On the Replacement of Human Translation by Machine Translation in News Translation

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***Abstract*—After decades of development, the level of machine translation is changing day by day, and is widely used in many aspects. News translation focuses on accuracy and effectiveness at the same time. In the current information explosion era, professional news translators have to deal with a large number of scripts every day, and the use of machine translation of news scripts ensures a high accuracy rate while pursuing high efficiency. By comparing, analyzing and scoring the results of machine translation and human translation on the standard of accuracy, loyalty, and fluency, the author concludes that: machine translation is still subject to various types of errors in news translation and cannot completely replace human translation, but translators can modify the translation according to the results of machine translation, thus improving work efficiency.**

***Keywords*—machine translation, human translation, news, translation comparison and analysis**

I. Introduction

In the production of news for foreign readers, translation is the key method to promote the flow of the information contained by to the international community. Only by translating can information be spread across language boundaries. The frequent response to the statements from one country to another country is actually the response to the information provided by translation. Foreign news production and news translation is not only a simple language conversion, but also a way and channel of external communication. From this point of view, news translation is not only a simple language conversion, but also a discourse social practice conducted by translators according to the external communication purposes of institutions and countries and certain cognitive models [1].

Machine translation refers to the use of computers to translate one natural language text into another or more natural language texts. It involves linguistics, computer science, mathematics and other disciplines, and is an interdisciplinary discipline [2].

Xinhua News Agency undertakes the important task of promoting China to the world and disseminating China's political ideas and economic and cultural features in international communication. However, compared with the Chinese version of the website, the English version of Xinhua has less information, and most of the news information is presented in the form of pictures supplemented by relevant descriptions. There are more short messages, fewer long stories and in-depth reports, and fewer news column categories.

News is a short-lived, perishable and highly outdated commodity. Its value decreases rapidly with the loss of time [3]. In order to try to shorten the time difference, the publication of the news translation on the English website should be timely and rapid in terms of interview, production, editing, proofreading and publicity. Speed can be regarded as an internal part of news translation process [4].

Compared with human translation, the biggest advantage of machine translation is its fast-processing speed, and the biggest weakness is that it is difficult to guarantee the quality of translation. After all, it is not easy for machines to simulate the complex translation process of human brain [5], but with the help of machine translation, the speed of news translation can be significantly improved on the basis of ensuring certain accuracy. This paper intends to explore whether machine translation can replace pure human translation.

II. Research Text and Machine Translation Software

A. Text Source

The Chinese corpus of this article is mainly quoted from Xinhua. The author selected 13 news articles from the news reports of the Chinese version of Xinhua website in the past six months, covering politics, economy, science and technology, culture, environment and other aspects. The selected corpus contains various proper nouns, terms and culture-loaded words. The corpus composition is relatively diverse, which improves the reliability and credibility of this study.

B. Research Methods

The machine translation software used in this paper is DeepL, which calls itself "the most accurate translation in the world". It adopts the neural network translation principle with high accuracy and fast translation speed, and can be used as the machine translation medium for this test to carry out follow-up research.

This paper adopts the method of comparison between manual translation and machine translation. The source of the translation produce by translators is from four graduate students majoring in translation whose mother tongue is Chinese. They hold CATTI Level 3 for Translation and above certificate of interpretation and translation, and TEM 8 certificate. Their IELTS score is above 7, which ensures the authority and credibility of the translation. After the translation is completed, the translation will be distributed to the translators in a random way. The best artificial translation of each selected news will be determined based on their choice. The four selected translators will score the results of the artificial translation from fidelity, accuracy and fluency, and the scoring system adopts a five-point system. After scoring, the author would compare the best manual

translation with the machine translation to analyze the problems in the machine translation.

The scoring standards for manual translation and machine translation are the same, and the deduction and giving of each scoring value are as follows Table 1:

Table 1. Evaluation chart

Scoring	Criteria		
	Loyalty	**Accuracy**	**Fluency**
0	The text is not translated at all	No words, phrases and sentences are translated accurately	The text is completely incomprehensible
1	Only individual words are translated	Only individual words, phrases and sentences are translated accurately	Only individual words or phrases can be understood
2	Only a few words in the original text are translated	Only a few words, phrases and sentences are translated accurately	40% of the translation is fluent
3	60% of the original concepts, words, phrases and sentences are translated	60% of the words, phrases and sentences are accurate	60% of the translation is fluent
4	80% of the original concepts, words, phrases and sentences are translated	80% of the words, phrases and sentences are translated accurately	80% of the translation is fluent
5	All the concepts, words, phrases and sentences of the original text are translated	All the words, phrases and sentences are translated accurately	The translation is fluent

III. Result Analysis

A. Time Length

The length of the selected news is different. The shortest is 302 words, while the longest has 2032 words. According to the timing results, including the translation modification and polishing time after the initial translation, the average translation time of a news release translated by a translator is about one hour.

