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**APPLICABILITY OF FREE ONLINE MACHINE  
TRANSLATION TOOLS FOR TRANSLATION OF  
DIFFERENT TEXT TYPES**

BEZMAKSAS MAŠĪNTULKOŠANAS PROGRAMMU  
PIEMĒROTĪBA DAŽĀDU TEKSTU TULKOŠANAI

DIPLOMA PAPER

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## ABSTRACT

Translation performance of free online machine translation tools is analyzed and compared in the diploma paper. The goal of the research is to prove that machine translation is applicable for translation of informative texts. Literature review on the subject is given in the theoretical part. In the practical part press release, popular science text and work safety instruction/ operating manual are translated with Google Translator, Bing Translator and Tilde Translator from Latvian to English and *vice versa*. The experience of the machine translation users is discussed as well. It is concluded that obtained translations are useful. Translations from Latvian to English were found to be better than *vice versa*.

**Keywords:** machine translation tools, Google, Bing, Tilde, questionnaire

## ANOTĀCIJA

Diplomdarbā ir analizēta un salīdzināta internetā pieejamo bezmaksas mašīntulkošanas programmu spēja iztulkot dažādus tekstus. Darba mērķis ir pierādīt, ka automātisko tulkošanu var pielietot informatīvu tekstu tulkošanai. Diplomdarba teorētiskajā daļā veikts literatūras apskats. Praktiskajā daļā veikti preses relīzes, populārzinātniska raksta un darba drošības/lietošanas instrukcijas tulkojumi, izmantojot *Google Translator*, *Bing Translator* un Tildes Tulkotājs, no latviešu valodas angļu valodā un otrādi. Praktiskajā daļā ir apkopota arī mašīntulkošanas programmu lietotāju pieredze. Darbā secināts, ka iegūtie tulkojumi ir noderīgi, turklāt tulkojums no latviešu valodas angļu valodā ir kvalitatīvāks nekā otrādi.

**Atslēgvārdi:** mašīntulkošana, Google, Bing, Tilde, aptauja

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## LIST OF ABBREVIATIONS AND ACRONYMS

MT – Machine Translation

API – Application Programming Interface

URL – Uniform Resource Locator

ST – Source Text

TT – Target Text

SL – Source Language

TL – Target Language

n.d. – no publishing date

ibid. – *ibidem*, the same place

## INTRODUCTION

Communication among different language speakers always was an essential issue. The necessity for communication in foreign languages in different fields – science, business and social contacts – is steadily growing. Translating can facilitate the communication. Initially only human translators could do this task. Now we have got another option – machine translation as researchers have been working for decades in order to establish computer systems capable of translating from one natural language to another.

According to the definition (AAAI, online 1), machine translation (MT) is the application of computers to the task of translating texts from one natural language to another. The ideal aim of machine translation systems is to produce the best possible translation without human assistance. Free online MT tools are available for every internet user. Online MT tools providers recommend to use machine translation for unofficial and informative purposes, materials containing nuanced or sensitive information, such as legal agreements, marketing material and business correspondence should be assigned to human translators.

**The goal of the diploma paper thesis** is to evaluate free online MT tools applicability for translating of different kind informative texts and to compare the performance among several MT tools for which English and Latvian are among supported languages. To achieve the goal following objectives were chosen:

1. to read and analyse the theory available on the problem,
2. to carry out necessary research activities (translating by online MT tools and the author of the diploma paper, questionnaire about the experience with online MT tools),
3. to analyse the results of the research activities,
4. to draw relevant conclusions.

**Hypothesis:** free online MT tools may be applicable for translation of informative texts.

### **Methods of research**

This research includes both theoretical and empirical research methods. The theoretical part consists of the review of the theory available on the subject. The research for the practical part was done in two steps. Several texts were translated by online MT tools and the author of the diploma paper. Obtained machine translations as well as translation strategy of the author were discussed. Questionnaire was prepared and sent out to respondents who are not

translators and have no specific training in translating. The aim of the questionnaire (Appendix) was to find out their opinion about machine translations and experience with online MT tools.

### **Outline of chapters**

The theoretical part of the research consists of four chapters. In the first chapter overview of history of machine translation is given, in the second chapter types of machine translation systems are summarized, the third chapter deals with the challenges of machine translation and text translation approaches are described in the fourth chapter.

The practical part consists of five chapters. In the first chapter online MT tools used for the research are described, in the second chapter translation results are discussed, in the third part translation task relevant conclusions are drawn. The fourth part deals with questionnaire results and conclusions about the respondents' experience are drawn in the fifth part.

# 1. HISTORY OF MACHINE TRANSLATION

According to web site (Hutchins, 1986), firstly the idea to search for universal language which could replace natural language and thus facilitate scientific communication across the world was expressed already in the seventeenth century.

Lexical units in all known languages expressing similar meaning were assigned the same numerical code. Such code dictionaries were published by Cave Beck in 1657, by Athanasius Kircher in 1663, and by Johann Joachim Becher in 1661 (Hutchins, 1986). Translation using mechanical dictionaries was performed by human translator until the invention of mechanical calculators in the nineteenth and twentieth century. This gave an idea that a mechanical device can be adapted for performing a translation.

The development of MT cannot be separated from technical inventions. In 1933 two patents were issued independently in France and Russia for mechanical dictionaries. The translation machine which operated as mechanical dictionary was invented by a French engineer, Georges Artsrouni. The translation of required word was obtained by means of coded perforations that corresponded to the entry word and equivalents in several other languages. Operating principle of translation machine invented by Russian engineer Petr Petrovich Smirnov-Troyanskii was different. Translation was performed in three steps. Firstly the human editor all constituents of required phrase rendered in the nominative form in a case of a noun and in the infinitive form in a case of a verb. Then the machine transferred the phrase into desired language. At the end other human editor having knowledge of the target language adjusted the obtained translation to the grammatical norms of the target language (Hutchins, 1986). From time to time the suggestion to perform pre-editing and post-editing of machine translation by human editor was maintained during MT development history as a mean to tackle the polysemy present in natural languages.

Creating of more complicated calculation machines promoted the development of machine translation. The memorandum written on 15th July 1949 by Warren Weaver was an eye-opener for scientists and engineers interested in machine translation. In the memorandum Weaver discussed general machine translation strategies and long-term goals.

As the practical experience showed that words can be relatively easy transcoded whereas linguistic structures may be more difficult, the further research was focused on the syntax. The interest in MT and the subject studies resulted in the first conference on MT issues that was held at the Massachusetts Institute of Technology (MIT) in 1952. Probably the most significant outcome of the conference was further research in order to demonstrate that

machine translation is not a myth but a reality. This experiment was more than word-for-word translation; grammatical rules were applied.

In 1956 the first international MT conference took place. The United States, Great Britain, Canada and the Soviet Union were represented at the conference (Hutchins, 1986).

Development of machine translation was fuelled not only by a technical progress, but also by current political processes. The Treaty establishing the European Economic Community (The Treaty of Rome) signed in 1957, led to the founding of the European Economic Community consisting of six European countries – Belgium, France, Italy, Luxembourg, the Netherlands and West Germany – on 1 January 1958. Regulation No. 1 of 15 April 1958 (EUR-Lex, online 3) stated the languages to be used by the European Economic Community.

Enlargement of the European Economic Community raised the need of translations in unprecedented heights as the legal security of the citizens of Europe, to whom the Community legislation is directly applicable has to be guaranteed via multilingualism. The Commission started to work on MT projects that could help to ensure translations in all EEC official languages. In 1976 a Plan of Action was approved. It provided further work on development of Systran system, terminology databases and long-term research on a full scale multilingual MT system, namely the Eurotra system (Hutchins, 1986). Systran was developed and further dictionaries used by the system were improved by Commission's translator staff on a language-pair base. By 1984 three language-pair versions, i.e. English-French, French-English, and English-Italian were available. New language pairs could be added to Systran but it was obvious that this alone could not tackle the problem of multilingualism. The Eurotra project was started among the Commission and MT experts from European universities. By 1982 the general structure of the proposed Eurotra system had been agreed among the participating groups. This was a very ambitious project. The aim was to create the most advanced machine translation system that could translate all languages of the European Community into each other. The research was started for the all languages simultaneously. For different reasons the Eurotra project was ended in 1992 (Hutchins, 1986). The European Commission continued to work with Systran MT solutions.

General public could benefit from machine translation since accessibility to personal computers and development of a global system of interconnected computer networks, namely the Internet. Many machine translation tools are available in the internet. For example Google Translator in order to generate the required translation analyzes millions of texts coming from books, organizations and websites from all around the world that have already been translated by human translators (Online 4).

## 2. TYPES OF MACHINE TRANSLATION SYSTEMS

MT systems may be classified according to a number of criteria, such as: degree of intervention by human translator, whether the system provides generic or customized translation, and what system architecture or approach is employed (Ping 2009: 162-169).

In **unassisted** or **fully automatic MT**, the translation engine translates whole texts without the intervention of human operators. These systems sometimes are referred to as “batch” systems since the whole text is processed as one task.

Assisted MT is generally classified into **human-assisted MT** (HAMT) and machine-assisted human translation (MAHT). In human-assisted MT, also known as interactive MT, human translators intervene to resolve problems of ambiguity in the source text or to select the most appropriate target language word or phrase for output. An increasingly popular form of MAHT is computer-aided translation (CAT).

**Generic** MT systems are general-purpose systems that translate texts in any subject area or domain. **Customized** or special-purpose systems are targeted at groups of users who work in specific areas or fields.

In terms of system`s architecture, MT can be broadly categorized as **rule-based** or **corpus-based**. Rule-based MT (RBMT) is essentially based on various kinds of linguistic rules.

This process requires extensive lexicons with morphological, syntactic, and semantic information, and large sets of rules. Translations are built on gigantic dictionaries and sophisticated linguistic rules. Users can improve the out-of-the-box translation quality by adding their terminology into the translation process. They create user-defined dictionaries which override the system's default settings (Online 5).

