, reports) must be translated in a great variety of languages (Baker 1988:137).

2. Automatic with pre- or post- editing. Machine translation quickly provides the first draft and the reader decides weather the text is worth reading further or not. The consumer may want to pick and read only the most interesting paragraphs or the information he or she needs for a job. Moreover, the raw and sometimes very rough results of machine translation are desirable when the source text is in exotic or very rare language with unfamiliar and complex structures. It must be remembered, that restricted way of writing is related with the pre-editing. There are technologies, which automatically mark the proper names, titles, homogenous words and other problematic language units in the text. Continuing this line of describing machine translation, the post-editing must be mentioned too. It means the correction of already translated text. The correction begins from simple operations such as the change of verb tense, the number of a noun and the gender of an adjective and ends with the correction of syntax and lexis. While making a review of a translated version with computer, the translator finds unnoticed mistakes. The computer program underlines incorrect places and proposes better variant. It should not be undisputable requirement to write language units suggested by computer. The translator has to make the last decision considering the type and purpose of the text and the target reader (Baker 1988:138).
3. Interactive. The computer program consults with a human translator. Interactive machine translation can be the ideal way to transfer the meaning of the source language text into the target language text. In this view, common words and fixed phrases are translated

by a computer and the complex places of the text are performed by a human being. However, linguists underline some disadvantages. Firstly, the user must know both languages quite well. Secondly, the system of interactive machine translation may be slow and erratic (Baker 1988:138-139).

Such classification is created according to the mode of use and consumer of the translation (Baker 1988:136).

The machine translation won't be applied to all languages and not everyone will be able to use the technologies of machine translation. Daudaravičius (2006:10) claims, that the fully automatic machine translation may be applied when there is no a professional translator who can transfer the meaning of the text. Still, the person who supervises the process of machine translation is necessary (Daudaravičius 2006:10).

The machine translation is not a proper way to translate poetry and fiction. Daudaravičius (2006:9) observes that translation of literature using a machine can not be in high quality. The linguist illustrates his idea giving an example related to the poems of Shakespeare. According to Daudaravičius (2006:9-10), the works of Shakespeare is translated differently by various translators, thus we can not expect to get a precise translation from a machine. Gentry L. Watson, a linguist and an editor, once made an experiment. He tried to translate German book full of old-fashioned word forms and military phrases with a machine tool. At the end Watson (2011:43) made an implication, that "it is impossible for the person with minimal foreign language skills to use commercial translation tools to translate a book." The machine translates word by word, does not shorten sentences or lengthen them and does not change the word order. There is no doubt that machine does not convey the style of the source language text into the target language text. As a result, the translated version of literature work becomes uneasily readable and not acceptable to the market (Watson 2011:44). The situation with poetry is worse. The computer program may transmit the form of the poetry quite good, but the sense is not a task of the machine translation at all. To sum up, the machine translation should be concentrated on the technical texts and text with clear exposition of language elements, and very seldom on the fiction.

3.3. Translation Process

As is well known, the translation process may be described as consisting of two actions:

1) Decoding the meaning of the source text;
2) Transferring of the meaning in the target text.

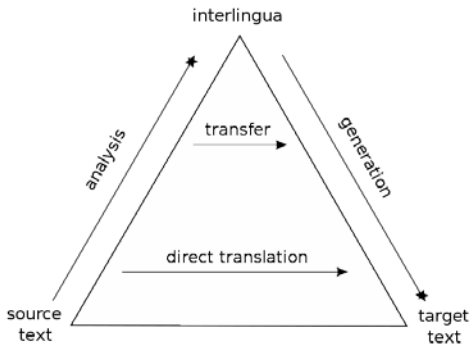
As a mater of fact, the process is not as simple as it can be seen initially. The translator must analyze all features of a source language text e.g. grammar structures, words, stylistic characteristics, specific phrases, cultural realia etc. and recode them in a target language text.

It must be born in mind, that computer can not perform translation in the same way as the human being because it does not understand cultural elements and does not choose the right style and sometimes can not find equivalents. There is an antithesis between our expectations from machine translation and the real job which can be done by computer. This problem may be solved in a number of ways. In the wide variety of machine translation systems there are various ways to give a proper translation. It can be based on bilingual corpus or simple on the entries to terminological databases and dictionaries. Several scientists have been developing two types of systems:

- example-based systems, where the translation is produced by comparing the input with a material in a corpus, extracting closest matches and using them in an output. Such process of translation is very similar to the way in which humans translate. As a result, the product of translation is more stylish. However, there is less analysis of structure of the input text.
- statistic-based systems. It is based on a pararell corpus and the statistical probabilities determine the choice of lexical units (Baker 1988:148).

The major advantage of those two approaches is that machine compile grammatical structures and lexical equivalents automatically i.e. without any efforts of human translator.

The machine translation tool does many activities considering which form of the word fits in one or another place of the text e.g. whether it should be a noun or a verb, plural or singular form, verb tense, gender and more complex. Usually, when the computer doesn't find appropriate equivalent it proposes a general word or simple leaves a gap. Vangous (1986) presented the pyramid diagram, which showed the process of machine translation (see 1 figure) (Baker 1988:145).



