

On the Study of Softwares of Computer-aided Translation (CAT)

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Abstract. In the current information age, computer-aided translation (CAT) is gaining greater concern and appreciation of translators. In this paper some widely employed softwares will be briefly introduced in terms of transformation from machine translation (MT) to CAT. Softwares of CAT will be the major focus, involving the illustration of their basic working principles and advantages, and some ways to get them improved.

With the rapid development of Internet, the accelerating integration of world economy, and the continuous development of network information age, how to effectively use modern methods to eliminate the language barrier between people becomes one of common problems faced by mankind. Translation is an effective manner to get over linguistic obstacles. As the costly and slow traditional human translation fails to satisfy the requirements of the translation market, MT has come to use. Machine translation (namely, automatic translation) is a process of transferring one natural language into another by using computers. It is a branch of natural language processing and has an inseparable relationship with computational linguistics and natural language understanding. It is easy and convenient to practice, but it still has certain distinctive disadvantages. So currently it can only serve as the aid to human translation. Against the backdrop, CAT is drawing people's attention and interest.

The Development Process and Present Situation of MT

In 1954, the first public presentation of MT in human history happened in Georgetown University, witnessing the start of people's research on MT. During the later years MT enjoyed a continually developing trend. But the report of ALPAC (Automatic Language Processing Advisory Committee) issued by the National Academy of Sciences of America in 1966 made the prosperous MT severely affected. After a relatively stable period of development, MT began to recover in 1980s, and obtained profound progress in 1990s. The research on MT in China could date back to the middle 1950s, but it underwent serious recession due to the report in 1966. MT didn't usher in a recovering period in China until the middle 1970s. In the next two decades, MT had achieved various research manners, which were mainly based on rules, knowledge, statistic and corpus, examples, or dialogues, as well as direct approach, transfer approach, Interlingua approach and so on. At present the developed MT softwares can roughly be divided into four major categories:

Dictionary-oriented Translation Softwares. Dictionary-oriented translation softwares, or E-dictionaries are designed mainly to look up words, thus making it more convenient for people to read foreign information. Such well-known softwares include PowerWord from China and BABYLON from overseas.

Localization Translation softwares. Localization translation softwares aim to help those people who don't understand English while they're using computers or surfing the Internet. These types of softwares are mostly produced domestically, like Orient Express and KingSoft FastAIT.

Professional Translation System Focusing on Automatic Translation. Logo Media, IBM Translator, KingSoft FastAIT, Orient Express, and Age Translation Through, all these belong to the professional translation system focusing on automatic translation, and can translate the whole text automatically.

Online Translation Websites. There are quite a few on-line translation websites, such as <http://babelfish.altavista.com>; <http://www.hjtek.com>; Google kingsoft powerword online translation; <http://fy.iciba.com> and so on.

Despite the fact that different kinds of English-Chinese translation softwares are on booming sales and they're keeping updated, it is rather difficult for them to make substantive breakthroughs in translation qualities. Now what troubles us is that automatic translation has met its "bottleneck" and the quality cannot get much improved. As the quality of MT mostly needs improving, many researchers on MT have got their study shifted to that of MAT (machine-aided translation) or CAT(computer-aided translation). So it can be said that CAT derives from the difficulties that automatic translation of machine has got caught in. CAT gets both the linguistic database and human translation involved in the whole process, thus being able to increase the efficiency of translation quite a lot.

Computer Aided Translation Software and Its Advantages

Computer aided translation sets machine memory type translation, grammar analysis type translation and interpersonal interactive translation as a whole, and gives the rigid, repetitive and trivial work during the translation process to computers. In this way, the translators only need to focus on the translation to not only ensure the quality, but also improve efficiency.

Computer aided translation softwares. CAT technology has a long development history in foreign countries. There are many manufacturers developing translation memory softwares. The famous are: Trados, Déjà V, TransStar, IBM Translation Manager, WordFisher, Wordfast, OmegaT, etc. In China, the concept of CAT is still at the initial stage. There are few organizations engaged in the CAT technology research and product development: Masanobu Translation companies, Huajian at Chinese Academy of Sciences, Beijing Yongbangodian ITM and YiYOL Translation environment and so on.

There is no doubt that these translation softwares will greatly improve the efficiency of translation, but the prerequisite is that the translators must have certain computer skills, proficiently operate the common office softwares, install and use the important procedures and electronic resources such as encyclopedia Britannica e-books and are familiar with the retrieval and acquisition of network resources , etc.

The Work Principles and Advantages of Computer Aided Translation. The reason why computer aided translation software receives most people's recognition is because of its unique operation principles and advantages. Taking Déjà V as an example, we will see the working principles and advantages of CAT.

Project Management. Project management is the basic work interface of Déjà V, providing a bilingual translation platform. By manual or electronic scanning, translators can enter the materials to be translated, thus a new translation project has been created. After setting the source language and target language, and importing the translated material, it can be translated under the projects page. The simple operation and neatly organized interface solve the problem of bilingual translation, thus making it is easy to translate. In addition, the project has the function of automatic preservation, and after the relevant operation it can generate translation memory to be ready for future translation. And it can create a terminology database which is the foundation of Déjà V operation.