**Transfer-based** MT consists of three basic stages: (i) parsing an input sentence into a formal meaning representation which still retains the deep-structure characteristics of the source text; (ii) “transferring” i.e. converting, the ST formal representation into one which carries the deep-structure characteristics of the target language, and (iii) generating a target sentence from the transferred meaning representation. Most of today`s major commercial mainframe systems, including METAL, SYSTRAN, and Logos, adopt this approach. Two widely known research projects, Eurotra (funded by the Commission of the European Communities) and Ariane (at GETA in Grenoble), also used this approach (Hutchins 1999).

In **interlingua MT**, the abstract representation of the meaning of the original is created using an “interlingua” or pivot language, i.e. an (ideally) source/target language independent

representation, from which target texts in several different languages can potentially be produced.

A variant of interlingual MT is **knowledge-based MT** (KBMT), which produces semantically accurate translations but typically needs, for the purpose of disambiguation, massive acquisition of various kinds of knowledge, especially non-linguistic information related to the domains of the texts to be translated and general knowledge about the real world.

Corpus-based MT can be classified into two categories: statistical MT and example-based MT. In **statistical machine translation** (SMT), words and phrases (word sequences) in a bilingual parallel corpus are aligned as the basis for a “translation model” of word-word and phrase-phrase frequencies.

A minimum of 2 million words for a specific domain and even more for general language are required (Online 4).

**Example-based MT** (EBMT) systems also use bilingual parallel corpora as their main knowledge base, at runtime. In this case, translation is produced by comparing the input with a corpus of typical translated examples, extracting the closest matches and using them as a model for the target text.

#### **Online translation systems**

In the mid-1990s, CompuServe began to offer on-line translation of e-mails and Systran made its systems available online for text and webpage translation in AltaVista`s Babel Fish service. Today, most Internet portals, including Google and Yahoo, offer free online MT services.

### 3. CHALLENGES IN MACHINE TRANSLATION

Computers encounter the problems which human translators can easily resolve. Machine translation problems can be grouped in linguistic and extra-linguistic problems.

Linguistic problems encountered in MT are primarily caused by the inherent ambiguities of natural languages and by the lexical and structural mismatches between different languages (Ping 2009: 162-169).

**Lexical ambiguity** is typically caused by polysemy and homonymy. **Structural or grammatical ambiguity** arises where different constituent structures (underlying structures) may be assigned to one construction (surface structure). Typical cases include alternative structures and uncertain anaphoric reference.

**Alternative structures** are constructions which present two or more possible interpretations but presuppose that only one is true. “Pregnant woman and babies” is grammatically correct can be interpreted as (pregnant woman) and babies or pregnant (woman and babies), although only the former is semantically accurate.

**Uncertain anaphoric reference** occurs when an expression can refer back to more than one antecedent. “There is pile of inflammable trash next to your car. You are going to have to get rid of it.” Here it is not possible to determine, without reference to the context, whether “it” refers anaphorically to “trash” or “car”.

Ke Ping concludes that promising research directions that could overcome present machine translation problems would be knowledge-based MT and statistical MT.

Translation is a complex cognitive operation and ambiguities can be naturally resolved by the human translator during translation process.

At the same time the frustrating slowness of translation (as of all text-production) is one of several factors that fuel dreams of machine translation (Robinson 2003:16).

Ironically enough, traditional approaches to translation based on the non-translating user’s need for a certain kind of text, have only tended to focus on one of the user’s needs: reliability (often called “equivalence” or “fidelity”). A fully user-oriented approach to translation would recognize that *timeliness* and *cost* are equally important factors.

All that matters to the non-translating user is that the translation be reliable in more or less the way s/he expects (sometimes unconsciously): accurate or effective or some combination of the two; painfully literal or easily readable in the target language or somewhere in the middle; reliable for her or his specific purposes.

A text that meets those demands will be called a “good” or “successful” translation, period, even if another user, with different expectations, might consider it bad or unsuccessful; a text considered a failure by some users, because it doesn’t meet their reliability needs, might well be hailed as brilliant, innovative, sensitive, or highly accurate by others (Robinson 2003:7-8).

Nida and Taber (1969:173) propose a set of criteria: the correctness with which the message of the original is understood through the translation, the ease of comprehension and the involvement a person experiences as a result of the adequacy of the form of the translation.

In the 1960s, and predominantly in connection with experiments with machine translation, psycholinguists such as Carroll (1966) suggested the use of broad criteria such as “intelligibility” and “informativeness” for assessing translation quality, together with a number of testing methods such as asking the opinion of competent readers, etc.

Future approaches to translation quality assessment need to be more transdisciplinary in nature (cf. Lee-Jahnke 2001; House and Baumgarten 2007). An interesting suggestion in this direction has also recently been made by Bolanos Cuellar (2007). He integrates both product- and process-oriented perspectives on translation as well as linguistic, literary and culturally oriented views in his dynamic translation model, combining textual-contextual aspects with considerations of the communicative nature of translation.

Future work on translation quality assessment needs to develop beyond subjective, one-sided or dogmatic judgments by positing intersubjectively verifiable evaluative criteria on the basis of large-scale empirical studies. Large corpora of translations from into many different languages (cf. Bowker 2001; Olohan 2004; Kenny 2006) must be analyzed in order to formulate hypotheses about why, how, and to what degree one translation may be deemed better than another (House, 2009:222-225).

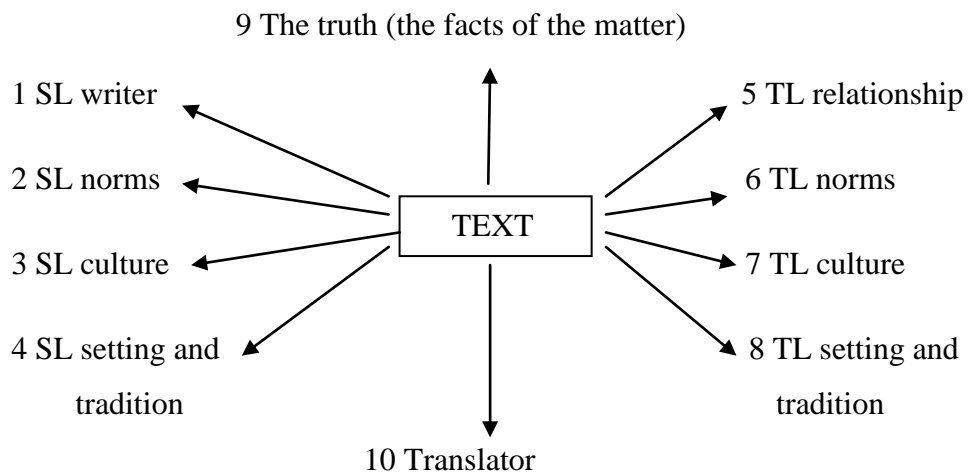
It is worth to point out that the most challenging task for MT is to fulfill the expectations since the first attempts to invent automatic translation systems to generate automatic high-quality translation indistinguishable from those of human translators.

## 4. TRANSLATION APPROACHES

Zauberga (2004) summarizes that there are two basically different ways how to approach translation. Until three decades ago translation was generally seen as a copy of the source text, as a search of sameness. The only value of the translation was its link with the original. The process of translation began by reading the source text and trying to reproduce features of the original as closely as possible. The approach was summed up by Peter Newmark: “Translation should be as close as possible and as free as necessary” (1988). Such approach is called **source-oriented**. The central concept of source-oriented translation is equivalence.

Source-oriented translation could be defined as creation of equivalent textual material in another language. In simple terms it is close, faithful translation.

Source text oriented approach can be depicted in the following way:



The figure seems useful to outline the main sets of translation problems:

The individual style of the author; when should it be preserved, improved upon; what to do with faulty source texts.

2/6) Source and target language grammatical incompatibilities; how to treat source text grammar; insistence on the priority of the target language grammar.

3/7) Content items referring specifically to the source and target language cultures; how to handle cross-cultural differences.

4/8) The typical format of a text, text-specific conventions as influenced by tradition at the time; translation as a historical category.

5) The expectations of the readership, bearing in mind their estimated knowledge of the topic, particular author, style of language.

9) The importance of the knowledge of the subject matter of the source text.

10) The views and prejudices of the translator, which may be personal and subjective, the individual style of the translator; should the translator be visible.

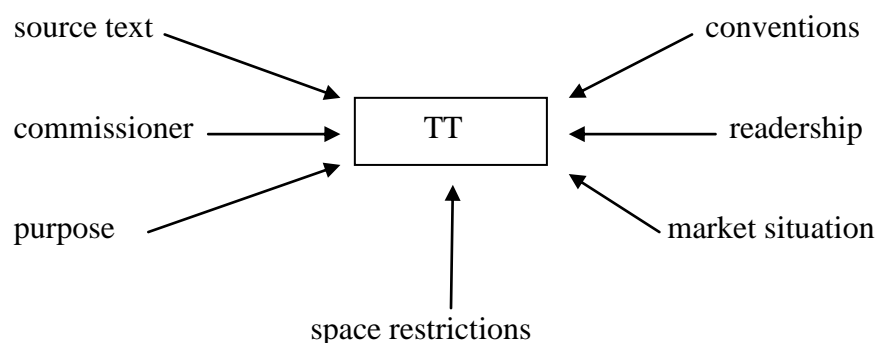
Solutions for a number of these problems involve factors well beyond the boundaries of the source text; however, the translator perceives the whole process from the inside, from the perspective of the source text; s/he does not step outside to regard the text from the user's point of view.

User's perspective becomes dominant in **target-oriented translation**. Translation does not start with a source text. The translator starts out by analyzing the new communicative situation in which the translation will be used and deciding upon the function the target text is expected to fulfill. Such approach is also called **function-oriented** and is well elaborated by **skopos theory**.