1 Fig. Interlingual and transfer approaches of the process of machine translation.

Transfer approach involves three stages: analysis of the source text syntactic structure, transferring into the corresponding target text syntactic structure and synthesis of the output from that structure. It is interesting to note, that the deeper analysis requires less transfer. As a result, interlingua approach has more advantages (Baker 1988:145). Sometimes the human translation may leave computer to combine terms and sentences, but sometimes the translator must think what to do and how.

Machine translation tools may be evaluated according several indexes: the speed of the translation, the quality of the translation, the accuracy of the grammatical forms etc. (Daudaravičius 2006:17). Following Daudaravičius (2006:17), the most important things in the case of fully automated machine translation are the right translation of the matter and meaning of a text. In Conclusion, machine translation process is quite complex and needs to be improved.

4. THE METHODOLOGY OF THE RESEARCH

The practical part of the bachelor paper includes a great number of cultural realia translated using the machine and by professional translators. The sentences were compared using the method of contrastive analysis, which enabled to investigate similarities and differences between automated translation and human translation.

The sentences were analyzed in the following way:

1. The original sentence containing cultural realia was rewritten into the online system of machine translation.
2. The result of machine translation was analysed in details i.e. the reason why a system proposed one or another equivalent for words with cultural implications and why some errors occurred.
3. The translation proposed by a machine was compared to the translation in the book.
4. The translation strategies used by a system and a human being were distinguished.

The examples were taken from two novels written in different periods of time. This decision was made in order to analyze more types of cultural realia. The novels are the following:

1. Austen, J. (1956) *Pride and Prejudice*. Boston: The Riverside Press Cambridge, translated by J. Juškienė in 1998.

2. Harris, J. (2007) *The Lollipop Shoes*. UK, translated by E. Bielskytė in 2009.

The novel “Pride and Prejudice” was written by Jane Austen in 1813. The author lived in a county in a south of England and wrote about things she knew and experienced. The novel “Pride and Prejudice” is a comedy about noble society. While describing the relations between noble people within the same class, their talks during balls and their everyday life activities, the writer shows how much snobbery, hypocrisy, narrow-mindedness of a person effect human values. Every detail in the novel is well-considered. Therefore, there are many specific language items denoting phenomena of those days. Some of them may be identified as cultural realia.

The second novel “The Lollipop Shoes” was written by Joanne Harris two centuries later. It is a continuation of the famous novel “Chocolate”. The readers meet here the same main character Yanne, who now lives with her daughters in Monmantre and has a small chocolate shop. The significant remarks should be taken about the language of the novel. There are lots of names of various shops and dishes common to French community. These language units will be the object of further analysis.

The author of the research paper used a machine translation program created according to the basic rules of automatic translation by Vytautas Magnus University.

5. THE ANALYSIS OF CULTURAL REALIA TRANSLATED USING A TOOL OF MACHINE TRANSLATION AND BY A HUMAN BEING

The earlier cited theoretical views illustrate that computers are still not able to conceive the conceptual information as it can be done by humans. As it was noted in the theoretical part of the work, the same can be said about cultural differences that are very relevant translating foreign language books using tools of machine translation. The main goal of this research paper is to prove that cultural realia are rarely identified by a computer program. While the human translator may use a variety of translation strategies, the tool of machine translation also can transmit the meaning differently. The program of machine translation transfers the meaning of the word with cultural implications only if it is included into the database. In other cases the program may:

- retain the same source language word in the target language;
- omit the realia;
- provide word by word translation;
- use the description of the realia, which is given in a dictionary;
- offers false equivalents, because the culture-bound word is similar to the other one.

In fact, different kinds of cultural realia are translated in various ways by a machine and by a human specialist. The practical part of the bachelor paper includes a significant number of examples illustrating how a machine and a translator deal with the same type of culture-bound words and phrases. The experiment to translate words with cultural implications compiled from the previously mentioned novels are described below. It is important to note, that words with cultural implications were collected and classified by types into groups. The instances will be presented according to the size of group.

Both novels contain many names of various dishes. It is the largest group of cultural realia found in the books. The examples are the following:

(1) Original sentence

<*we both had* ***vanilla latte***> (Harris 2007:64)

Machine translation

<*mes abu turėjome* ***vanilę latte***>

Human translation

<*abi gėrėm* ***vanilinę latė***> (Harris 2009:58)

(2) Original sentence

<*apricot cup*> (Harris 2007:190)

Machine translation

<*abrikoso puodelis*>

Human translation

<*abrikosinių bandelių*> (Harris 2009:181)

The previous instances shows that the words with cultural implications are translated incorrectly by the machine. Considering the sentence (1), the word ***latte*** is of Italian origin and means a coffee with hot milk. Lithuanian translator uses the strategy of transference. As it was mentioned in the theoretical part of the paper, the foreign name is borrowed and rewritten with Lithuanian letters. The machine does not change the spelling of the word. For this reason, the reader may think that the translation system does not recognize the culture-bound word. The compound ***apricot cup*** in the example (2) is defined as a bun with apricots. Unfortunately, the machine can not propose the translation ***bandelė***, because the first meaning of the word ***cup*** is a small open container used to drink tea or coffee. And only in some food recipes this word is used to identify some kind of cake or soft biscuit.

