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Analysis of characteristics and strength of computer aided translation compared with machine translation

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ABSTRACT

Informationization and globalization exert new requirements to translators. In translation, translators should guarantee both quality and efficiency. As Computer Aided Translation (CAT) could help translators guarantee translation quality and efficiency, so it has won great favor among translators. CAT system takes full advantage of information technology and avoids purely reliance on computers. With high quality and efficiency, CAT has become the primary resolution of enterprises and translators. As the tele-translation age is approaching, this essay is designed to analyze the characters of CAT and its strength compared with Machine Translation (MT). CAT is theoretically based on Nida's translation theory, which divides translation into four basic steps, including analysis, transformation of language, reconstruction and checking. While analyzing the theoretical base of CAT, the research also raises four important characters as below: the efficient utilization of available achievements, the consistency of terminology under the new terminology management system, outstanding management of translation unit, strict quality control system. Compared with Machine Translation, CAT is more advanced in core translation memory technology, efficient examining system, opened sharing system and so on. Given its characters and compared strength with MT, CAT will be a focal point in the future development of translation technology.

KEYWORDS

Aided translation; Computer translation; Machine translation; Translation memory technology.



INTRODUCTION

With the development of globalization and advancement of technology, translation is inevitably influenced by modern information technology. The increasing international communication, as an essential part of globalization, brings unprecedented opportunities to translation, and greatly broadens the translation market. Despite the expansion of translation market, translation technology is advancing quickly. Wenfeng XUE points out that translation in the new century is not a traditional concept at all. Translation has already embracing a tele-translation age as it has more connections with modern communication technology. As globalization exerts new requirements to translation field on both translation quality and efficiency, CAT emerges as the times require and becomes the mainstream of future translation.

This essay detailed analyses the fundamental theory and operation process of CAT. According to some researchers, like Yubin ZHU, it is CAT's numerous characters and strength that make it the first choice of many enterprises and translation companies all over the world. CAT has four important characters as below: the efficient utilization of available achievements, the consistency of terminology under the new terminology management system, outstanding management of translation unit, strict quality control system. Translation memory (TM), raised by researchers like Mingyang SU, also analyses the characters of CAT, uploading data automatically to database with advanced technology, so as to avoid duplicated work in translation.

CAT takes full advantage of the available achievements with the help of translation memory. In Bower's research, he points out that the difference between MT and CAT lies in the person who completes the translation work. According to Europe researcher Essilink, he defines machine translation as the transformation from source language to another language without artificial work. Besides the characters of CAT, this essay also depicts its comparative strength with machine translation, including core translation memory technology, efficient examining system, opened sharing system and so on. It is designed to analyze the development potential of CAT.

BASIC THEORY OF COMPUTER AIDED TRANSLATION

CAT, short for Computer Aided Translation, is a new translation resolution based on translation memory and a translation process done by computer programs. The translation work is done jointly by computer and human in the process of CAT. Sanyun LIANG points out that the primary theoretical basis of CAT is Nida's translation theory, a widely accepted and applied theory, which emphasis on the transferability of different languages. Jun WEN also mentions in his research that Nida's translation theory can be divided into four steps: analysis, transformation of languages, reconstruction and checking. Analysis refers to the division and understanding of source sentences and then knows the basic meaning. Transformation of language is the process to translate a certain language to the other one. Reconstruction is the process which conveys the information clearly after transformation. Check, a showpoint of CAT, is to evaluate the transferred information before and after the translation, so as to ensure that the translation reaches purposes. The main model of CAT system is illustrated in Figure 1 as follow, in which we can know that the practical plans of CAT is the further development of Nida's translation theory. The development of computer technology makes people know the efficiency of computer. As some of translation work can be done by computer, it will relieve the heavy burden on people.