The recipient for whom the TT is intended becomes a crucial factor in target-oriented translation. Therefore equivalence as the central concept in source-oriented translation is replaced by **acceptability**. Acceptable translation is smooth and reader-friendly and performs the required function. It is a self-sufficient, autonomous text and often passes as original creation.

Target oriented translation can be defined as rendition of the source text in the target language according to the purpose assigned to it by the new communicative situation. In simple terms it is free translation.

Target-oriented approach could be depicted in the following way:



What is dominant in the target-oriented approach to translation is orientation towards cultural rather than linguistic transfer. Scholars like Bassnett and Lefevere point to the

“cultural turn” in translation studies in the 1980s. Translation is viewed not as a process of transcoding but as act of communication across culture barriers. The focus in the translation process lies on the function of the target text rather than prescriptions of the source text. However, it is important to understand there is no value judgment in this juxtaposition. Both approaches co-exist and could be applied depending first and foremost on the text to be translated but also on translator’s own understanding what a good translation should be like.

Each text is characterized by a combination of intratextual and extratextual features that assign a particular function to the text. Source texts can be very different. Accordingly approaches to translation of different text types should vary. All texts are traditionally grouped into three main types: **informative** or content-oriented, **vocative** or reader-oriented and **expressive** or author-oriented (Buhler’s classification). The primary function of a translated text clearly affects how the translator will operate.

### **Informative texts**

Informative texts comprise news items, business accounts, scientific articles, operating instructions etc. On one hand, translation of these texts requires precision, especially that of terminology which may constitute 5 to 10 % of all lexical units. On the other hand, this text type is the least stylistically polished; often these texts are hastily drawn and simply badly written. The more technical the text, the less important the language. These texts contain straightforward messages and are usually free from connotations, emotive language, sound-effects and original metaphor.

#### Translation aspects

Since the purpose of informative texts is to convey information as clearly as possible by no means should the translator stick closely to the wording of the ST-textual units must be processed and often reformulated.

Informative texts are thing-bound and to translate them well the most important requirement is the knowledge of the subject matter.

The central difficulty in technical translation is terminology. Dictionaries are a good resource. Another support of technical nature is the availability of parallel texts in the target language. Often the target term is simply not available. The next step to transfer the term is to choose between available options – mostly descriptive translation, transcription or loan translation.

### **Vocative texts**

Vocative texts constitute promotional writing – advertisements, electoral speeches, tourist brochures etc. The main function of vocative texts is manipulative function: these texts are created to make the recipient act. Since the target readership always differs from the source recipient – they are participants in a different culture situation – adaptive translation is required, determined by the intended target language receivers are assumed to react to the text.

#### Translation aspects

Adaptation is the most widely applied method in rendition of vocative texts. As a rule culture items are adapted due to the culture gap between the S and T recipient. Revision and zero translation in case of very well known brand names are the methods used for translation.

### **Expressive texts**

Expressive texts comprise fiction and, unlike many informative and operative texts, are hardly ever anonymous, they are author-oriented. Conveying peculiarities of the author's poetic world as a rule is one of the major functions. Thus in literary translation translator is expected to transfer not only the message of the ST but also the specific way the message is expressed in the ST. An ideal translation would then have the same function and aesthetic effect as the source text.

## 5. PRACTICAL PART

### 5.1. Description of online MT tools

Three non-commercial online MT tools offering language combination Latvian-English and English-Latvian were used for translation of different texts in the practical part.

#### 5.1.1. Google Translator

Google Translate is a free translation service that provides automated translations of words, sentences and web pages between 58 different languages (Online 1).

The translation service was introduced in April 28, 2006 for the Arabic language.

Google Translate for languages other than Arabic, Chinese and Russian employed Systran systems that used rule-based machine translation. In October 2007, Google introduced a statistical machine translation platform. It analyzes millions of documents, detects patterns in the documents that have already been translated by human translators and makes intelligent guesses as to what an appropriate translation should be. Translation accuracy varies across languages as the amount of available texts in particular language differs.

Google does not translate from one language to another ( $L1 \rightarrow L2$ ), it most often translates first to English and then to the target language ( $L1 \rightarrow EN \rightarrow L2$ )

Latvian was launched in September 25, 2008 (Online 2).

On June 3, 2011, Google announced that they were canceling their plan to terminate the Translate API (application programming interface) due to public pressure. In the same announcement, Google said that they will release a paid version of the Translate API (*ibid.*).

URL: [translate.google.com](http://translate.google.com)

#### 5.1.2. Bing Translator

Bing Translator (previously Live Search Translator and Windows Live Translator) is a service provided by Microsoft as part of its Bing services to translate texts or entire web pages into different languages. All translation pairs are powered by Microsoft Translator technology, developed by Microsoft Research, as its backend translation software. Computer-related texts are translated by Microsoft's own syntax-based statistical machine translation technology.

Bing Translator is launched on June 3, 2009 (Online 3). It provides translations between 37 different languages. Latvian was added to language list since October 29, 2009 (Online 4).

Microsoft Research worked closely with Tilde in the enhancement of Microsoft Translator's Latvian-to-English and English-to-Latvian engines. Tilde provided guidance in a number of technologies that touched machine translation, data, and Latvian specific tools and technologies, facilitating significant gains in quality for the Latvian language translations in Microsoft Translator (Online 5).

URL: [microsofttranslator.com](http://microsofttranslator.com)

### 5.1.3. Tilde Translator

Tilde Translator is a machine translation tool developed by Tilde. The Beta version provides translation from English to Latvian and from Latvian to English. The same service is offered by *Tildes Birojs 2008* as well.

Tilde provides translation and localization, editing and proofreading, linguistic validation and quality assurance services, terminology development and management for already 20 years.

Tilde is working on providing translations in other language combinations too (Online 6).

URL: <http://translate.tilde.com>, <http://www.tilde.lv/tulkotajs>

## 5.2. The Translation Task

In total six text samples are translated by Google Translator, Bing Translator and Tilde Translator. Two text samples were chosen for each text type – press release, popular science and instruction. One of them was translated from Latvian to English, another – from English to Latvian. Translations were compared and evaluated among online MT tools. The translation by the research author is offered as well; translation strategies are discussed. All these texts belong to informative texts according to Bühler's classification. Since the purpose of informative texts is to convey information as clearly as possible (Zauberga, 2004) several evaluation criteria were set – message, solving of text specific problem and word choice.

## 5.2.1. The Translation of Press Release

### **Translation from Latvian to English**

Pašreizējais finanšu ministrs Andris Vilks ekonomistu vērtējumā arī turpmāk varētu uzņemties Finanšu ministrijas politisko vadību, taču par ekonomikas ministra amata kandidātu Danielu Pavļutu komentāri ir skopi, jo pieejamā informācija neļaujot spriest par viņa piemērotību šim amatam. Aptaujātie ekonomisti pozitīvi vērtēja Vilka virzīšanu finanšu ministra amatā (Online 7).

### GOOGLE

The current Finance Minister Andris Vilks assessment of economists continue to assume political leadership of the Ministry of Finance, but the economy minister-designate Daniel Pavļuts comments are niggardly, because the available information allowing to judge his fitness for the position. Surveyed economists welcomed the promotion of the Wolf Minister for Finance.

### BING

The current Finance Minister Andris Vilks rated economists continue to assume the political leadership of the Ministry of finance, but about the economy minister posts candidate Daniel Pavļut comments are cheap because the available information does not allow the judge about his suitability for this position. Surveyed economists appreciate positive progress pull of the Minister of finance.

### TILDE

Paareizejais finance minister Adryan Vilks economists assessment would be able to continue to assume political leadership of the Ministry of finance, but the minister for economic affairs and the candidates for pavļutu comments are conservative, because the available information from talk about his suitability for the post. Promote the positive contributors economists wolf's finance minister post.

### **Translation evaluation**

BING translated the phrase '*informācija neļaujot spriest*' as 'information doesn't allow the judge' where verb 'spriest' is converted as noun thus introducing a new actor in the text.

GOOGLE translated the verb '*spriest*' correctly as verb 'to judge', but the meaning is opposite because the phrase is translated as a positive statement "information allowing to judge'. The same phrase '*informācija neļaujot spriest*' was translated very different by TILDE – 'information from talk', so the message becomes vague.

In the second example syntax is too complicated for MT and all translators faced the same problem. In ST minister Andris Vilks is evaluated by economists; the economists consider that minister could continue his work. All translators could not resolve this task and transferred meaning as following: the economists evaluated by Minister Andris Vilks could continue the work.

The most challenging was word choice for '*skopi*' in the phrase '*komentāri ir skopi*'. Each MT tool translated it differently GOOGLE 'comments are niggardly', BING 'comments are cheap', TILDE 'comments are conservative'. Translation offered by GOOGLE fits to the given context better. The phrase '*ekonomikas ministra*' was translated in two ways 'the economy minister' by GOOGLE and BING, 'the minister for economic affairs' by TILDE. News portals use both versions depending on the source, but the correct term by *Letonika* is 'the minister of economics'.

Proper nouns and homonymy were a text specific problem. In the first sentence, the name and surname Andris Vilks was left as given in ST by GOOGLE and BING, whereas TILDE rendered it as 'Adryan Vilks'. When the minister's surname 'Vilks' is mentioned second time it is not recognized as a proper name by GOOGLE even if it is placed in the middle of the sentence and capitalize. BING translated the minister's surname in Genitive 'Vilka' as if it were the verb "vilkt' in past simple 'pull'. TILDE rendered it as 'wolf's'.

It is common practice to render Latvian proper names in English in Nominative even if in Latvian they are conjugated.

Translation quality obtained by GOOGLE and BING is similar, but as GOOGLE changed the message of the first sentence, BING could be evaluated higher.

### My translation

According to economists' assessment, the current Minister of Finance, Andris Vilks could continue the political leadership of the Ministry of Finance whereas Daniels Pavluts, nominated for the Minister of Economics, hardly got any comments from the media because the available information is insufficient to judge about his suitability for this post. The economists evaluated the chances for Vilks to be promoted to Minister of Finance positively.