The large number of words defining dishes in the novel "The Lollipop Shoes" is written in French or Spanish. It is complicate to understand these language units, because in this case the translation process requires knowledge of several languages. The examples are the following:

(3) Original sentence

<bought a ***cafe-crissant*** *at a bar called Le P'tit Pinson >* (Harris 2007:18).

Machine translation

<nupirktas ***kavinė-crissant*** *bare, pavadintame Le P'tit Pinson >*

Human translation>

<„Le P'tit Pinson užeigėlejė ***nusipirkau raguolį su kava*** *>* (Harris 2009:13)

(4) Original sentence

<Zozie had a ***Saint-Honore*** *- no dieting for her>* (Harris 2007:64).

Machine translation

<Zozie turėjo ***Šventąjį-Honore*** *- jokį dietos laikymąsi jai>*

Human translation

*<Zozi paprašė **Saint honore*** - ji nesilaikė dietų>* (Harris 2009:57)

**Pyragaitis su kremo rožele ir garsiaja vyšnia ant viršaus. Šventasis Onorė yra kepėjų globėjas.*

Considering the example (4), the spelling of the French word ***Saint*** corresponds to the English word ***Saint***. In this case, there is no error in the translation of computer program, because the word ***Saint*** has only one meaning ***Šventasis***. The same explication can be applied to the French word ***café*** in the example (3). However, the author of the novel has in mind some kind of cake popular in the France. Other examples are the following:

(5) Original sentence

La Celeste Praline (Harris 2007:189).

Machine translation

La Celeste Cukruje apkepinti riešutai

Human translation

*La Celeste Praline** (Harris 2009:180).

**Dangiškieji migdolai*

(6) Original sentence

*And for the first time our **galette des rois** was not home-made, but from a shop.* (Harris 2007:29).

Machine translation

*Ir pirmą kartą mūsų **galette des rois** nebuvo savo darbo, bet iš parduotuvės*.

Human translation

*Ir pirmą kartą mūsų **galette des Rois*** buvo ne naminis, o pirktas.* (Harris 2009:24).

**Pyragas su pupomis, kepamas Trijų karalių šventės proga.*

(7) Original sentence

*<a scent of plaster dust and leather and sweat and **jambon-frites** and the occasional guilty, fat cigar>* (Harris 2007:82)

Machine translation

*<tinko dulkių ir odos ir prakaito ir **jambon-frites** ir atsitiktinis kalto, riebaus cigaro aromatas>*

Human translation

*<kvepia gipso dulkėmis, oda, prakaitu ir **jambon-frites***, o retkarčiais neleistinai prabangiu cigaru>* (Harris 2009:74)

** kumpiu su gruzdintom bulvytėm.*

The previous sentences represent the tendency that words written in a foreign language are left identical in the target text. It is not bad, because sometimes the human being behaves the same. However, analysing the given sentences, the human translator tries to identify their meaning in the footnotes at the bottom of the page and uses the strategy of addition. As it was noticed, when the phrase is mentioned several times in the novel, the translator gives an explanation only in the first time. On the one hand, the style of the source text is not changed during the process of translation. On the other hand, the reader‘s attention is disturbed by permanent glances in order to read a description of the word or phrase written in italics.

There are cases when the computer program understands the foreign word as a spelling error and tries to give an equivalent of a similar word. It can be illustrated by example (8).

(8) Original sentence

*He looked at me quizzically over his **blonde**.* (Harris 2007:89)

Machine translation

*Jis pažiūrėjo į mane pašaipiai per jo **blondiną**.*

Human translation

*Klausiamai pažvelgė į mane virš **šviesaus savo alaus bokalo**.* (Harris 2009:82)

As it is seen from the translation of the sentence, the French word ***blonde*** is perceived by a computer as an English word blond. The human translator uses the strategy of explanation. She briefly describes the meaning of the unknown word.

Spiritual culture makes many problems for translators, because it requires special knowledge. The human being can learn these differences, but it is impossible task for the machine. It just searches for the equivalents in its databases. The fact is, that no one has created database which includes words with cultural implications. The sentences including names of games and dances form the second large group of cultural realia. The examples from the novels are given below:

(9) Original sentence

Do not you feel a great inclination, Miss Bennet, to seize such an opportunity of dancing a ***reel****?* (Austen 1956:38)

Machine translation

Jūs nejaučiate didelio polinkio, Panelės Bennet, kad užgrobtumėte tokią galimybę šokti ***ritę****?*

Human translation

Nejaugi jūs nejaučiate noro, panele Benet, pasinaudoti tokia proga ir sušokti ***kadrilį****?* (Austen 1998:60)

(10) Original sentence

On entering the drawing-room she found the whole ***party*** *at* ***loo****.* (Austen 1956:27)

