

7. Tomlin R.S. Coherence and grounding in discourse // Linguistic Reflections of Cognitive Events. Amsterdam / Philadelphia : John Benjamins, 1987. Pp. 455–480.
8. Jakobson R. On Language. Cambridge: Harvard University Press. 1995. 672 p.
9. Martinet A. Evolution des Langues et Reconstruction. Les Changements Linguistiques et les Usagers. Paris: Presses Universitaires de France, 1975.
10. Tipologiya idiom // Frazеographiya v mashinnom fondye russkogo yaziеka / Dobrovol'skij D.O. M.: Nauka, 1990. S. 48–62.
11. Zhukov V.P., Zhukov A.V. Russkaya frazeologiya. M.: Vieshaya shkola, 2006. 310 s.
12. Myechkovskaya N.B. Sotsial'naya lingvistika. M.: Aspekt-Press, 2000. 206 s.
13. Desheriyev Ju.D. Zakonomernosti razvitiya lityeraturnieh yaziеkov narodov SSSR v sovetskuyu epohu. M., 1976. 431 s.
14. Yakubinskij L.P. Yaziеk i ego funktsionirovanije. M.: Nauka, 1986. 208 s.
15. Merton R. Social theory and social structure. Stanford: Free Press, 1975. 645 p.

Авторы публикации

*Гизатова Гузель Казбековна – доктор филологических наук, профессор кафедры европейских языков и культур Высшей школы иностранных языков и перевода Института международных отношений Казанского федерального университета, г. Казань, ул. Межлаука, д.3.
E-mail: guzelgizatova@hotmail.com*

Authors of the publication

*Gizatova Guzel Kazbekovna – doctor of Philological Sciences, Professor of Department of European languages and cultures, Higher school of foreign languages and translation, Institute of international relations of the Kazan Federal University, Kazan, 3 Mezhlauk str.
E-mail: guzelgizatova@hotmail.com*

Поступила в редакцию 06.04.2018.

Принята к публикации 30.04.2018.

УДК 372.881.1; 004

ИСПОЛЬЗОВАНИЕ ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ В ПЕРЕВОДЕ ПРОФЕССИОНАЛЬНО-ОРИЕНТИРОВАННЫХ, АУТЕНТИЧНЫХ ТЕКСТОВ

Н.А. Сизачева, М. Куку, Р.А. Климов

nsigacheva@mail.ru, CanisMajorisVY@yandex.ru, itis.klimov@gmail.com

Казанский (Приволжский) федеральный университет, г. Казань, Россия

Аннотация. В статье рассматриваются проблемы использования информационных технологий в переводе аутентичных профессиональных технических текстов. Целью работы является выбор оптимальной системы машинного перевода технической литературы. Авторы анализируют различные подходы к осуществлению машинного

перевода, сравнивают и предлагают пути решения данной проблемы. Результатом данного исследования является аргументированный выбор программ для машинного перевода технических текстов.

Ключевые слова: информационные технологии; перевод; машинный перевод; статистический машинный перевод (СМТ); перевод «по правилам»; аутентичный текст; профессионально-ориентированный текст.

Для цитирования: Сигачева Н. А., Кикю М., Климов Р. А. Use of information technologies in the translation of professionally-oriented, authentic texts // Казанский лингвистический журнал. 2018, том 1, № 1 (1). С. 38–43.

USE OF INFORMATION TECHNOLOGIES IN THE TRANSLATION OF PROFESSIONALLY-ORIENTED, AUTHENTIC TEXTS

N.A. Sigacheva, M. Kiku, R.A. Klimov

nsigacheva@mail.ru, CanisMajorisVY@yandex.ru, itis.klimov@gmail.com

Kazan Federal University, Kazan, Russia

Abstract. The article deals with the problems of using information technologies in the translation of authentic professional technical texts. The aim of the work is to select the optimal machine translation system for technical literature. The authors analyze different approaches to the implementation of machine translation, compare and suggest ways to solve this problem. The result of this study is a reasoned choice of programs for machine translation of technical texts.

Keywords: information technology, translation; machine translation; statistical machine translation (SMT); “rule-based” machine translation (RBMT); authentic text; professionally-oriented text.