## Translation strategy

The first sentence has complex structure and it was important to maintain the correct subordination also in TT. Other problem was the expression 'komentāri ir skopi' that is common saying in Latvian but there is no equivalent in English as it was found out during the analysis of the parallel texts. Therefore the phrase containing this expression was reformulated. The online dictionary at <http://www.yourdictionary.com> was used to check the definitions for 'assessment' and 'judge' in order to find the best solution for the given context.

## Translation from English to Latvian

In a phone conversation with Sarkozy on Thursday, Chinese President Hu Jintao made no mention of specific plans to invest in the scheme, but lauded Europe's progress in solving the debt crisis. "It is not in China's interest to fund this scheme," Carl Weinberg, chief economist at High Frequency Economics told CNN Money. "It is better advised to sit this out and buy assets at liquidation than to invest in a sinking ship."

Meanwhile the EU's bailout fund chief Klaus Regling will meet with officials in Beijing and Tokyo Friday, though no reason has been given for his visit (Online 8).

## GOOGLE

In telefona saruna ar Sarkozy ceturtdien, Ķīnas prezidents Hu Jintao nav minējušas īpašus plānus ieguldīt shēmas, bet izslavēts Eiropā progress, risinot parādu krīzi. "Tas nav Ķīnas interesēs, lai finansētu šo shēmu," Carl Weinberg, galvenais ekonomists High Frequency Economics teicis CNN Money. "Tas ir labāk, sēdēt šo out un iegādāties aktīvus likvidācijas, nekā investēt grimstoša kuģa."

Tikmēr ES bailout fonda vadītājs Klaus Regling tiksies ar amatpersonām Pekinā un Tokijā piektdiena, lai gan nav iemesla ir dota viņa vizīti.

## BING

Tālruņa saruna ar Sarkozy ceturtdien, Ķīnas prezidents Hu Jintao nav minējušas konkrētu plānu ieguldīt šajā shēmā, bet izslavēts Eiropas panākumi, risinot parādu krīzi. "Tas nav Ķīnas interesēs, lai finansētu šo shēmu," Carl Weinberg, galvenais ekonomists, augstfrekvences ekonomikas teicis CNN Money. "Labāk ieteicams sēdēt ārā un iegādāties aktīvus pie likvidācijas nekā ieguldīt grimstošs kuģis."

Tajā pašā laikā ES sanācības fonds galvenais Klaus Regling tiksies ar ierēdņiem Pekinas un Tokijas Piektdiena, gan par viņa vizīti ir dota nekāda iemesla.

## TILDE

Tālrūņa saruna ar Sarkozy ceturtdien, Ķīnas prezidents Hu Jintao nepiemin konkrētus plānus investēt lauded shēmas, bet Eiropas parādu krīzes risināšanai. " panākumi nav Ķīnas interesēs, lai finansētu šo shēmu, " Karls Weinberg, galvenais ekonomists, augstfrekvences ekonomika pastāstīja CNN naudu. " labāk ieteicams sēdēt šo, un jāpērk aktīvi pēc likvidācijas, nevis ieguldīt grimstošu kuģi."

Regling tikmēr ES sanācijas fonda vadītājs Klauss tiksies ar amatpersonām Pekinā un Tokijā piektdien, tomēr iemesls ir par viņa vizīti.

### **Evaluation of translation**

GOOGLE and BING have retained the message. Meanwhile TILDE has changed the word order in the translation thus making the message confusing. For example, 'to invest in the scheme, but lauded Europe's progress' is rendered as '*investēt lauded shēmas, bet Eiropas*' and 'It is not in China's interest to fund this scheme' is translated as '*panākumi nav Ķīnas interesēs, lai finansētu šo shēmu*'. In the last sentence TILDE has separated person's name and surname, the surname was brought to the beginning of the sentence and name was left where it was and changed the meaning of the phrase 'though no reason has been given for his visit' as 'tomēr iemesls ir par viņa vizīti'.

GOOGLE has left more words untranslated comparing with the other MT tools, thus, offering more comprehensible translation, whereas the company name 'High Frequency Economics' was not recognized as proper noun and translated by BING and TILDE as 'augstfrekvences ekonomika'.

The term 'EU's bailout fund' was translated as 'ES *bailout fonda*' by GOOGLE, 'ES *sanācijas fonda*' by BING and TILDE. Even if 'ES *sanācijas fonda*' is not the right translation it tells more than 'ES *bailout fonda*' and the message is correct. This term was very challenging for me as well; discussion is presented below in my translation strategy.

GOOGLE and BING translations are very close, but GOOGLE has not translated several words so in some parts improving the understanding of the text, but in some parts leaving the reader in uncertainty. BING translation is evaluated as the best.

### My translation

Ceturtdien, telefonsarunā ar Sarkozy Ķīnas prezidents Hu Džiņtao nav pieminējis īpašus plānus ieguldīt shēmā, bet gan slavējis Eiropas panākumus, risinot parādu krīzi. „Ķīnas interesēs nav finansēt šo shēmu,” intervijā portālam *CNN Money* teica Karls Veinbergs, *High*

*Frequency Economics* galvenais ekonomists. „Prātīgāk ir nogaidīt un pirkt aktīvus likvidācijas laikā, nevis investēt grimstošā kuģī.”

Tikmēr Eiropas Finanšu stabilitātes fonda vadītājs Klauss Reglings piektdien tiksies ar amatpersonām Pekinā un Tokijā, kaut gan viņa vizītes iemesls nav oficiāli paziņots.

#### Translation strategy

Parallel texts were used in order to maintain the consequence in rendering the name of Chinese President Hu Jintao and translating the job title for Klaus Regling. For the latter, the inconsistency was found. In the example he is an EU's bailout fund chief, in other web articles for example in news portal The Telegraph he is named as chief executive of the European Financial Stability Facility (EFSF), in BBC – the head of the Eurozone's bailout fund.

Latvian news portals translated it as ‘Eirozonas glābšanas fonda vadītājs Klauss Reglings’ in *DB.lv* and ‘Eiropas Finanšu stabilitātes fonda (EFSF) vadītājs Klauss Reglings’ in *Diena.lv* and *Financenet.lv*.

English speaking media are more flexible in using job titles in their press releases so striving for more reader-friendly style. This phenomenon has created two job titles for Mr. Klaus Regling, which are translated and co-exist in Latvian mass media. Latvian practice is to use the official title or abbreviation rather than descriptive synonyms. Therefore in my translation I used officially recognized title.

The translations of the terms ‘assets’ and ‘liquidation’ were checked in the specialized online glossary (Online 9).

### 5.2.2. The Translation of Popular Science Text

#### **Translation from Latvian to English**

Augi ražo skābekli no oglekļa dioksīda un ūdens, izmantojot saules gaismas enerģiju. Reakciju kopumā, ko sauc par fotosintēzi, piedalās dažādi lapu hloroplastos esoši enzīmi un proteīnu kompleksi. Ar augu saražotajiem savienojumiem savus dzīvības procesus nodrošina citi organismi barības ķēdē, ieskaitot cilvēku (*Ilustrētā zinātne*, 2011).

#### GOOGLE

Plants produce oxygen from carbon dioxide and water using solar energy. The reaction is generally known as photosynthesis, participates in a variety of leaf chloroplasts existing enzymes and protein complexes. Plant-produced compounds with their life processes provided by other organisms in the food chain, including man.

## BING

Plants produce oxygen from carbon dioxide and water using sunlight for energy. The overall reaction, called photosynthesis, participates in a variety of pages in the chloroplasts and enzyme-protein complexes. The plant produced compounds their life processes to other organisms in the food chain, including people.

## TILDE

Plants produce oxygen from carbon dioxide and water, using sunlight energy. Reaction as a whole, called photosynthesis, participate in the various existing page hloroplastos enzymes and protein complexes. With the plant produced compunds their life processes provides other organisms' the food chain, including man.

### **Translation evaluation**

Online MT tools rendered term '*saules gaismas enerģija*' as 'solar energy' (GOOGLE) or 'sunlight energy' (BING, TILDE). Both terms are used in the internet articles, but online dictionary *Letonika* and termbase *AkadTerm* suggest only 'solar energy'. Due to the homonymy term '*lapa*' was wrongly translated as 'page' by BING and TILDE. The term '*cilvēks*' was translated as 'man' by GOOGLE and TILDE and as 'people' by BING. In the given context this term refers to the human race; therefore 'man' is the most appropriate choice.

TILDE the only one has not translated the term '*hloroplasti*'.

The last sentence has complex structure and the message of obtained translations is not clear in case of all MT tools however it is not misleading.

The best translation was offered by GOOGLE.

### My translation

Plants produce oxygen from carbon dioxide and water using solar energy. In this reaction, called photosynthesis, different enzymes and protein complexes in leaf chloroplasts take part. Other organisms in food chain, including man, maintain their life processes consuming compounds produced by plants.

### My translation strategy

Equivalents for the term '*saules gaismas enerģija*' were looked up in online dictionary *Letonika*. Parallel texts were used in order to get deeper insight in the subject and to render the message as clear as possible. No specific problems arose during translation.

## **Translation from English to Latvian**

Coral reefs are already threatened by a wide array of forces. Rising water temperatures are producing more frequent "bleaching" events, when corals turn a stark white and often die. Overfishing removes grazers that keep reefs from being overgrown with algae. Agricultural runoff fertilizes algae, further upsetting reef ecology. In the Caribbean some formerly abundant coral species have been devastated by an infection that leaves behind a white band of dead tissue.

### GOOGLE

Koraļļu rīfi ir jau apdraud plašas spēkiem. Ūdens temperatūras paaugstināšanās, kas ražo biežāk "balināšanas" notikumiem, kad koraļļi savukārt stark balts un bieži mirst. Pārzveja noņem grazers kas uztur rīfu ir apaudzis ar aļģēm. Lauksaimniecības noteces fertilizes aļģēm, turklāt neizjaucot rīfu ekoloģiju. In Karību daži agrāk bagātīgāka koraļļu sugas izpostīja infekcija, kas atstāj aiz baltās joslas veido atmirušo audu.