Machine translation

Įvesdama svetainę ji surado visą ***partiją tualete****.*

Human translation

Įėjusi į svetainę, rado visą ***draugiją*** *lošiančią* ***loo****.* (Austen 1998:44)

(11) Original sentence

Lydia talked incessantly of lottery tickets, of the ***fish she had lost and the fish she had won.*** (Austen 1956:64)

Machine translation

Lydia kalbėjo be paliovos apie loterijos bilietus, ***apie žuvį, kurią ji prarado ir žuvis, kurią ji laimėjo.***

Human translation

Lidija be perstojo tauškėjo apie loterijos bilietus, ***apie laimėtus ir praloštus kauliukus****.* (Austen 1998:95)

Considering the example (9), the highlighted word has several meanings. The English word ***reel*** can be translated as ***ritė, suktuvas, rulonas, sūkurys***, but the meaning identifying the Scottish, Irish or American dance for two or four couples is the last in the list. The computer program gives the more common equivalent i.e. the word ***ritė.*** The machine can not identify which meaning suits best. Taking into account the sentence (10), the equivalent proposed by a computer program makes us laugh. Indeed, the colloquial word ***loo*** is used to define toilet. It is interesting to note, that the human translator does not find a Lithuanian equivalent too. She treats the word ***loo*** as name and

does not change it in the target text. Considering the word ***fish***, the bilingual English-Lithuanian dictionary gives three definitions, from whom only the third is ***loštukas (žaidimuose)*** (Piesarskas 2007). As you noticed, the computer program does not propose this meaning and writes the first one ***žuvis.*** The machine can not identify which meaning suits best. Interesting fact to note is that the human translator also does not use the real equivalent ***loštukas***. However, the word ***loštukas*** and ***kauliukas*** may be identified as synonyms.

An interesting case is the example (12):

(12) Original sentence
*Mr. Bingley were at **piquet**.* (Austen 1956:34)
Machine translation
*Ponas Bingley buvo **pikete**.*
Human translation
*Ponas Binglis lošė **piketą**.* (Austen 1998:54)

Lithuanian equivalent of the word ***piquet*** is ***piketas***, which defines a popular game in 18th century Britain. However, the machine makes an error here. This misunderstanding may occur because the spelling of the word piquet is similar to the spelling of the word picket, which has a meaning of public protest in front of the entrance of building.

In the sentence (13), the machine does not do any error translating the word ***whist***.

(13) Original sentence
*When the card tables were placed, he had an opportunity of obliging her in return, by **sitting down to whist**.* (Austen 1956:57)
Machine translation
*Kai kortų stalai buvo padėti, jis turėjo galimybę įpareigoti ją mainais, **sodindamas į vistą**.*
Human translation
*Kai buvo išskleisti kortų stali, ponui Kolinsui pasitaikė proga savo ruožtu atsidėkoti poniai Filips, ir jis sėdo kartu su **ja lošti visto**.* (Austen 1998:86)

In the Oxford monolingual dictionary (2001), the word ***whist*** is defined as card game for two pairs of players in which each pair tries to win the most cards, and there are no other exceptions. The machine as well as the translator writes the proper equivalent.

Interesting case to consider is the example (14):

(14) Original sentence

*<to make up her **pool of quadrille** in the evening>* (Austen 1956:50)

Machine translation

*<kad sudarytų jos **kadrilio baseiną** vakare>*

Human translation

*<kai vakare jai pritrūkę žmonių **preferanso partijai***> (Austen 1998:76)

The single word ***quadrille*** is translated as a dance for four or more couples in a square, popular in the past. In Lithuanian it would be ***kadrilis***. The human translator instead the equivalent ***kadrilis*** propose the word ***preferansas,*** which means a card game. After the careful examination of the context, it becomes obvious that the human translator is right. Later in the novel the translator specifies the equivalent to this cultural realia and proposes the phrase ***preferanso staliukas.*** Beyond a doubt, while translating words and phrases denoting games and dances the tool of machine translation usually applies the first common definition.

The examples (15) and (16) a bit differ from the previous sentences about games and dances. These cases were taken from the novel "The Lollipop Shoes"; therefore both the machine and the translator choose different translation methods.

(15) Original sentence

*Richard and Mathurin, who had dropped in on their way to their usual game of **petanque** in the park.* (Harris 2007:191)

Machine translation

*Richard ir Mathurin, kas užėjo ant jų kelio į jų paprastą žaidimą **petanque** parke.*

Human translation

*Rišaras ir Matiurenas užsuko pakeliui į parką prieš įprastą **petankos*** žaidimą.* (Harris 2009:182)

***Prancūziškas žaidimas metaliniais kamuoliais.*

(16) Original sentence

<joking with the ***belote*** players at the back of the room> (Harris 2007:90)

Machine translation

<pokštavimas su **belote** žaidėjais už kambario>

Human translation

<juokaujančią su ***belote**** žaidėjais salės gale> (Harris 2009:83)

* Prancūzijoje populiarus kortų žaidimas

As it can be noticed from the sentences, the computer program leaves the same source language word in the target text. The reason is that the name of this game is of French origin. The translator uses the strategy of addition.