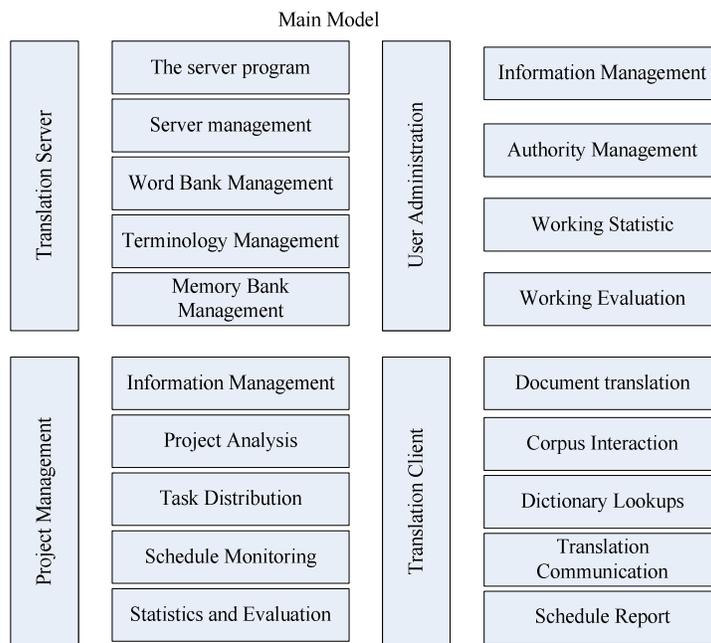


Figure 1 : Main model of computer aided translation

The flow charts of Machine Translation and Computer Aided Translation are demonstrated in Figure 2 and Figure 3. Artificial translation still serves in CAT, which make it different from MT. In CAT, the duplicated translation work is done by computer, but the organization of the passage is still done by translators themselves. The advantage of computer lies in the efficient retrieval and storage of information, whereas artificial translation in logical thinking. With the application of computer, translators can focus on information organization, ensuring the integrity and accuracy of information. CAT gives full play to the advantages of both translators and computers, improving the efficiency and quality of translation.