### BING

Koraļļu rīfus jau apdraud plašas spēki. Ūdens temperatūras paaugstināšanās ražo daudz biežāk "balināšanas" notikumiem, kad koraļļus savukārt spilgti balta un bieži iet bojā. Pārzvejas noņem dzīvniekiem ganībās, kas neļautu rīfi ir aizaugusi ar aļģēm. Lauksaimniecības noteci fertilizes aļģes, vēl vairāk satrauc rīfu ekoloģija. Karību daži agrāk bagātīgu koraļļu sugas ir izpostītā infekcija, kas atstāj aiz baltās joslas mirušu audiem.

### TILDE

Koraļļu rīfi jau apdraud plašu spēkiem. Pieauguum ūdens temperatūra ražo biežāk "balināšanas " notikumi, kad koraļļiem savukārt bāls kā krīts un bieži iet bojā. Pārzvejas noņem ganībās, kurās ir rīfi, apaudzis ar aļģēm. Lauksaimniecības noteces fertilizes ac!es, turklāt neizjaucot par ekoloģiju. , Karību jūras koraļļu sugas ir izplatītas dažas iepriekš izpostījušas ar infekcijas slimībām, kuras atstāj balto joslu atmirušos audus.

## **Translation evaluation**

Term 'overfishing' should be translated as '*pārmērīga nozveja*' according to Eurotermbank. In all texts it was translated as 'pārzveja' which is not correct, but it has similar message.

The term 'grazer' is left untranslated by GOOGLE. BING translated it as 'dzīvnieki ganībās' and TILDE was more laconic with 'ganības'. Translation brings the right message

and it is close to the offered term in *Letonika* ‘dzīvnieks, kas ganās’ or ‘uzganāmie lopi’. In this case it is considered as correct translation even though it should be edited by human translator.

All MT tools left ‘fertilize’ untranslated.

TILDE is very creative when rendering phrase ‘stark white’ as ‘*bāls kā krīts*’.

The message of the fourth sentence has been changed as the phrase ‘further upsetting reef ecology’ was translated as ‘*turklāt neizjaucot rifu ekoloģiju*’ by GOOGLE and ‘*turklāt neizjaucot par ekoloģiju*’ by TILDE which contradicts the ST.

BING is evaluated as the best translator.

### My translation

Koraļļu rifus jau apdraud vesela rinda faktoru. Paaugstināta ūdens temperatūra aizvien biežāk izraisa izbalēšanu, kad koraļļi kļūst pilnīgi balti un bieži vien iet bojā. Savukārt lauksaimniecības noteces veicina aļģu augšanu. Zivis barojas ar aļģēm un neļauj apaugt rifiem, taču pārmērīga nozveja samazina zivju populāciju un apdraud rifu ekosistēmu. Karību jūrā dažas, agrāk plaši izplatītas, koraļļu sugas ir iznīcinājusi infekcija, kas aiz sevis atstājusi vien baltu mirušu koraļļu joslu.

### My translation strategy

Terms were looked up in online dictionary *Letonika*. Parallel texts were used to get more knowledge about reef "bleaching" and coral infections. Term ‘reef ecology’ was translated as ‘*rifu ekosistēma*’, because an ‘ecology’ is the scientific study of the relations that living organisms have with respect to each other and their natural environment (Online 11), whereas an ‘ecosystem’ is a biological environment consisting of all the organisms living in a particular area, as well as all the nonliving (abiotic), physical components of the environment with which the organisms interact, such as air, soil, water and sunlight (Online 12). An ecosystem fits the given context better because the text is about different environmental factors affecting the reefs in their habitat.

The TT was restructurized in order to improve the fluency of the translation. The message was not changed.

### 5.2.3. The Translation of Work Safety Instruction and Operating Manual

#### **Translation from Latvian to English**

Tastatūras izmēriem un formai jābūt tādai, kas ļauj strādāt ātri un efektīvi. Tastatūrai jābūt viegli pārvietojamai pa darba virsmu un stabilai lietošanas laikā, kabelim pietiekami lokanam un garam, lai tastatūru varētu novietot vajadzīgajā attālumā no monitora. Tastatūras korpusam nedrīkst būt asas šķautnes un stūri. Simboliem uz tastatūras taustiņiem ir jābūt kontrastainiem un labi salasāmiem (Online 13).

#### GOOGLE

Keyboard size and shape must be one that allows you to work quickly and efficiently. Keyboard to be easily movable along the work surface and stable during use, and flexible enough cable length to the keyboard to place the required distance from the monitor. Keyboard housing must have no sharp edges and corners. Symbols on the keys on the keyboard should be sharp and perfectly legible

#### BING

Keyboard sizes and shapes must be such as to let you work quickly and efficiently. The keyboard must be easily transportable by area of work and the sustainable use, and flexible cable long enough for the keyboard could put the desired distance from the monitor. Keyboard enclosure must not have sharp edges and corners. The symbols on your keyboard must be sharp and well legible.

#### TILDE

Keyboard size and shape should make it possible to work quickly and effectively. Keyboard be easily transferred to the work surface and sustainable use of the cable lokanam enough and the spirit to the keyboard you can position it away from the monitor. Tastatūras body must not be sharp edges and corners. Symbols on the keys of the keyboard shall be kontrastainiem and PERFECTLY LEGIBLE.

#### **Translation evaluation**

The term '*stabilis*' was wrongly translated as 'sustainable' by BING and TILDE. TILDE has left several words not translated and has translated 'garam' (Dative from 'garš') as 'spirit' due to the homonymy.

GOOGLE and BING translations are quite similar, but GOOGLE performance is better due to more successful word choice.

### My translation

The keyboard size and shape must be such as to let it work quickly and efficiently. The keyboard must be easily movable along the work surface, with a cable flexible and long enough to place the keyboard in the required distance from the monitor. It must be stable enough during the use. The keyboard body must have no sharp edges and corners. The symbols on the keyboard must be sharp and well legible.

### My translation strategy

Online dictionary *Letonika* was used to find the equivalence of specialized terms such as 'tastatūra', 'darba virsma', 'korpuss'. The definitions of the offered terminology were checked in The Free Dictionary at <http://www.thefreedictionary.com>. The particular use of the terminology was verified using parallel texts.

The second sentence was re-ordered that improved the comprehensibility of the translated text.

### **Translation from English to Latvian**

Appliance start time can be set with this button, delaying the start by 3, 6 or 9 hours.  
Proceed as follow to set a delayed start:  
Select a programme (Wait that a "Spin" indicator light will go on).  
Press Start Delay button (each time the button is pressed the start will be delayed by 3, 6 or 9 hours respectively and the corresponding light will blink).  
Press START to commence the Start Delay operation (Candy).

### GOOGLE

Appliance sākuma laiks var noteikt ar šo pogu, aizkavējot sāciet ar 3, 6 vai 9 stundām.  
Rīkojieties šādi, lai iestatītu atliktā starta:  
Izvēlieties programmu (Uzgaidiet, ka "Spin" gaismas indikators iet).  
Nospiediet Sākt Delay pogu (katru reizi tiek nospiesta poga starts tiks kavēta 3, 6 vai 9 stundām attiecīgi un attiecīgā lampiņa mirgo).  
Nospiediet START, lai uzsāktu Start Delay darbību.

## BING

Ierīces sākuma laiks var noteikt ar šo pogu, aizkavējot sāciet ar 3, 6 vai 9 stundām. Rīkojieties šādi, lai iestatītu atliktā starta: Izvēlieties programmu (Uzgaidiet, kā "Spin" gaismas indikators iet). Nospiediet Sākt aizkaves pogu (katru reizi tiek nospiesta poga sākas tiks kavēta 3, 6 vai 9 stundām attiecīgi ANO attiecīgā lampiņa mirgo). Nospiediet sākt, lai uzsāktu nekavējoties sākt darbību.

## TILDE

Ierīci ar šo pogu var iestatīt sākuma laiku, aizkavējot vispirms 3, 6 vai 9 stundas. Rīkojieties šādi, lai iestatītu aizkavētā startēšana: Atlasiet programmu (pagaidiet, ka " Spin " indikatorlampa turpināsies. Aizkaves pogu, nospiediet pogu Start (ikreiz, kad tiek nospiesta poga sākumā tiek aizkavēta ar attiecīgi 3, 6 vai 9 stundas un attiecīgais indikators mirgo). Šnospiediet SAKUMSPIEDIENS uzsākt sākuma kavēšanās darbību.

## **Translation evaluation**

GOOGLE among other MT tools has left the biggest number of untranslated words which has led to the better understanding of the text. BING has introduced the abbreviation ANO which is not present in ST. The message of the last sentence in the translation of BING is logical, but it does not reflect the actual message of ST.

TILDE has changed word order thus distorting the message that in order to activate the delay, the button Start should be pressed.

GOOGLE is evaluated as the best translator.

## My translation

Šī poga paredzēta iekārtas darbības sākuma laika atlikšanai par 3, 6 vai 9 stundām. Lai uzstādītu sākuma laika atlikšanu, rīkojieties sekojoši: Izvēlieties programmu (gaidiet līdz iedegsies indikators „Izgriešana”). Nospiediet Atliktā starta pogu (katru reizi nospiežot pogu, sākuma laiks tiks atlikts attiecīgi par 3, 6 vai 9 stundām un iemirgosies attiecīgais gaismas indikators). Nospiediet pogu STARTS, lai aktivizētu darbību Atliktais starts.

My translation strategy

The equivalence of specialized terms was looked up in parallel texts. No specific problems arose during translation.

### **5.3. The Main Conclusions about the Task**

Three online MT tools – Google Translator, Bing Translator and Tilde Translator – were evaluated in the practical part. Examples of press release, popular science text, work safety instruction/operating manual were translated from Latvian to English and *vice versa*.