The third large group of words with cultural implications is formed of names of buildings and places. The majority of them are of French origin. The examples are the following:

(17) Original sentence

*Books, clothes, furniture and the rest, I gave to **the Croix Rouge*** (Harris 2007:16).

Machine translation

*Knygos, drabužiai, baldai ir kiti, aš daviau **Croix Kosmetiniams dažams**.*

Human translation

*Knygas, drabužius, baldus ir visa kita atidaviau **Croix Rouge**** (Harris 2009:11)

***** *Raudonajam kryžiui*

(18) Original sentence

*A blue tin plate high up on the corner gave the name of the square as **Place des Faux-Monnayeurs*** (Harris 2007:18).

Machine translation

*Mėlyna alavuotoji skarda aukštai viršuje ant kampo davė vardą kvadrato kaip **Vieta des Faux-Monnayeurs.***

Human translation

*Ant kampo aukštai prikaltoje mėlynos skardos lentelėje buvo užrašytas skvero pavadinimas **„Fo Monejero aikštė“*** (Harris 2009:13)

(19) Original sentence

*<I bought a cheap wedding ring from the **marche aux puces***> (Harris 2007:27).

Machine translation

*<Aš nupirkau pigų sutuoktuvių žiedą nuo **Maršo aux puces***>

Human translation

<*Marche aux puces *nusipirkau pigų vestuvinį žiedą*>** (Harris 2009:22)

**Blusų turgus*

Taking into account the sentences (17), (18), (19) we may make a conclusion that one part of the unknown phrase is recognizable by a computer program. The word ***rouge*** may be deciphered as a red or pink cosmetic for colouring the cheeks or lips, though in French it means a cross. The form of the French word ***place*** is the same to the English word ***place***. The question is why the translation of machine does not coincide with the translation of human being. The reason is that the word place is polysemous. It may by translated as ***vieta, pareigos, padėtis, aikštė, gatvė***. The word ***place*** stands for a square in the source text. The computer program translation is not accurate, because the machine proposes the first meaning ***vieta.*** Still, it is difficult to explain why the word ***marche*** corresponds to the word ***Maršas.*** The translator usually uses the strategy of addition. She shortly explains the meaning of unknown words in the footnotes at the bottom of the page.

It is worth to analyse the examples (20) and (21):

(20) Original sentence

<*With its cafes and little **creperies***> (Harris 2007:17).

Machine translation

<*Su jo kavinėmis ir menku **creperies***>

Human translation

<*Tos kavinukės ir mazutes **creperies***>** (Harris 2009:13)

**Blyninės*

(21) Original sentence

*He had removed with his family to a house about a mile from Meryton, denominated from that period Lucas **Lodge**.* (Austen 1956:12)

Machine translation

*Jis pašalino su jo šeima į namą apytiksliai mylią nuo Meryton, išreikšto nuo to periodo Lucas **Lodge**.*

Human translation

*Su visa šeimyna persikėlė į namą beveik už mylios nuo Meritono, kurį nuo to laiko imta vadinti Lukasų **lodža**.* (Austen 1998:24)

The previous sentences show, that the automated translation system does not recognize the name of a shop and a building and leaves the source language word. Though the English word ***lodge*** has many meanings, the first of them according to the tendency noticed earlier can be proposed by a computer program. Unfortunately, the machine leaves the source language word. From the first sign of view, it would be considered as an inability to translate cultural realia. However, the word ***Lodge*** follows after the name Lucas and might be understood as the second part of the proper noun. In this case the human translator uses the borrowing technique while writing the word ***lodža***, although the nearest equivalent would be ***ložė***. In the case (20) the human translator uses the strategy of addition.

In the sentences (22) and (23) the translator does not use the strategy of addition i.e. he or she does not write a description in the footnotes:

(22) Original sentence
<*Some kind of chichi* ***confiserie***> (Harris 2007:18)
Machine translation
<*tam tikras manieringas* ***confiserie***>
Human translation
<*Kokia nors pretenzinga* ***cukrainė***> (Harris 2009:13)

(23) Original sentence
The shop was a ***chocolaterie*** (Harris 2007:19)
Machine translation
Parduotuvė buvo ***chocolaterie.***
Human translation
Tai buvo ***šokolado krautuvėlė.*** (Harris 2009:14)

It seems that given words do not require a detail description. For this reason, the translator writes the most proper equivalent in the text. It is quite easy to do, because the human being is able to understand the concept, while the machine does not.