For citation: Sigacheva N.A., Kiku M., Klimov R.A. Use of information technologies in the translation of professionally-oriented, authentic texts // Kazan linguistic journal. 2018, Vol. 1, № 1 (1). Pp. 38–43.

At present, the problem of using information technologies in translation is relevant, since the rapid development of science causes the emergence of new technical means, each of which needs documentation, which is usually written in English. Translation from a foreign language without the use of information technology requires large time and money resources.

Machine translation technology is continuously evolving and today can offer a faster and cheaper way of solving this problem. The development of technology began in the 50s of the last century and up to the present time, successfully passed a number of stages in its development. Until the 1970s, due to the low productivity of the computers of that time, it was not possible to

achieve a cost-effective translation quality. At the same time, in a number of countries the constant progress of computer technology has contributed to the continuation of research.

An important factor was the emergence of personal computers, as well as increasingly sophisticated dictionary and search systems, oriented to work with natural language data. At the same time, the need for translation has also grown, thanks to the growth of international ties. The above has led to the rise of this field of research, since the mid-1970s. In the 1980s, translation systems entered an era of widespread practical use, a market for commercial developments in this field developed [2].

During the research methods as the study research, analysis, synthesis, studying and generalization of linguistic and educational researches were used. Special literature, manuals and textbooks on theory of translation, research theses and articles on specifics of foreign language translation raising effectiveness were investigated during the study. We made a try to describe practical aspects and key concepts of the research, practical methods of mastering skills in translation from foreign languages with the Internet.

Machine translation is the process of using software to translate that is, transferring information from one language, which is the source language, to another, which is translating, without human intervention.

Undoubtedly, there are currently a large number of commercial machine translation projects. Some large companies such as Google and Yandex provide the opportunity to enjoy the latest achievements in this area for free. In Russia, a significant contribution to the development of machine translation systems was made by the group under the guidance of prof. R.G. Piotrovsky (Russian State Pedagogical University named after A.I. Herzen, St. Petersburg) [2].

Today there are two main types of machine translation: Rule-Based Machine Translation (RBMT) and Statistical Machine Translation (SMT) [1].

The first approach is called classical or traditional and is used by the majority of developers of machine translation systems, including the Russian company PROMT. This is a general term that designates machine two languages. They include bilingual dictionaries and grammars covering the basic semantic, morphological, syntactic patterns of each language. On the basis of the above data, the source text is successively translated into the text of the translation [3].

Researchers define statistical machine translation as a kind of machine translation of text, based on comparing large volumes of language pairs. SMT automatically adapts to the new situation in translation. Systems pay attention to the translation of new words, individual expressions, including, if their translation has changed as compared to the previous one. These resources require a corpus (large vocabulary) for quality work. Systems easily "memorize" new translation options and use these options in further work. This accelerates its "learning" and improves the quality of the final translation. System designers emphasize that the more language pairs are available in the resource the more accurately they will correspond to each other, the better the result of statistical machine translation will be.

The second type of machine translators is the popular Google Translate service. For translation, Google uses algorithms based on probability theory and statistics, while possessing a vast and constantly growing corpus, which now has over a trillion words [4].

Let's try to analyze two types of systems on a concrete example. SMT requires parallel analysis of vocabulary blocks to generate translation. RBMT requires "knowledge", which is brought into it by a specialist: grammar, syntax, semantics, vocabulary.

For example we use the sentence from the Python 3.6.3 documentation. As an SMT system, we use the Google Translate service, as RBMT - as a translator from PROMT, intended for translating technical literature.