The translation obtained by online MT tools gives a general idea about the message conveyed by ST. The word choice and in some cases even meaning varies from one MT tool to another. The samples translated and discussed in the practical part can be used for the characterization of the MT tools performance. The main features are summarized below.

GOOGLE when translating from English to Latvian in each text type has left several words untranslated. On the one hand, it improves comprehensibility of the text, especially in operating instructions but on the other hand, the main task is to translate the text. The person who is not fluent in English and will look for MT would expect to obtain translated text.

GOOGLE has misinterpreted the message in two tasks and therefore the first place in English-Latvian translation was assigned to BING.

BING translation contained only few untranslated words, usually the same which were left untranslated by other MT tools as well. Sometimes the word choice was not the best one but it still kept the message.

Translations obtained by TILDE have a superficial impression because a lot of words are misspelled especially in Latvian. In translations generated by TILDE unlike other MT tools the word order was significantly changed thus confusing the target reader. Sometimes the translation was very creative when translating from English to Latvian because the idioms were introduced.

The quality of translations obtained by GOOGLE and BING is quite similar and in some cases it was not easy to name the best one. Nevertheless GOOGLE is evaluated as the best translator from Latvian to English (in two cases out of three), but BING translates better from English to Latvian (in two cases out of three). TILDE comparing with other two MT tools is the weakest and it couldn't be named as best translator for none of the given tasks.

The obtained translations proved that MT tools do not recognize capitalized words as the proper nouns and often translate them thus confusing the target reader.

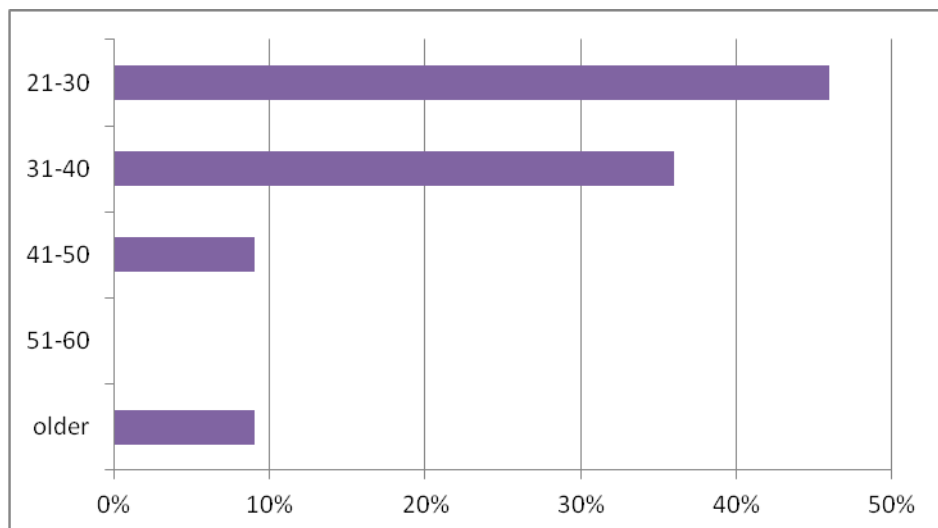
Overall translation from Latvian to English is better than from English to Latvian. The reason could be the fact that more texts are available in English. As the algorithms of these online MT tools are based on statistical analysis, better translation can be obtained if more texts for analysis are available.

These conclusions are based only on a few samples and probably may change if more extended research is to be done.

## 5.4. Results of the Questionnaire

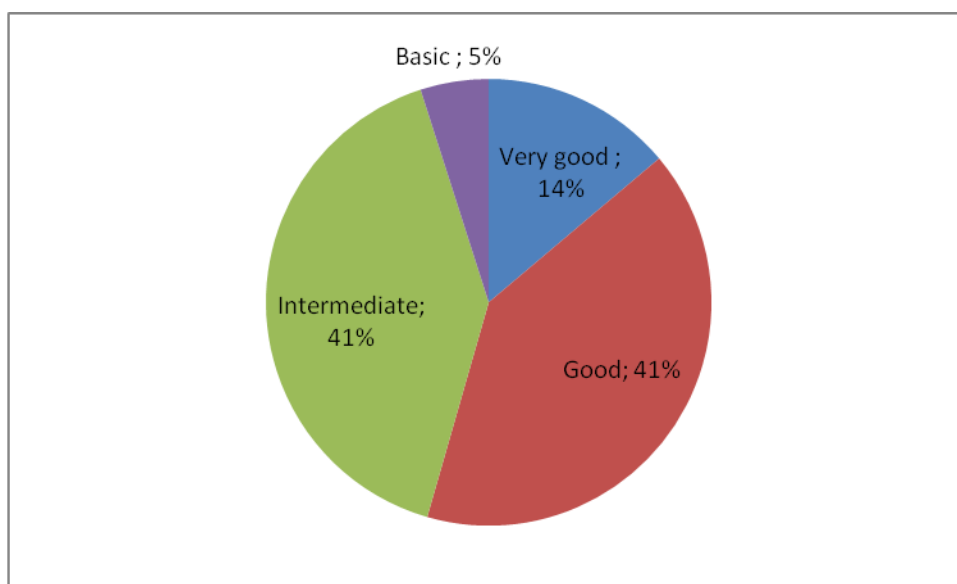
The questionnaire was prepared and sent out to the respondents who are not working as translators and have no specific training in translation. The respondents are university students or university graduates. The goal of the survey was to get to know the experience with the use of online MT tools. The respondents were questioned about their age, knowledge of English, used MT tools and language combinations, the purpose of the translation and the evaluation of the obtained translation.

Total 22 questionnaires were filled out. All of the respondents were asked to indicate their age within one of the given age groups. The major part of the respondents is between the age of 21 and 30. Total 82 % of the respondents are not older than 40 years. One tenth of the respondents are older than 60 years. The *Figure 5.4.1 Respondents Breakdown by Age Groups* shows the age of the respondents.



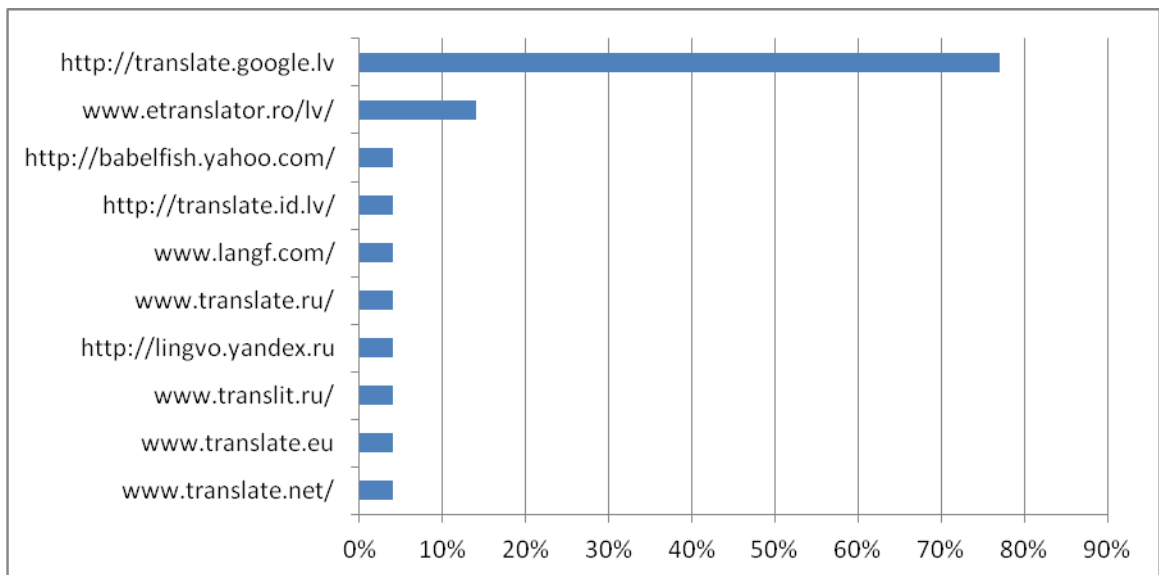
*Figure 5.4.1 Respondents Breakdown by Age Groups*

In the next question the respondents were asked to evaluate their reading and writing skills in English. All respondents have knowledge of English. Only one person has basic knowledge of English. 82 % of the respondents evaluated their level of English as intermediate and good. A very good command of English has 14 % of the respondents. The self-assessment of the reading and writing skills in English is shown in *Figure 5.4.2 Level of English Knowledge*.