The forth group of cultural realia contains the concepts that name vehicles. It is significant to emphasize that the words given below belong to historical realia found in the novel "Pride and Prejudice". The examples are the following:

(24) Original sentence

*He came down on Monday **in a chase and four** to see the place.* (Austen 1956:1)

Machine translation

*Jis nusileido pirmadienį **persekiojime ir keturi**, kad pamatytų vietą.*

Human translation

*Jis atvykęs pirmadienį **ketvertu arklių kinkytu fajetonu** apžiūrėti namo.* (Austen 1998:10)

(25) Original sentence

*Mrs. Long does not keep a carriage, and had come to the **ball in a hack chase**.* (Austen 1956:13)

Machine translation

*Ponia Long nelaiko perdavos srauto, ir **atvyko į rutulį įsilaužti persekiojime**.*

Human translation

*Ponia Long neturi karietos ir atvyko į **pokylį išnuomotu fajetonu**.* (Austen 1998:26)

(26) Original sentence

*Elizabeth wrote the next morning to her mother, to beg that the **carriage** might be sent for them in the course of the day.* (Austen 1956:44)

Machine translation

*Elizabeth parašė kitą rytą jos motinai, kad maldautų to, **perdavos srautą** galėtų nusiųsti jiems dienos metu.*

Human translation

*Elizabet kitą rytą parašė motinai, melsdama tą pačią dieną atsiųsti joms **ekipažą.*** (Austen 1998:67)

As can be seen from the previous sentences, the computer program usually gives word by word translation. However, the sentences above show that sometimes this way is undesirable. Considering the sentence *Ponia Long nelaiko perdavos srauto, ir **atvyko į rutulį įsilaužti persekiojime,*** the reader can not conceive the right meaning, because there is no unity between translated words. Furthermore, the word ***chase*** is quite complicated to translate properly. There are several reasons. Firstly, it is a polysemous word. The first meaning is the same, which is proposed by a machine: ***persekiojimas.*** It may be also translated as ***gainymasis, vyjimasis*** and ***fajetonas***. Secondly, the meaning ***fajetonas*** is included not in all dictionaries. Subsequently, it may be not included in the databases used by a tool of machine translation too. The word ***ball*** can also be

translated differently. The primary meaning ***kamuolys*** has no links with the secondary meaning ***puota***, which is considered as cultural realia and has a meaning of a large formal party with dancing. Discussing the example (26), the English word ***carriage*** may be translated as ***vagonas, karieta, vežimas*** etc. Unfortunately, no one of these meanings is chosen by a computer program. The human translator is able to find right equivalents in the bilingual dictionary or other electronic term banks.

Continuing the contrastive analysis of historical realia, only the titles of noble people are recognizable by the machine. These culture-bound historical words are met frequently in the novel. The example is given below:

(27) Original sentence

<*Sir* *William and* ***Lady*** *Lucas are determined to go>* (Austen 1956:2)

Machine translation

<*Seras* *William ir* ***ledi*** *Lucas yra nutarti nueiti>*

Human translation

<*Seras* *Viljamas ir* ***ledi*** *Lukas būtinai eis>* (Austen 1998:11)

Such words as **lady, sir** are considered as realia, but are widely known all over the world. The tool of machine translation find equivalents in a databases and the user is satisfied with the product of translation.

Special attention must be paid to the examples (28) and (29):

(28) Original sentence

< the youngest son of his uncle, ***lord>*** (Austen 1956:128)

Machine translation

<jauniausias sūnus jo dėdės, ***valdovo>***

Human translation

<jaunesnįjį savo dėdės, ***lordo****, sūnų>* (Austen 1998:185)

(29) Original sentence

Two old men were eating boiled eggs and long slices of buttered bread while the aproned ***patron*** *held forth at some volume about someone called Paupal.* (Harris 2007:19)

Machine translation

Du seniai valgė virtus kiaušinius ir ilgus teptos sviestu duonos gabalėlius tuo metu, kai aproned ***globėjas*** *postringavo kažkokioje apimtyje apie kažką pavadintą Paupal.*

Human translation

Du pagyvenę vyriškiai valgė virtus kiaušinius, užsikąsdami ilgomis sviestu užteptomis riekėmis duonos, o prijuostę pasirišęs ***šeimininkas*** *garsiai pasakojo apie kažin ką, vardu Popolis.* (Harris 2009:14)

The word lord has more than one meaning. It can be translated as ***valdovas, ponas, viešpats, peras*** or even ***karalius*** and ***magnatas*** of an industry. The same situation is with the word ***patron.*** According to the English-Lithuanian dictionary published by Piesarskas (2007), the word patron has three meanings: 1) ***patronas, globėjas, šefas***; 2) ***nuolatinis pirkėjas/klientas***; 3) ***savininkas, šeimininkas***. The machine simply offers the first meaning and takes no heed to the context of the novel. The action takes place in a coffee-house and the ***patron*** should be understood as the owner. Such errors are comprehensible, because the user of the machine translator tools usually writes not the entire text on the computer screen but just some sentences or unknown parts of the paragraphs.