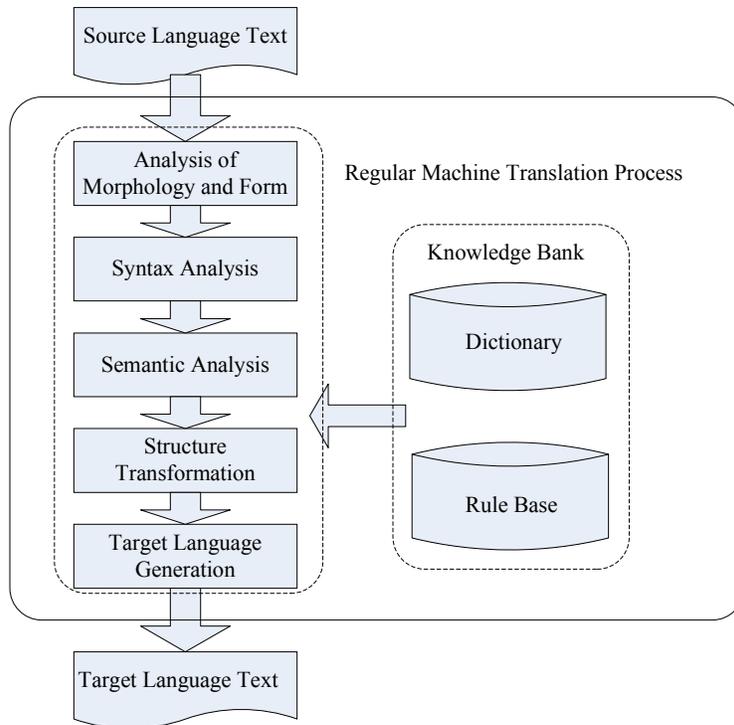


Figure 2 : Flow charts of machine translation

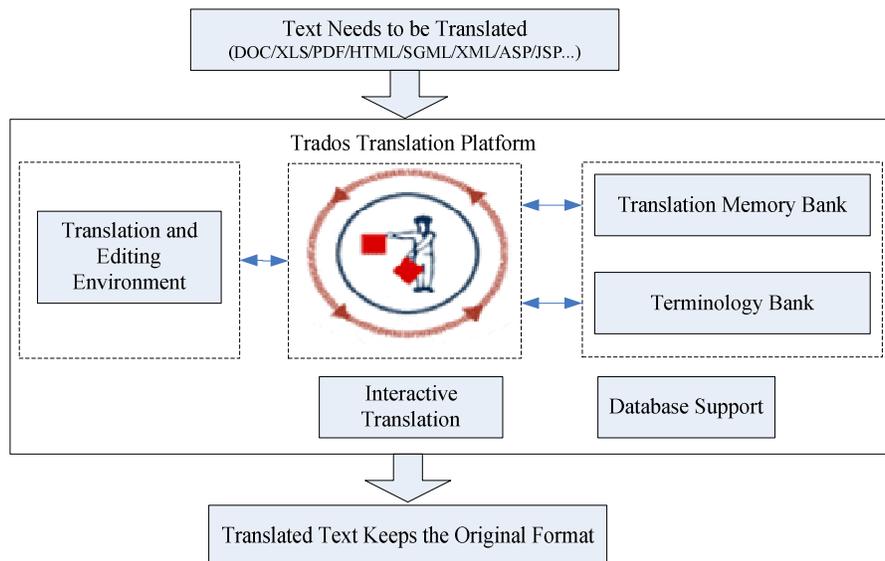


Figure 3 : Flow charts of computer aided translation

CHARACTERISTICS OF COMPUTER AIDED TRANSLATION

Effective utilization of available translation achievements

With large word bank and language material corpus, computer can search for language materials automatically in translation work, so as to save a lot of time for translators. The remarkable characteristics of this new translation resolution are the effective utilization of available achievements, including the reuse of sentences and fuzzy matching.

With the application of advanced TM technology in CAT, translation data can be read and stored automatically in the database. In a new translation, CAT will firstly confirm whether the sentence has ever been translated, so as to ensure that the same sentence would not be translated for a second time. The CAT system will provide a translation pattern, according to fuzzy matching in memory bank, if any similar sentences are met in translation. It is the characteristic of CAT to effectively use the available achievements to avoid duplicated work, improve translation efficiency and quality, and save time and cost.

Consistency of terminology under translation management system

Translation Management System (TMS) is an inseparable part of professional translation resolution. Some MT software has similar terminology management system. However, in Computer Aided Translation, TMS can provide more effective refresh rate to the translators for them to choose freely, which is much more effective than TMS in Machine Translation.

The translation quality and reliability cannot be guaranteed without the professionalism and consistency of terminology in the same field. For example, "software" is translated into "软件" in mainland, but "软体" in Taiwan. If such mistake appeared in translation work, the normative and consistency of terminology in the translation is in suspicion, which would mislead the readers. To ensure the translation quality, CAT applies Terminology Management System. The core part of TMS is terminology bank, a gigantic electronic terminology collection in bilingual or multilingual languages. With timely refreshment of terminology bank, TMS enables translators to regulate their terminology usage in translation works, so as to ensure the consistency of terminology among different translators.

Improvement of translation efficiency under premium translation unit management

Translation unit is defined as collect the natural source language and translation text in unified unit. Real-time storage and searching function in CAT will help manage the translation unit. Lisong LV points out in his research that the expanding of database will continuously improve the translation quality, while translators will depend more on the CAT system at the same time. As the data is collected in the unit of sentence, the original text and translation text can be analyzed automatically, so as to translate the sentence correspondingly. If translators adjust the translation text, the data in the memory bank will be adjusted correspondingly, which will continuously improve the translation memory bank of CAT and also the translation quality.

With the development of translation unit management and the increase of repeated sentences, translators will have less and less work to do in translation. Translation Memory technology in CAT also supports Internet tethering. Thus, translators can share their translation memory through the Internet when they working simultaneously, so as to improve translation quality.

Improvement of translation quality under strict quality control

Quality control system is another characteristic of Computer Aided Translation. Artificial work enables the effective checking work of grammar, terminology and semantics, which will control the translation quality. Internet tethering function of CAT can strengthen the control of and improve translation quality.