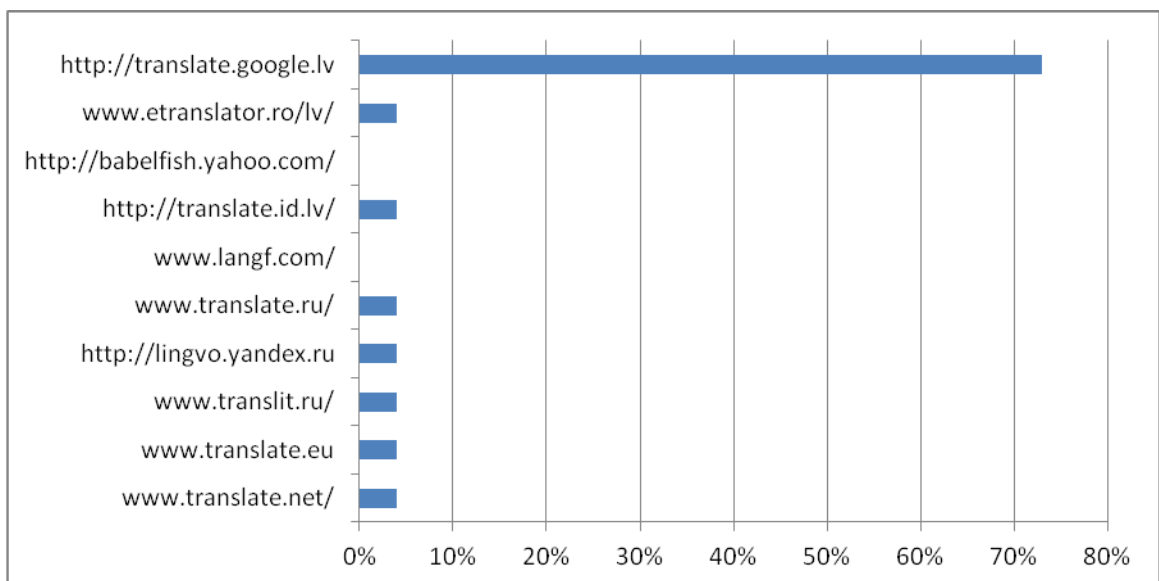
*Figure 5.4.2 Level of English Knowledge*

The next questions were about online MT tools. The question was divided in two parts: what online MT tools the respondents know and which of them they have used for translation. Each respondent named at least one MT tool. For more precise display of the results online MT tools are defined by URLs. Google Translator was the most popular answer – 77 % of the respondents have heard about it and 73 % of them have used it for translation. The second most known MT tool is Etranslator – 14 % of the respondents have named it. Eight more MT tools were indicated by the respondents. All online MT tools named by the respondents are shown in the *Figure 5.4.3 Known MT Providers*.



*Figure 5.4.3 Known MT Providers*

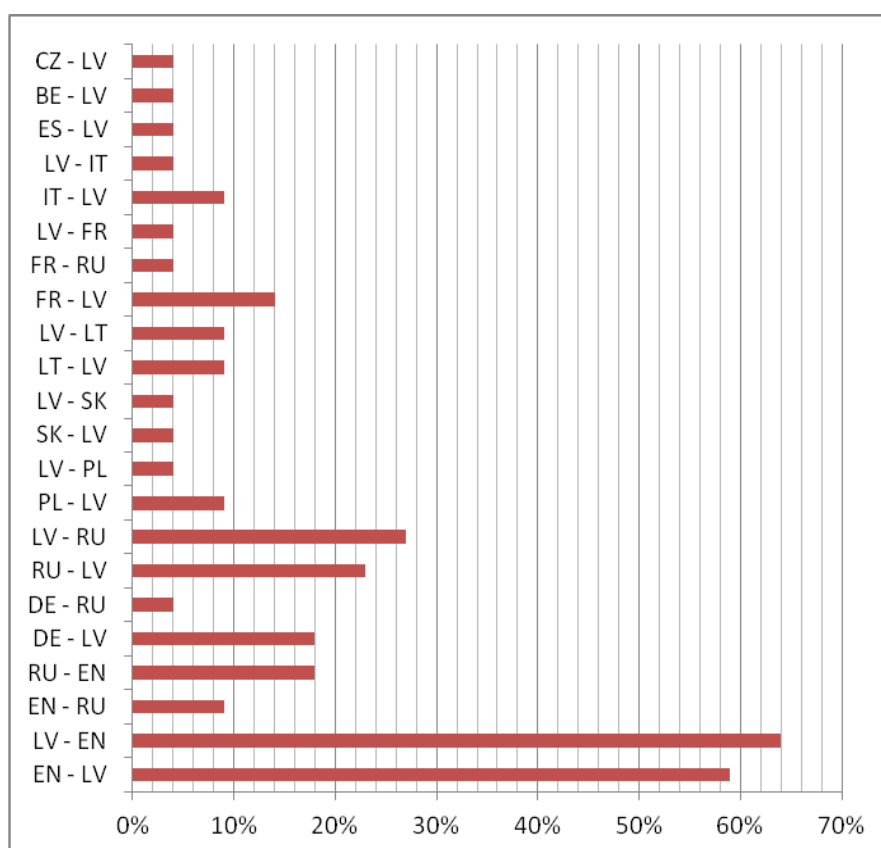
According to respondents' answers, not all initially named MT tools are used for translation. The respondents have no user experience with BabelFish and Langf as shown in the *Figure 5.4.4 Used MT Providers*. Google Translator is the most popular online MT tool.



*Figure 5.4.4 Used MT Providers*

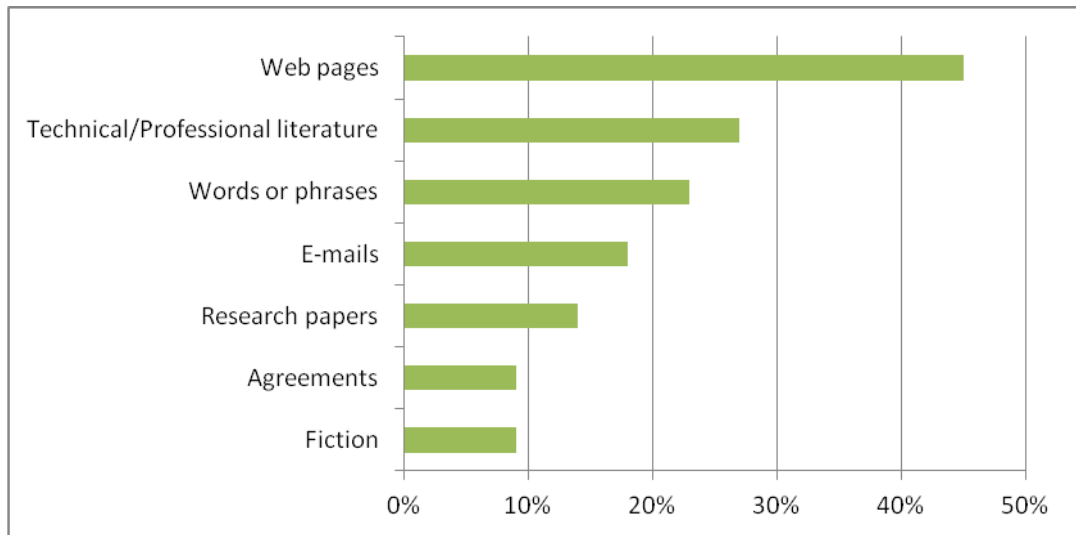
Probably the respondents' knowledge about online MT tools and their practical use depend on the language pairs which the respondents are interested in. The translated language pairs are shown in the *Figure 5.4.5 Translated Language Pairs*. The majority of the respondents – about 60 % – have translated from Latvian to English and *vice versa*.

According to the answers of respondents, the translation from Latvian to Russian and *vice versa* was necessary as well. 18 % of the respondents have translated from Russian to English and 9 % from English to Russian. Also the respondents named the translations between Latvian and other languages which are not often used on a daily basis like Czech, Slovak, Polish, Italian and Spanish. Some respondents answered that they have translated from French, German or English in Russian. As the mother tongue of the respondents is Latvian or Russian, it may be concluded that online MT tools were used in order to understand some foreign language or to express themselves in a foreign language.



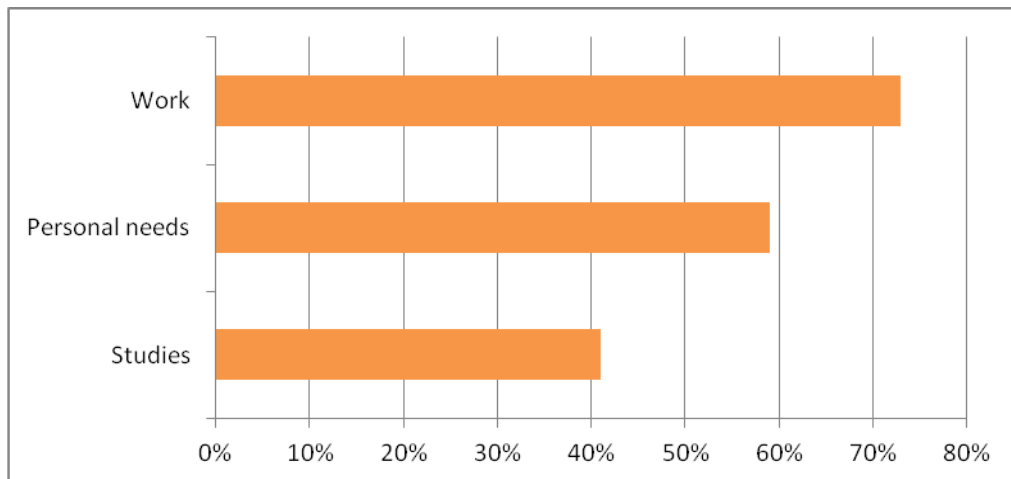
*Figure 5.4.5 Translated Language Pairs*

In the next question the respondents were asked to name the kind of texts or information they translated by the help of the online MT tools. As shown in the *Figure 5.4.6 Translated Objects*, 45 % of the respondents translated the articles in the web pages. It was the most popular answer. 27 % of the respondents translated professional literature related to psychology and IT. 23 % of the respondents translated unknown words and phrases. Some respondents answered that they translated research papers, agreements and even fiction.