Let's try to translate this sentence into Russian: "The break statement, like in C, breaks out from the innermost one, enclosing the while or while loop." The SMT system offers the following translation: «Оператор break, как и на C, вырывается из самого внутреннего окружения для цикла или while». Another variant is made by the RBMT system: «Оператор break, как и на C, вырывается из самого внутреннего окруженияцикла for или while»

The example given above shows that the SMT system translated the word "for", even though this should not be done in this example. RBMT system, created specifically for the translation of texts from the field of information technology, translated everything correctly. With further comparative analysis of the two systems, a number of their advantages and disadvantages were revealed (Table 1)

**ADVANTAGES AND DISADVANTAGES
RBMT AND SMT IN TRANSLATIONS FROM FOREIGN LANGUAGES**

Table 1

RBMT	SMT
+ Certain predictability of translation results	- Lack of ability to predict the final result of a translation
+ Good quality of general topics translation	+ Good quality of general topics translation
+ "Knowledge" of grammar rules	- There is no work "by the rules"
+ Not demanding powerful hardware	- Demanding powerful hardware
- The excess of literalism	+ "Natural" translation
- Demanding large investments from developers. Demanding special knowledge from a common user	+ The presence of a sufficiently large corpus accelerates and improves the program without additional actions
+ Ability to make changes to the original version, improving the quality of the final translation	- A rigid binding to the corpus and the absence of an equivalent in it makes it impossible to make changes and improve the quality of the translated text

Summing up, it can be noted that the RBMT approach is optimal for translating technical texts. The documentation uses a large number of terms, and the proposals consist of unique phrases. For the SMT approach, this is practically impossible, since it is impossible to compose designs that satisfy all the technological directions that exist today.

References

1. Filippovich A.Yu. Sistemy avtomaticheskogo (mashinnogo) perevoda teksta.
2. Galskova N.D. Sovremennaya metodika obucheniya inostrannym yazykam / N.D. Galskova. M: «ARKTI», 2004. 192 s.
3. Islamov R.S., Fomin A.G. Analiz sovremennykh sistem mashinnogo perevoda tipa SMT i RBMT / –
URL: http://scjournal.ru/articles/issn_1997-2911_2013_3-1_18.pdf (дата обращения: 27.09.2017).
4. URL: <http://it-claim.ru/Education/Course/Lingvistika/Lecture/Lecture13.pdf> (дата обращения: 27.09.2017).
5. Mashinnyy perevod. – URL: https://en.wikipedia.org/wiki/Machine_translation (дата обращения: 27.09.2017).
6. Mashinnyy perevod na osnove pravil. – URL: https://en.wikipedia.org/wiki/Rule-based_machine_translation (дата обращения: 27.09.2017).
7. Podavets O.D. Obucheniye angliyskomu yazyku v svete novykh informatsionnykh tekhnologiy. –
URL: <https://cyberleninka.ru/article/v/obuchenie-angliyskomu-yazyku-v-svete-novykh-informatsionnyh-tehnologiy> (дата обращения: 29.09.2017).
8. Puzzle English – izuchayem angliyskiy yazyk s pomoshch'yu serialov. –
URL: <http://langformula.ru/puzzle-english> (дата обращения: 29.09.2017).
9. 7 must have servisov dlya tekhn, kto izuchayet angliyskiy. –
URL: <http://say-hi.me/obuchenie/7-must-have-servisov-dlya-tex-kto-izuchaet-angliyskiy.html> (дата обращения: 29.09.2017).
10. Statisticheskiy mashinnyy perevod. –
URL: https://en.wikipedia.org/wiki/Statistical_machine_translation (дата обращения: 27.09.2017).

Авторы публикации

Сигачева Наталья Альбертовна – кандидат педагогических наук, доцент кафедры иностранных языков для физико-математического направления и информационных технологий Высшей школы иностранных языков и перевода Института международных отношений Казанского федерального университета, г. Казань, ул. Межлаука, д. 3.
Email: nsigacheva@mail.ru

Кикун Михаил – студент ВШ ИТИС Казанского (Приволжского) федерального университета, г. Казань, ул. Кремлевская д.35
Email: rubingoodz@gmail.com

Authors of the publication

Sigacheva Natalya Albertovna – candidate of pedagogical sciences, Associate Professor, Department of English for Physics and Mathematics and Information Technology, Kazan Federal University, Kazan, 3 Mezhlauk str.
Email: nsigacheva@mail.ru

Kiku Mikhail – student, High school of ITIS, Kazan Federal University, Kazan, 35 Kremlyovskaya str.
Email: CanisMajorisVY@yandex.ru