COMPARATIVE STRENGTH OF COMPUTER AIDED TRANSLATION TO MACHINE TRANSLATION

Core technology of computer aided translation: translation memory (TM)

CAT resolution is a new instrument emerged as the times require resolving the problems Machine Translation can't deal with, claims Lu LI and other researchers.

The prevalent of CAT among translators are largely owed to the application of Translation Memory. Translation Memory is a translation strategy that translators use computer program to partly participates in the translation, suggested by Shuttleworth in 1997, which nearly equate Translation Memory and Computer Aided Translation system. The operation theory of Translation Memory in CAT system can be defined as follow: CAT will establish a background database while translating. With the application of artificial intelligence search and matching technology, CAT will search for the source language and translated text stored in the database, which would relieve the translators from duplicated translation work through accurate matching. Also, fuzzy matching will help translators to improve the translation texts provided by CAT.

The simple operating process can be seen in Figure 4 as follow:

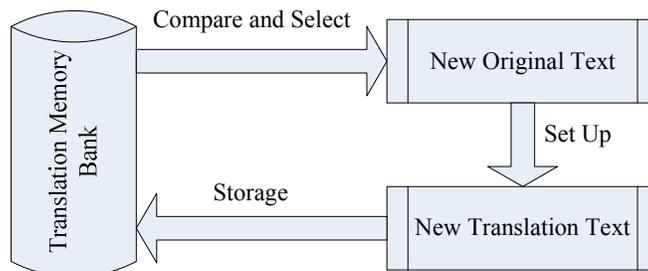


Figure 4 : Simple operating process of translation memory bank

Translation memory bank will provide the available terminologies, phrases, sentence patterns and expressions when translators are working. Some Machine Translation systems have similar automatic translation function, but not as convenient as CAT, which could provide material for translators to choose freely. CAT with artificial manipulation could guarantee the translation quality. That is the biggest showpoint of CAT. The application of computer technology in translation field improves translation efficiency and greatly save time and resources. Besides, translation memory bank also provide enough space for translators to choose. As an immediate updating system, the material in translation memory bank will increase with the increase of translators. Therefore, translation efficiency will also continuously improve.

Efficient checking system

Compared with Machine Translation, Computer Aided Translation has the feature that its exerciser is human. Artificial operation is essential in this translation resolution. It is the translators that constitute the efficient checking system of CAT. The checking system in CAT is not a complicated one. With the application of its gigantic memory bank, CAT can complete the checking function. Firstly, checking person can detect the basic errors in the translation texts, like deletion, wrong use of terminology and so on. After the primary checking by memory bank, checking person and translators should also check the translation texts by themselves to find out problems in translation, so as to guarantee the translation quality and enrich CAT translation memory bank. The above database and artificial checking make up the dual checking system of CAT. It does not only save time, but also ensure the translation quality.

Opened sharing system

The other advantage of CAT lies in its convenient and opened sharing system. Unlike Machine Translation, through CAT, material can be shared between machine, software and translators. The sharing system makes it possible for the exchange of inner and outside material through Internet. The opened sharing system of CAT not only connect numerous translation memory bank, corpus bank and terminology to constitute a huge on-line database, but also enrich the local database to enable the translators to utilize the system when they are off-line. Secondly, material sharing system enables the exchange of translation projects in different fields and also improves the accuracy of translation in unfamiliar fields. Open sharing system is essential for large translation teams, team members can share and review new terms and corpus. The consistency of terminology and style, ensured by the translators and reviewers, not only reduce duplicate translation work, but also avoid inconsistent error in translation style and terminology.

CONCLUSION

Based on Nida's translation theory, this essay analyses the four characteristics of Computer Aided System on available translation achievements: the efficient utilization of available achievements, the consistency of terminology under the renewal terminology management system, outstanding management of translation unit, strict quality control system. Compared with Machine Translation, computer-assisted translation system ingeniously use the complementary human-machine translation, and embody the advantages of core translation memory technology, efficient checking systems, opened sharing system and so on. Precisely, these characteristics and advantages make Computer Aided Translation the mainstream in the era of computer translation.

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