*Figure 5.4.6 Translated Objects*

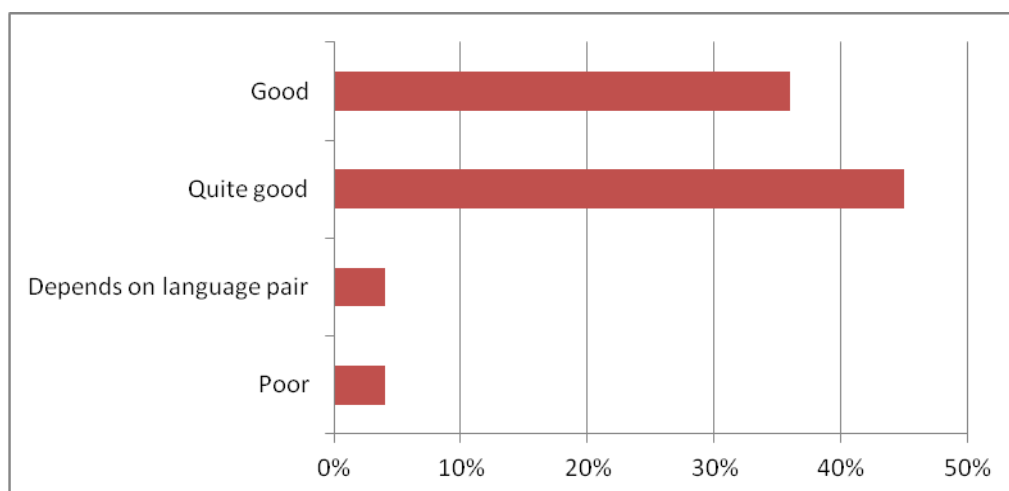
In the next question the respondents were asked to name the purpose of the translations. Almost half of the respondents have indicated that they use the translations for the work as well as for studies and personal needs. As the *Figure 5.4.7 Translation Purpose* shows, the most popular translation purpose is for the work. 73 % of the respondents have indicated it. 59 % of the respondents use the translations for personal needs and 41 % of respondents indicated that translations were necessary for their studies.



*Figure 5.4.7 Translation Purpose*

The respondents were asked to evaluate the obtained translations. The performance of online MT tools was evaluated positively. Total 81 % of the respondents evaluated translations as good or quite good. The translations were found useful because the message in general was clear. It was indicated that translation depends on the language pair. The

translation from English to Latvian and *vice versa* was good. Only one respondent, that makes 4 %, answered that the obtained translation was poor. The answers are shown in *Figure 5.4.8 Translation Evaluation*.



*Figure 5.4.8 Translation Evaluation*

When the respondents were asked to give the comments about their experience with online MT tools and their applicability for translation of different text types not so positive comments were received. It was admitted that the translation of particular words and phrases is good but the translation of texts is poor because they are not logic, there are a lot of grammatical mistakes. Sometimes it requires less effort to translate by oneself rather than to improve the obtained translation. It was concluded that Latvian is too complicated for automated translation. Some respondents are cautious and never fully rely on the translation obtained solely by online MT tool. They avoid the translation of languages which they don't know because they will not be able to find any discrepancy in the translation. Some respondents shared the idea that automated translation can be used only for informative purpose. The received comments about translation of scientific and technical texts were contradictory, some respondents found them useful, some – totally disagree.

To sum up, the quality of the translations obtained by online MT tools varies in a wide range. It depends on a language pair used for translation, subject, means of expression present in the ST and the presence of specific terminology in the ST. The respondents have pointed out that automated translation is far from the expectations and it will not be able to replace human translator.

## 5.5. The Main Conclusions about the Questionnaire

Total 22 questionnaires were filled out.

The major part of the respondents is between the age of 21 and 30. Total 82 % of the respondents are not older than 40 years. All respondents have knowledge of English. 82 % of the respondents their reading and writing skills in English evaluated as intermediate and good. A very good command of English has 14 % of the respondents.

Total 10 free online MT tools were named; 8 of them were used for translation. The most popular is Google Translator. None of the respondents named Bing Translator and Tilde Translator which together with Google Translator were evaluated in the practical part of the diploma paper.

The majority of the respondents (about 60 %) use online MT tools for translation from Latvian to English and *vice versa*. Russian, German, French, Czech, Slovak, Polish, Byelorussian, Italian, Spanish and Lithuanian were among translated languages as well.

Mostly the respondents translate the articles in the web pages. 27 % of the respondents have translated professional literature. Some respondents answered that they have translated research papers, agreements and fiction. 23 % of the respondents translated only unknown words and phrases.

The respondents have indicated that they use the translations for the work as well as for studies and personal needs.

Total 81 % of the respondents evaluated translations obtained by the aid of online MT tools as good or quite good. The translations were found useful because in the main the message was clear.

The respondents pointed out that the quality of the translations obtained by online MT tools varies in a wide range. The automated translation can be used only for informative purpose.

## CONCLUSION

The goal of the diploma paper thesis was to evaluate free online MT tools applicability for translating of different kind informative texts and to compare the performance among several MT tools. Hypothesis was that free online MT tools may be applicable for translation of informative texts. To achieve the goal literary review on the subject was done in the theoretical part, several text samples were translated and the results discussed in the practical part. The questionnaire about users' experience the online MT tools was part of the research as well.

Three online MT tools which provided translations between English and Latvian were chosen, namely Google Translator, Bing Translator and Tilde Translator. Examples of press release, popular science text, safety instruction/operating manual were translated from Latvian to English and *vice versa*. Obtained translations were discussed, evaluated and compared among the online MT tools. Some specific translating features for each online MT tool were found. The quality of translations obtained by Google Translator and Bing Translator was quite similar. Google Translator was evaluated as the best translator from Latvian to English (in two cases out of three), but Bing Translator's performance was better when translated from English to Latvian (in two cases out of three). Tilde translator comparing with other two MT tools was the weakest and it couldn't be named as best translator for none of the given tasks. Overall translations from Latvian to English were better than from English to Latvian.

The questionnaire was filled out by 22 respondents. The respondents were university students or university graduates who were not working as translators and had no specific training in translation. The major part of the respondents was between the age of 21 and 30. Total 82 % of the respondents are not older than 40 years. All respondents had knowledge of English. 82 % of the respondents evaluated their reading and writing skills in English as intermediate and good. Total 10 free online MT tools were named; 8 of them were used for translation. The most popular is Google Translator. None of the respondents named Bing Translator and Tilde Translator which together with Google Translator were evaluated in the practical part of the diploma paper. About 60 % of the respondents used online MT tools for translation from Latvian to English and *vice versa*. The majority of the respondents translated the articles in the web pages. The respondents indicated that they use the translations for the work as well as for studies and personal needs. Total 81 % of the respondents evaluated translations obtained by the aid of online MT tools as good or quite good. The translations were found useful because in the main message was clear.

To sum up, the translation quality varies from one MT tool to another. The online MT tools can be used for translation of informative texts.

The diploma paper goal is achieved and the hypothesis was proved.

## THESES

1. Machine translation (MT) is the application of computers to the task of translating texts from one natural language to another.
2. Many free online MT tools are available for everybody having the access to the internet.
3. Press release, popular science text and work safety instruction/ operating manual are translated with Google Translator, Bing Translator and Tilde Translator from Latvian to English and *vice versa*. The translations are analyzed and compared among these tools.
4. The translation obtained by Google Translator was good. It was noticed that in English-Latvian translations several words was left untranslated. In addition it has misinterpreted the message in two tasks.
5. Performance of Bing Translator was close to Google Translator. Sometimes the word choice was not the best one.
6. Translations obtained by Tilde Translator contained a lot of misspelling mistakes. Often the word order was significantly changed thus confusing the target reader.
7. Google Translator is evaluated as the best translator from Latvian to English (in two cases out of three), but Bing Translator's performance is better in English- Latvian translations (in two cases out of three).
8. Overall translation from Latvian to English is better than from English to Latvian.
9. Sample texts were translated by the author of diploma paper as well. Main problems were related to the translation of terms.
10. The questionnaire about experience with MT tools was filled out by 22 respondents. They pointed out that the quality of the translations obtained by online MT tools varies in a wide range. The automated translation can be used only for informative purpose. The translations were found useful because in the main message was clear.

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## APPENDIX

Esmu LU Humanitāro zinātņu fakultātes Sastatāmās valodniecības un tulkošanas nodaļas 2.kursa studente. Mana diplomdarba tēma ir „Bezmaksas mašīntulkošanas programmu piemērotība dažādu tekstu tulkošanai”. Šīs aptaujas mērķis ir noskaidrot mašīntulkošanas programmu lietošanas pieredzi.

1. Tavs vecums

līdz 20 gadiem

21-30 gadi

31-40 gadi

41-50 gadi

51-60 gadi

vairāk

2. Lūdzu novērtē savu lasīt/rakstīt prasmi angļu valodā!

Ļoti laba

Laba

Viduvēja

Pamatzināšanas

Zinu tikai dažus vārdus

3. Par kādām internetā pieejamām bezmaksas tulkošanas programmām esi dzirdējusi/-is?

4. Kādu bezmaksas tulkošanas programmu esi lietojusi/-is?

5. Ja neesi izmantojusi/-is tulkošanas programmas, lūdzu paskaidro, kāpēc?

6. Kādu valodu kombināciju tulkošanai to izmanto?

7. Kādu tekstu/informācijas tulkošanai parasti izmanto bezmaksas tulkošanas programmu?

8. Visbiežāk bezmaksas tulkošanas programmu izmanto, lai tulkotu

privātām vajadzībām

studijām

darbam?

9. Vai tulkojums parasti ir noderīgs?
10. Vai ir kādi komentāri par tulkojumu kvalitāti un piemērotību dažāda veida tekstu tulkošanai?

Paldies par Tavu laiku un sniegtajām atbildēm!

## DOKUMENTĀRĀ LAPA

Diplomdarbs „ Applicability of free online machine translation tools for translation of different text types” (Bezmaksas mašīntulkošanas programmu piemērotība dažādu tekstu tulkošanai) izstrādāts LU Humanitāro zinātņu fakultātē.

Ar savu parakstu apliecinu, ka pētījums veikts patstāvīgi, izmantoti tikai tajā norādītie informācijas avoti un iesniegtā darba elektroniskā kopija atbilst izdrukai.

Autors: Inese Aispuriete 05.12.2011.

Rekomendēju darbu aizstāvēšanai

Vadītāja: lektore, M.Philol. Svetlana Koroļova 05.12.2011.

Recenzents:

Darbs iesniegts Sastatāmās valodniecības un tulkošanas nodaļā 05.12.2011.

Lietvede/ studiju metodiķe:

Darbs aizstāvēts diplomdarba gala pārbaudījuma komisijas sēdē

..... prot. Nr. ...., vērtējums .....

Komisijas sekretāre: