

On the Application of Machine Translation in Legal Terminology Translation

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Abstract

Due to the complexity of legal terminology, machine translation faces certain challenges when dealing with legal terminology. This article introduces machine translation technology, the classification and characteristics of legal terms. Analyze the advantages and limitations of machine translation, as well as the difficulties in translating legal terminology, and combine the limitations of machine translation to describe the current application status and strategies of machine translation in legal terminology translation. This study proposes a solution that combines machine translation with human translation.

Keywords

Machine Translation; Legal Translation; Legal Terminology.

1. Introduction

In today's era of widespread translation software, the application of machine translation is becoming increasingly widespread, including in legal translation. The translation of legal terminology is the cornerstone of legal translation and is particularly important in translation. Due to the inherent characteristics of legal terminology, machine translation faces special challenges when dealing with legal terminology. The development of machine translation technology has improved translation efficiency, but it is still limited by the level of technological advancement and the complexity of legal terminology. Therefore, this article aims to analyze the application of machine translation technology in legal terminology translation, explore its advantages and limitations, and propose strategies for combining machine translation with human translation to improve the professionalism and accuracy of legal terminology translation.

2. Overview of Machine Translation Technology

2.1. Main Technologies of Machine Translation

Machine Translation (MT) usually refers to the use of computer technology to convert one natural language into another, that is, to convert the source language into the target language (X. Wang Y. Chen,2019:73). The main technologies of machine translation include rule-based, statistical, and neural network-based methods. Rule based machine translation mainly appeared in the early translation of languages with relatively simple sentence structures and clear rules, lacking flexibility and difficult to handle complex natural language changes. Statistical Machine Translation (SMT) is the use of statistical models and a large number of bilingual corpora to calculate the probability of transition between the source language and the target language. By analyzing sentence pairs in the corpus, we learn the corresponding relationships between different languages and generate translations based on them. It can be simply understood as searching for various examples in a large amount of text. The advantage

of SMT lies in its ability to handle larger datasets and provide relatively accurate translation results. Currently, most languages translated by Google Translate use statistical machine translation methods. However, it is still limited by the quality and scale of the corpus used, and may perform poorly when dealing with unseen language combinations.

Neural Machine Translation (NMT) is currently the mainstream method of machine translation. NMT uses deep learning techniques to simulate the way the human brain processes language through recurrent neural networks (RNNs) and attention mechanisms. Essentially, training a large neural network with good deep learning performance (Z.L. Cail et al.,2018). Unlike rule-based and statistical translation systems, neural network machine translation uses its vast neural network to search for and learn various features of language, rather than mechanically and traditionally outputting manually written rules or translation results. It can also rely on a large amount of corpus for deep learning of language features, and smoothly complete the language conversion from source language to target language (F.L. Zhang,2020:53). However, despite the continuous advancement of machine translation technology, it still has some limitations. The following is a further analysis of its advantages and limitations.

2.2. Advantages and Limitations of Machine Translation

Based on the main techniques of machine translation described in the previous text, it can be seen that machine translation has both advantages and disadvantages.

Firstly, the author will discuss its advantages. High efficiency and convenience are obvious advantages for daily users who choose to use machine translation. Machine translation relies on the support of algorithms and corpora, and its accuracy is usually high in daily use and processing of fixed expressions. At present, multiple machine translation software products have emerged, such as Google Translate, Baidu Translate, NetEase Youdao Dictionary, etc., which can meet the daily translation needs and simple cross language communication of most non professional translators. And machine translation can quickly process large amounts of text information, supporting simultaneous translation in multiple languages. Users only need to input the original text, and machine translation can directly output the translation. Photo translation can complete the translation task of a whole page in an instant. Document translation can quickly complete the translation of the entire document content. The word extraction function can quickly extract all the words on this page and mark the key words. According to the statistics of Baidu Translate's 10th anniversary, Baidu Translate has been able to achieve an average daily translation volume of over 100 billion characters, serving over 500000 enterprises, institutions, and individual developers. In machine translation software, there is usually a "click manual translation" window, which is usually the part that requires a fee. There are two aspects to consider here. Firstly, machine translation can significantly reduce labor costs and to some extent lower the overall translation budget; Secondly, under the high efficiency of machine translation, its limitations have also become apparent. In terms of the current application of machine translation technology, machine translation has only broken through some uncomplicated scenarios with low requirements for translation quality, and is far from reaching the level of translation that can replace professional translators (F.L. Zhang, 2020:54).