According to the timing results, it only takes 10 s to translate the longest news release selected in this test.

According to the results of the comparison between the time length of machine translation and that of pure human translation, the time length of machine translation is far shorter than that of pure human translation without considering the credibility, accuracy and fidelity, and the efficiency.

B. Accuracy of Translation

Through the statistics of the scoring results of the four translators, the study concluded that, from the overall perspective, the average score of the fidelity of the manual translation was 3.93, the average score of the accuracy was 3.91, and the average score of the fluency was 3.80. It can be seen that the fidelity, fluency and accuracy of the manual translation of news are at a high level; From the overall perspective, the average score of machine translation fidelity is 3.92, the average score of accuracy is 3.88, and the average score of fluency is 3.78. It can be seen that the quality of machine translated news is high, but the fluency is low, which is related to accuracy, because only the accurate translation of the article content can help the reader speculate the content and understand the main idea of the article even if the fluency is low. After analysis, it is found that the translation of artificial translator is higher than that of machine translation in terms of fidelity, accuracy and fluency. From the perspective of information transmission and information accuracy, the quality of translation produced by translators is higher than that of machine translation.

Although the selected news release is different from each other in terms of the content theme, the nouns, syntax and format involved in the selected news release, the problems and improvements in machine translation can be summarized in terms of words, phrases and sentences.

1) Vocabulary

On the one hand, news translation must abide by the basic principles of translation, that is, “faithfulness and smoothness”. On the other hand, it should reflect its features, that is, the characteristics of news translation. Practice has proved that one of the characteristics of news translation is how to handle the translation of new words with each passing day [6]. The purpose of news reports is to disseminate information. News releases are usually mixed with a large number of names of people, places, countries and regions, organizations and special terms in various professional fields. Whether proper nouns are used accurately reflects the accuracy of the translation to a certain extent [7]. Whether lexical terms can be accurately translated is one of the problems of machine translation in news translation. Through comparative analysis with the translation of human translation, in machine translation, terminology translation lacks accuracy and consistency.

Example (1):

Original text:

人们在欣赏古城独特民居、街巷的同时，可尽情游逛极富民族特色的玉石巴 扎、铜器巴扎、帽子巴扎、陶器巴扎，以及艾德莱斯丝绸、烙铁烫画等各类店铺。

Machine translation:

While enjoying the unique houses and streets of the ancient city, people can enjoy visiting the jade bazaar, copper bazaar, hat bazaar, pottery bazaar, as well as various stores such as Edelweiss silk and iron stamping.

Manual translation:

While admiring the unique houses and alleys of this ancient city, people can also enjoy visiting all kinds of bazaars selling jade, hat and pottery with rich features of the local national minority as well as a variety of stores such as Edelweiss silk and pyrograph.

Analysis: The news mentioned the current situation of the transformed ancient city of Kashgar and the tourism resources brought by the transformation, which involves many cultural and tourism terms. The “iron stamping” in the above example is “iron painting”, which is a treasure of traditional Chinese art. It is painted by ironing the iron on the object with a hot iron. “Iron stamping” refers to the use of iron or some material technology to make metal parts or metal decorations, rather than painting. Machine translation misuses the term “iron stamping” here to translate “iron painting”.

If some professional terms do not have a fixed, unified or

authoritative English counterpart, the translation can be adjusted appropriately, and the original terms can be processed through free translation so that readers can understand. However, compared with manual translators, machines can not flexibly adjust the translation content and translation methods when translating such terms, which is not easy for overseas readers to understand.