The fiction books where the action takes place not in a modern society are full of words, whose meaning is recognizable by the tool of machine translation. However, the proposed equivalents do not suit stylistically. In this case the human translator chooses the equivalents that are closer to the appropriate period of time and culture. This fact may be illustrated by the following examples:

(30) Original sentence

I remember the time when I liked a ***red coat*** *myself very well.* (Austen 1956:21)

Machine translation

Aš atsimenu laiką, kai aš mėgau ***raudoną paltą*** *savarankiškai labai gerai.*

Human translation

Labai gerai prisimenu tuos laikus, kai pati buvau susižavėjusi ***raudonu munduru****.* (Austen 1998:36)

(31) Original sentence

I would keep a pack of ***foxhounds****, and drink a bottle of wine every day.* (Austen 1956:14)

Machine translation

Aš išlaikyčiau paketą ***medžioklinių šunų****, ir išgerčiau vyno butelį kiekvieną dieną.*

Human translation

*Laikyčiau būrį **skalikų** ir kasdien išgerčiau po butelį vyno*. (Austen 1998:27)

(32) Original sentence

*<where he had made a tolerable fortune and risen to the honour of **knighthood** by an address to the King, during his mayoralty>* (Austen 1956:12)

Machine translation

*<kur jis padarė pakenčiamą sėkmę ir atsikėlė į garbę **riterio vardo** prie adreso Karaliui, per jo mero pareigas>*

Human translation

*<kur susikrovė nemažus turtus ir buvo pakeltas į **bajorus** po to , kai savo merystės laikotarpiu kreipėsi su prašymu į karalių>* (Austen 1998:24)

(33) Original sentence

*She was shewn into the **breakfast-parlour**.* (Austen 1956:24)

Machine translation

*Ji buvo shewn į **pusryčių svečių kambarį**.*

Human translation

*Ją palydėjo į **pusryčių menę**.* (Austen 1998:40)

The cultural realia mentioned above should be additionally characterized. Considering the example (30), the term ***red coat*** was used in 19th century to name soldiers of British army because of red uniforms worn by regiments. It may be treated as the symbol of bravery. Taking into account the example (31), the word ***foxhounds*** or in Lithuanian ***skalikai*** defines a breed of dogs used for hunting. In the 19th century noble people enjoyed hunting foxes for the pleasure. The word ***parlour*** in the example (33) means a formal sitting room in a large house. In the past it contained family's best furniture and art works. Usually, the ***parlour*** was the room to meet guests. Analyzing the sentences translated by a computer system, the user understands the meaning of the text. However, the text itself looses its stylistical value and not all authors intentions reach the target reader. As it may be seem from variant proposed by human being, the professional translator is able not to change original picture. Considering the example (32), the translator replaces the source language word with the word of the target text, which has a similar influence to the reader.

This strategy is called translation by cultural substitution. Therefore, instead of the word ***riteris*** the human being proposes the word ***bajoras***.

Two novels that were chosen as the main source for the practical part of the research paper contain names of various holidays. Majority of them are written in French and even Spanish. It is worth to analyze the following examples:

(34) Original sentence

<he agreed with Mr. Morris immediately; that he is to take possession before ***Michaelmas>*** (Austen 1956:1)

Machine translation

<jis susitarė su ponu Morris nedelsiant; kad jis turi pradėti valdyti anksčiau, negu ***Michaelmas>***

Human translation

<tuoj pat susitaręs su ponu Morisu, kad namas pereisiąs jo žinion prieš ***Mykolines>*** (Austen 1998:10)

(35) Original sentence

Dia de los Muertos (Harris 2007:13)

Machine translation

Dia de los Muertos

Human translation

*Dia de los Muertos** (Harris 2009:8)

**Mirusiųjų diena; Vėlinių atitikmuo Meksikoje ir meksikiečių išeivijoje, švenčiamas pagal specifinius papročius.*

Obviously, the human translator needs to find the description of them and somehow convey to the target reader. As it was mentioned in the theoretical part of the paper, Lithuanian translators usually write the realia in italics and then describe its meaning at the footnotes (see the example 35). Sometimes, as it is reflected in the example (34), the translator finds the equivalent in Lithuanian culture. The research results presents that machine leaves the same word or expression. The user of the machine translation can only guess what it could mean.

Fewer sentences are found in the books, where the household articles are considered as cultural realia. The sentences are written below:

(36) Original sentence

*He said, eager to please, cupping the little **demi-tasse** in hands best suited to building walls.* (Harris 2007:101)

Machine translation

*Jis pasakė, trokštantis įtikti, sudėdamas mažą **demi-tasse** rieškutėmis rankose, kurioms geriausiai tinkama sienų sudarymui.*

Human translation

*Pagyrė, kad įsiteiktų, laikydamas **mažą puodelį** rankose, kurios tinka tik sienoms statyti.* (Harris 2009:95)

(37) Original sentence

*< seam-stretched **hand-me-downs*>** (Harris 2007:84)

Machine translation

*< siūle ištemptas **hand-me-downs*>**

Human translation

*<nudrengti **dėvėti drabužiai*>** (Harris 2009:77)

As can be seen in cases (36) and (37), machine leaves the source text variant, whereas the translator finds the nearest equivalents from the target language. The compound word ***hand-me-downs*** means cloths that are used and then passed to other people. A demi-tasse has a meaning of a small cup used to poor strong coffee espresso. The name is of French origin.