3. Characteristics and Translation Difficulties of Legal Terms

3.1. Classification and Characteristics of Legal Terminology

The legal work itself has solemnity, which makes the specialized industry language used in legal work all have the characteristics of precision, clarity, fixed usage, and single semantics of scientific terminology. Therefore, we refer to these industry terms with legal professional characteristics as legal professional terminology (Y.S. Xiao,2001:44). There are various classifications of legal English professional terminology, which can be divided into four types based on semantic scope: commonly used terminology, exclusive specialized meaning

terminology, specialized legal terminology, and borrowed terminology. The following is a further analysis of these four types.

Common terms refer to language that is commonly used in both legal contexts and everyday life. There is no clear indication of specific legal concepts, and the scope of use is also relatively broad. For example, words such as "contract," "marriage," and "insurance" have legal meanings in law, but are also common in everyday language. Depending on the context and part of speech, they often have new meanings, making them ambiguous. For example, 'contract' as a noun means 'contract', while verb 'can mean both' to make a contract 'and' to contract'. Exclusive specialized terms have clear legal professional meanings, which exclude ordinary meanings unrelated to the law and only retain specific legal meanings in legal applications. It is rarely used in non legal contexts or its legal interpretation rarely appears. Without professional knowledge, one may not know its legal significance. For example, the daily definition of "will" is often "will" or "hope", but in legal terms it is a "will", similar to "party" or "box". Specialized legal terminology is usually created or customized specifically for the legal field and is not used in any other field outside of law. Intended to provide precise expression of legal concepts, avoiding ambiguity and misunderstanding. For example, "arrest", "capital punishment", "civil law", "legal person".

Legal terminology has its own professional characteristics., To summarize, there are four points: the singularity of word meaning, the antonymy of words, the variability in usage, and the similarity of words (Y.S. Xiao, 2001, 44). The following is the author's analysis of the first two points.

The singularity of word meanings can be understood in legal terminology in conjunction with the aforementioned specialized legal terms. Firstly, each legal term has its specific legal meaning and cannot be replaced by other words. Taking "arrest" as an example, its English definitions include "appraisal", "arrest", "seize", "round up", etc. However, when used in law, only "arrest" can be used to express arrest.

The antonyms of words refer to words that are contradictory and opposite in meaning, which can be simply understood as antonyms. Because in legal work, it is necessary to use a set of words that represent contradictions, opposing things, or opposing legal acts to represent various opposing legal relationships (X.Y. Xiao, 2001, 44). For example, in sales contracts, there are "buyer and seller", in civil cases, there are "plaintiff and defendant", and in criminal cases, there are "actor and victim".

3.2. Difficulties in Translating Legal Terminology

Translating legal terminology is not an easy task. On the one hand, it requires linguistic and legal functional equivalence, but on the other hand, it often encounters situations where there are no exact equivalent words, mainly due to cultural differences, especially legal cultural differences (F.M. Tan, H. Xiang, 2012: 52). Under different cultural backgrounds, the same legal terminology may carry different cultural assumptions and values. For example, the most common translation of "family" is "family", "nuclear family" refers to a nuclear family consisting only of parents and children, and "household" refers to people who live together but are not part of the family. Domestic partners "refer to unmarried life partners who live together without marriage. Legally, not all countries and regions do not recognize this relationship. More and more countries recognize the legal effect of non marital cohabitation in their laws, providing protection for non marital partners and some rights and responsibilities that couples have. Moreover, "domestic partners" often involve issues such as inheritance and insurance, making legal translation and interpretation difficult in different cultural backgrounds.

The complexity of the legal system is also one of the reasons why there are many difficulties in translating legal terms. There are significant structural differences between the legal systems of common law and civil law in various countries. The common law system attaches great

importance to case law, and judges formulate laws through precedents. However, in the civil law system, the code is the main legal basis, emphasizing the structural and logical integrity of written law. Therefore, the legal terms used in the civil law system and the common law system often do not have a direct correspondence, or some legal terms do not exist or have different meanings in the same legal system, which makes it difficult to find accurate equivalents when translating.

4. Application Strategies of Machine Translation in Legal Terminology Translation

4.1. Application Status

Based on the above analysis of the advantages and limitations of machine translation, as well as the categories and characteristics of legal terminology and translation difficulties, the following is the author's analysis of the current application status of machine translation in legal terminology translation based on the above content.