Example (2):

Original text:
全面推行河湖长制，尊重江河湖泊自然属性，有利于贯彻全局“一盘棋”思想。
Machine translation:
The full implementation of the river and lake system, respect for the natural properties of rivers and lakes, is conducive to the implementation of the overall situation of the “chess” thinking.
Manual translation:
Fully implementing river-and-lake-chief system and paying respect to the natural properties of the water system is beneficial to the implementation of strategic concept of “coordinating all the activities of the nation like moves in a chess game.”

Analysis: The idea of chess refers to an organic whole that is interconnected internally. The machine translates the idea of “chess” into “chess” thinking, which neither shows the connotation of “chess” nor adopts the common English expression method. When translating, the translator skillfully deals with the translation here by means of free translation, and uses “coordinating all the activities of the nation” to indicate that the “one chess” thought is a way of thinking that takes into account all aspects of the overall situation, and then adds “like moves in a chess game” to indicate that this kind of thought is like playing chess, which is similar to the chess method.

Example (3):

Original text:
党的十八大以后，喀什市棚户区改造工程全面铺开，喀什古城改造工作进入快车道。
Machine translation:
After the 18th Party Congress, the shantytown renovation project in Kashgar city was launched in full swing, and the renovation of Kashgar Old City entered the fast track.
Manual translation:
After the 18th National Congress of the Communist Party of China, the shantytown renovation project was launched in full blast, and the renovation of the Kashgar Old City entered the fast lane.

Analysis: The above example is excerpted from Xinhuane’s in-depth report on the governance of the tributaries of the Yangtze River, and due to the length of the article, the writer used subheadings to divide the news into different parts, and the content of each part was led by subheadings and summarized. When translating similar subheadings, there is no corresponding fixed or common English usage for reference, and the translator needs to translate flexibly and paraphrase the content. Because the subheadings are concise in language and most contributors abbreviate the content of the titles, word-to-word translations can lead to mistranslations and missed information. When translating the listed titles, machine translation is more rigid than manual translation, and the titles are translated word by word. Although the machine-translated translation did not miss any information points in the title, the translation did not comply with the English language regulations at all, and it was difficult for overseas readers to understand, and it did not meet the first priority of “conveying information” in translation. Compared with the translation of a translator, although it is not as concise as the translation of machine translation, it is easy to understand and conforms to the English writing rules.

2) Phrases

Most writers will divide the news content into different parts and use subtitles to distinguish them. This kind of subtitle is concise and short in words. It serves as a link between the past and the future and summarizes the following content. Due to the characteristics of Chinese, such subtitles usually omit some sentence elements, which are short in length, concise and concise in meaning, and require translators to be able to translate the implied meaning and content of the title.

Example (4):

Original text:
地方立法频频“多业态+养老”成热点
Machine translation:
Local legislation frequently “multi-sector+ elderly” become a hot spot Manual translation:
“Multiple formats and providing for the elderly” have become a hot spot in frequent local legislation

Analysis: The meaning of the title is: in the process of local legislation, “multiple formats” and “old-age care” have become the key directions and hot topics of legislation. In machine translation, the subtitle as a whole is divided into two parts, that is, “frequent local legislation” and “multiple formats+pension” become hot spots. The original text is processed by word to word translation, which is not in line with the rules of English writing and is not conducive to the understanding of overseas readers; When translating, the manual translator uses the method of free translation, adjusts the original word order, and turns the subtitle into a sentence, which helps the overseas audience understand.

Example (5):

Original text:
党政主要领导上岗 江河湖泊大变样
Machine translation:
The main party and government leaders on board rivers and lakes big change
Manual translation:
Main administrator of the Party and the government took up their duty
Great changes have been made about the rivers and the lakes

Analysis: The above example is excerpted from Xinhuane’s in-depth report on the governance of the tributaries of the Yangtze River, and due to the length of the article, the writer used subheadings to divide the news into

different parts, and the content of each part was led by subheadings and summarized. When translating similar subheadings, there is no corresponding fixed or common English usage for reference, and the translator needs to translate flexibly and paraphrase the content. Because the subheadings are concise in language and most contributors abbreviate the content of the titles, word-to-word translations can lead to mistranslations and missed information. When translating the listed titles, machine translation is more rigid than manual translation, and the titles are translated word by word. Although the machine-translated translation did not miss any information points in the title, the translation did not comply with the English language regulations at all, and it was difficult for overseas readers to understand, and it did not meet the first priority of "conveying information" in translation. Compared with the translation of a translator, although it is not as concise as the translation of machine translation, it is easy to understand and conforms to the English writing rules.