Translation Memory (TM). CAT technology is the core of translation memory technology. When the translator is translating, translation memory bank keeps learning and automatically storing new translations in the background to establish language database. In the process of translation, whenever the same or similar phrase occurs, the system will automatically search the same or similar resources (such as sentences, paragraphs, and so on) in the translation memory to give reference version, making the user avoid the senseless repetition work and just focus on the new content. Regarding to the reference translation, translators can copy completely or use after modification. If not satisfied, he can just discard it. According to the survey, when we translate the same professional literature, a lot of content is repeated, maximum up to 60%. TM allows translators to avoid duplication of work, such

as when we translate the instruction booklet of product, we only need to translate an edition. With the updated product or the relevant products, many contents can be used directly. In this case, TM is an extension of human memory.

Terminology Management Function. During the translation we often encounter very professional words or expressions, but looking up the dictionary will affect the speed. This system can automatically display the meaning when you translate the word. Moreover, you only need click the button and then it will present under your mouse. Thus translators' enthusiasm can be increased. Déjà V has achieved this aim. Translation memory software has a terminology management tool to standardize all of the terminology. Translators only need set up one or more of the standard list of terms once. Then, translation memory software automatically recognizes defined words or structures, and gives the corresponding terminology translation, guarantees the unification of terminology. So long as you accumulate certain terminology in the usual translation, your translation will be "more, faster, better and more economical".

Document Alignment. Document alignment is a very practical function of Déjà V. In addition to translation, if we collect valuable bilingual materials in daily reading, we can also use this function of Déjà V. We can import file into the interface of document alignment according to the operation hint, and then align the bilingual materials according to the function of each dialog box. At this time, we can click the button on every page to generate translation memory bank automatically and add term base manually. In the long run, the translator's memory bank and term base will be bigger and bigger, which will provide great convenience for the translation work.

In addition to the above four big advantages, Déjà V can timely import & export translation so that the translator can revise it under the non Déjà V environment. The more translation work we complete, the more obvious advantages it has. Some other translation softwares, such as Wordfast, Trados and so on also have their unique advantages. We will not discuss them here.

CAT Limitations and Improvement Strategies

CAT provides a platform for translation activities, but it has its own defects. Firstly, traditional translation teaching only pays attention to translational theories instead of translational practice. Also, CAT and translation software are not familiar to students. Secondly, promotion of CAT translation software should be strengthened. Due to some subjective and objective factors, many people thought of the online translation instead of CAT translation software. Finally, the development translation softwares are not perfect. Translation softwares are mainly developed by computer scholars. However, translation is involved in human language activities which are dynamic. So, some static functions of CAT translation softwares are not very practical.

Taking it into consideration, we should make a great improvement from 3 aspects in the future development and utilization. First, we should strengthen the CAT teaching. With the rapid development of computer today, wonderful translation modes of CAT are presented to students in order to motivate students' interests in translation. Second, we should strengthen the translator's computer skills and the ability to accept new things. It is very necessary to have certain knowledge reserve and the ability to accept new things when necessary if we want to establish ourselves in society. Finally, the development of the CAT software needs computer linguists, translation experts, mathematicians and linguists, etc to make joint efforts. CAT is not only a technology but also an art. Without doubt, it is difficult for computer experts to produce a practical translation technology without theoretical basis offered by linguists. At the same time, translation theorists also play a very important role in assisting computer experts to solve problems in translation. In a word, only we have joint cooperation, can we have more excellent translation softwares.

Some Suggestions

To achieve some ideal translation effects and to develop softwares of computer-aided translation, some suggestions are listed here.

The Combination of a Variety of Methods in Translation. The desired results can not be achieved by using a single method. It is advisable to construct the translation systems by adopting multiple MT strategies, fusion rules, corpus and semantic methods to achieve high quality translated versions.

The Introduction of Linguistic Knowledge. In the present academic field, statistical methods based on syntax have taken the first step into introducing the linguistic knowledge. As the research constantly goes deeper, it is the trend of the times to continually introduce all kinds of linguistic knowledge (such as syntactic knowledge, semantic knowledge, etc.) in statistical machine translation. Given a new translation model and a precondition in which we can put patent documents into practice, one of the feasible ways to improve the quality of machine translation may be to introduce the linguistic knowledge that conforms to the characteristics of the patent literature.

The Role of Semantic Analysis in Translation. Whether in the morphological, syntactic or semantic level, the Chinese language is very complex to be dealt with in the process of translation. That is, it is very difficult to cope with this situation based on statistical or case-based methods. To achieve high quality translated versions, a very effective way is to introduce and strengthen method of the semantic analysis. Taking meaning expression and language understanding as the main line and thorough analysis of the deep structure of sentences and the deep relationship between elements, accurate translated versions are more likely to be finished.

Conclusion

Advanced memory technology, open word /memory/ term bank, and convenient man-machine interactive mechanism of computer aided translation provide an efficient, high quality control translation platform for the professional translators. Under greatly improved translation environment, translators work like a duck to water and improve the efficiency and quality of translation. To sum up, although there are still a lot of problems in computer aided translation, a series of recent developments show how great that potential might be. We will say goodbye to the times of tedious translation labor.

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