Particular attention must be paid to the sentences containing names of towns and other administrative units:

(38) Original sentence

*Windy late-October morning in **Montmartre.*** (Harris 2007:17)

Machine translation

*Vėjuotas mirusio spalio rytas **Montmartre**.*

Human translation

*Vėlyvas spalio rytas **Monmartre.*** (Harris 2009:12)

(39) Original sentence

*Mr. Bingley intended it likewise, and sometimes made choice of his **county**.* (Austen 1956:10)

Machine translation

*Ponas Bingley numatė tai panašiai, ir kartais darydavo jo **grafystės** pasirinkimą.*

Human translation

*Pono Binglio ketinimai liko tie patys, ir retkarčiais jis pasvarstydavo, kokią gi reikėtų pasirinkti **grafystę**.* (Austen 1998:22)

The example (38) illustrates that names of towns are known all over the world and of course have equivalents in almost all languages. However, the computer program does not change the spelling of the word and does not apply the name to the target reader. Taking into account the sentence (39), the system as well as the human being proposes the right equivalent ***grafystė***. The word ***county*** may be also translated as ***apygarda***, but this meaning is not the first meaning proposed in dictionaries.

Few nouns writen in a foreign language are detected in novels „The Lollipop Shoes“ and „Pride and Prejudice“ The examples are the following:

(40) Original sentence

*A piece of **malchance.*** (Harris 2007:133)

Machine translation

***Malchance** dalis.*

Human translation

*Netikėta **malchance**** (Harris 2009:126)

**nesėkmė*

(41) Original sentence

*The price can in no way do justice to the perfection of his **oeuvre.*** (Harris 2007:19)

Machine translation

*Kaina negali jokiu būdu atskleisti savo sugebėjimus į jo **oeuvre** tobulumą.*

Human translation

*Tai neatspindės jo **oeuvre*** tobulybės* (Harris 2009:15)

** kūrinio*

(42) Original sentence

*Your **beaux** will be so numerous as to prevent your feeling the loss of the three, of whom we shall deprive you.* (Austen 1956:89)

Machine translation

*Jūsų **dabitos** bus taip gausios, kad sutrukdytų jūsų trijų praradimo jausmui, ką mes atimsime iš jūsų.*

Human translation

*Turėsite tiek **beaux**, jog net nepajusite praradusi tuos tris, kurių per mūsų malonę netekote.* (Austen 1998:131)

The previous examples demonstrate that French abstract words such as ***malchance*** (in English misfortune) or ***oeuvre*** (in English an art work) throw down the challenge to the machine and to the human translator. The system leaves the source text variant, while the professional translation uses the strategy of addition. Discussing the following example (42) from the novel "Pride and "Prejudice", the computer program proposes the equivalent of an old-fashioned word beau, which means a woman's male lover or friend and a person who takes care of his or her appearance and clothing. In fact, it is near the truth. Taking into account the context of the novel, the hero invites many guests from high class of society. Men and women enjoy visiting their friends and demonstrating their beauty. As it can be seen from the human translation, it is very unusual for the professional translator to leave the source text unexplained.

It is interesting to note, that in all cases the machine does not omit cultural realia.

7. CONCLUSIONS

In this work, aimed to prove that the tool of machine translation can not exactly translate cultural realia the following conclusions have been drawn.

Considering cultural-bound words denoting games and dances popular in the past and nowadays, their names are polysemous. The machine proposes only the first meaning of the word. As a result, the translation is improper. The human being finds appropriate equivalents or explains their meaning at the bottom of the page. The same tendency is applied to the words that identify various dishes.

The tool of machine translation does not recognize foreign words with cultural implications. Usually, the machine leaves the source language variant. Nonetheless, some tendencies can be distinguished. Firstly, when a foreign word is identical to the English one, the system interprets it as an English word. The analysis shows that sometimes the tool of machine translation proposes proper or near equivalent. Secondly, when the spelling of a foreign word is just similar to the English word, the computer program identifies it as an English word too. However, the proposed equivalents do not reveal the real meaning. The human translator describes the meaning in the footnotes. The realia written in a foreign language includes names of buildings, shops, squares and gourmet culture.

Considering the historical realia only titles of person are recognizable by an automated translation system. As it was noted in the practical part of the paper, the machine sometimes may propose improper equivalent. Such errors may occur due to the context of the text. The meaning of historical realia denoting vehicles and other material things are transferred using word by word translation. However, the translation product is incorrect. While talking about historical realia, he human translator usually uses the borrowing technique or finds proper equivalents in the target language. Some historical cultured-bound words are recognized by a computer program, but the proposed equivalents do not fit stylistically. In this case, the human translator chooses the words that are closer to the appropriate period of time and culture.

Taking into account the names of various holidays, the computer program leaves the source language word. Conversely, the human translator explains the meaning using the strategy of addition or finds equivalents in the target language.

Interesting fact to note is that the system never writes a description given in a database. Furthermore, it never omits the cultural-bound words and phrases. The most frequent translation strategies used by translators are the strategy of addition and the borrowing technique.

On the whole, the machine has recognized only few historical cultural realia from the novel “Pride and Prejudice”. Other words with cultural implications in both books were left without translation or translated incorrectly.

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