Legal translation is a dual task that involves both legal conversion and language conversion. "(L.L. Tang, 2012: 136). So, when it comes to legal terminology, machine translation not only needs to overcome translation issues, but also legal terminology translation is the foundation of legal translation. Therefore, machine translation first needs to master the fixed expressions and professional vocabulary of legal terminology. Taking the sentence "A contract is an agreement between parties to establish, modify, or terminate a civil relationship. A legally formed contract is protected by law." as an example, using two translation software, the translation is as follows: "A contract is an agreement between parties to establish, change or terminate a civil relationship. Legally formed contracts are protected by law. Agreement between the parties to establish, modify, and terminate a civil relationship. Contracts established in accordance with the law are protected by law."。 From this, it can be seen that key legal terms such as "contract", "party", and "civil relationship" are correct in machine translation, but verbs such as "create", "modify", and "in accordance with law" have different translations. The overall meaning is roughly correct, but there are still some instances of improper translation, some deviations in the details of word choice, and a lack of professionalism. The rigor and professionalism of legal translation fundamentally determine that the application of machine translation in the field of legal translation still faces multiple difficulties "(F.L. Zhang, 2020, 54).

With the acceleration of globalization and the development of machine translation technology, although there are shortcomings, the application of machine translation in legal translation is becoming increasingly widespread, just like other industries and professional translation. The corpus that machine translation relies on will gradually become richer. Although it still lacks accuracy, it is efficient and can provide services in more languages, which can provide faster services to customers in a shorter time and make more people choose machine translation. It must be admitted that machine translation has also become one of the factors that help individuals, law firms, and companies maintain competitiveness in the legal industry. A report by Maia Research on legal translation software shows that in recent years, the demand for legal translation services has been increasing at a growth rate of 13-15% year by year (DeepL Translator, 2023).

4.2. Application Strategy

Based on the analysis of the current application status of legal terminology translation mentioned above, some strategies can be formulated and applied to ensure the accuracy and reliability of translation when using machine translation technology to process legal terminology. In terms of improving the level of machine translation, such as the construction of

corpora and dictionaries, domain adaptation training, participation of legal professionals, evaluation and optimization of translation quality, etc. The following is an analysis of the application strategies of machine translation in legal terminology translation by the author: In the construction of corpora and dictionaries, establishing a database containing a wide range of professional legal terms such as legal treaties, regulations, and precedents is crucial for training machine translation systems, so that machine translation models can learn more diverse and extensive legal terms and increase language accuracy. Simultaneously integrating multilingual legal dictionaries into machine translation systems can help address issues of terminology equivalence and consistency. Ensure accurate translation of specific legal terms by providing correct terminology translation (W.H.Zeng et al., 2023); In terms of domain adaptation, through legal domain adaptation training, machine translation models can better understand the characteristics and terminology usage of legal texts, and can translate better in the legal field; In the application of machine translation, the participation of experts is essential. Legal professionals have extensive experience and can provide valuable advice on terminology usage and context, ensuring the legal accuracy and professionalism of translation results; The evaluation and optimization of translation quality can be combined with automatic evaluation tools and manual expert reviews. Automatic tools can comprehensively detect translation results and screen for obvious errors. Artificial experts can focus on the accuracy of legal terminology and the logical coherence of the entire text. Iterative optimization is also a key step in improving translation quality. Based on collecting feedback from users and experts, the translation system can be continuously adjusted and optimized to gradually improve the translation level of legal terminology in machine translation.

The shortcomings of machine translation in legal terminology translation mentioned above, in my opinion, the combination of machine translation and human translation is also a good strategy besides improving the level of machine translation. Machine translation technology is essentially the result of human intellectual development, and its progress relies on the accumulation and summary of existing knowledge, experience, and technological achievements of humanity (F.L. Zhang,2020:58). When there are innovations or new "inequalities" in legal terminology, human translators can accurately translate corresponding terms by measuring their characteristics, meanings, differences, and content. Precision is something that human translation can achieve, while speed is the advantage of machine translation. The combination of the two is currently the "best solution" for solving legal terminology in machine translation.

5. Conclusion

At present, machine translation technology still has limitations, but it is constantly improving and bringing more convenience and efficient services to the application of legal terminology translation. The particularity of legal terminology requires high accuracy in translation, which is difficult to fully achieve with current machine translation technology. Therefore, improving the level of machine translation and combining machine translation with manual translation has become a practical and feasible solution. Through this combination, translation efficiency can be ensured while ensuring the professionalism and accuracy of legal terminology translation, and providing more reliable support for legal terminology translation. In the future, with the further development of machine translation technology, machine translation will play a greater role in the legal field and provide better support for legal terminology translation.

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