3) Sentences

In order to improve the readers' reading interest and reading experience, the writer will use appropriate rhetorical devices or quote culture-loaded words or sentences such as poems, lyrics, and colloquialism to add the literary color of the article. It is necessary to have an overall awareness and grasp of the culture-loaded words, rhetoric and style in the original text, understand its content and artistic conception, and then translate it in a way that conforms to the grammatical rules of the target language and language and cultural cognition.

Example (6):

Original text:

"远看通州城啊，好大一条船啊，高高燃灯塔呀，是条大桅杆 … …开船喽！"

Machine translation:

"Look at Tongzhou City from afar, a big boat, a tall burning lighthouse, a big mast. ..... open the boat!"

Manual translation:

"Looking at Tongzhou City from distance, it is a giant boat. The tall burning lighthouse is as a big mast... sail!"

Analysis: Writer quoted the relevant lyrics to introduce the transformed river, and the source text adopted metaphorical rhetoric. The machine failed to understand the rhetorical meaning behind the words. Instead, it adopted literal translation, which is not conducive to the understanding of overseas audiences. In the process of translation, the man understood the metaphorical rhetoric contained in the text and translated its connotation.

Example (7):

Original text:

滚滚大河、滔滔长江，祖国的大江大河，习近平总书记一直牵挂于心。

Machine translation:

Rolling rivers, the Yangtze River, the great rivers of the motherland, General Secretary Xi Jinping has always been concerned about the heart.

Manual translation:

The rolling rivers and the surging Yangtze River are the great rivers of the motherland. All the rivers and waters are of high concern of General Secretary Xi Jinping.

Analysis: English emphasizes hypotaxis. Its expression emphasizes the integrity of sentences, therefore, English mostly uses complex grammatical structures such as subordinate clauses to express the relationship between the structures in the sentence. Chinese emphasizes the reproduction of meaning, and often uses the arrangement of four-character words or short sentences to express its meaning. The characteristics of English and Chinese languages are very different, and when the machine translates more loose and flexible Chinese sentences, it is often unable to judge the relationship between sentences, resulting in the loose structure of the English translation of the translation, which does not conform to the English writing rules and has low readability. When the translator processed this sentence, he divided the sentence into two parts: "滚滚大河、滔滔长江是祖国的大江大河" and "祖国的大江大河，习近平总书记一直牵挂于心", the translator chose a sentence form different from the original text, breaking the form of the original sentence, re-dividing the meaning and structure of the sentence, which helps overseas readers understand.

Example (8):

Original text:

改造中，政府有关部门着眼提升古城综合功能，大力开发商业和旅游业，增强当地居民就业、致富"造血功能"。2015年，喀什古城荣膺国家5A级旅游景区称号。

Machine translation:

In 2015, Kashgar Old Town was awarded the title of National 5A Tourist Attractions.

Analysis: Machine translation omits the first half of the sentence and only translates the second half of the sentence. The omitted part of the first sentence can supplement the characteristics of traditional houses, and the omitted part of the second sentence can supplement the benefits and impact of the renovation of the old city of Kashgar and shantytowns. Translating these parts can improve the understanding of these two items for overseas readers and make the content of the article more complete.

IV. Conclusion

Although machine translation is short in time, it also faces many problems: (1) there are errors in the translation of professional words; (2) there are many mistranslations in the translation of titles; (3) the logical relationship between sentences is not well grasped, resulting in low fidelity and accuracy of translation. Therefore, the author believes that machine translation cannot completely replace pure manual translation in news translation. The translator of news can adjust the content of machine translation by means of post-translation or pre-translation editing, correct the errors in machine translation, improve the accuracy, smoothness and fidelity of machine translation, make it more consistent with the expression habits of the target language, help overseas audiences understand, and enrich the content of the English version of mainstream media,

increase the number of press releases, show the current situation of China from more perspectives, more events and more interpretations, open a new window for China to show itself to the outside world, and provide relevant technical improvement suggestions for machine translation to improve.

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Yiwei Ding conducted the research, analyzed the cases and wrote this paper; Yu Sun, professor at the School of Foreign Studies, Northwestern Polytechnical University and supervisor of Yiwei Ding, has contributed a lot to writing and improving this paper; all authors had approved the final version.

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