Research on English translation of Chinese College Students Based on Computer Scoring System

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Abstract. With the development of international economic situation and the expansion of international trade, the learning of English, an international common language, has been paid more and more attention. In college students' English learning, translation practice is an essential part. English translation scoring has gradually changed from full manual scoring to semi manual scoring and computer intelligence scoring. This paper focuses on the computer scoring system on College Students' English translation needs and methods to make a summary.

Keywords: Computer Scoring System, College Students, English Translation

1. The present situation of computer scoring system

Because the application scenarios of composition scoring and translation scoring are different, the composition scoring method cannot be directly applied to translation scoring. However, the current translation scoring method first needs to classify the translation manually according to the topic before scoring; secondly, it ignores the role of keywords; finally, it simply compares the two n-gram in terms of morphology, without considering the meaning level [1]. Another method is foreign language audio-visual teaching, that is, in the English network teaching which is widely carried out, the translation question bank is used to set questions, and then the learners' translation results are graded. For example, Yan FA, a course testing system, builds a translation database manually, marks all scoring points in advance, and collects four synonymous or synonymous translations for each scoring point manually. In the process of scoring, the score is based on whether it matches the manual translation of the scoring point. The establishment of this translation scoring system needs a lot of manual intervention, which is not a real automatic scoring system, and it is difficult to adapt to the needs of large-scale examination due to its poor reusability. Therefore, using the machine to score the translation test automatically, for the relevant teachers, will greatly reduce their workload; for colleges and universities, it can greatly save teaching costs and improve work efficiency [2]. As is shown in the figure 1.
2. Characteristics of college students' English translation

The characteristics of College English translation test itself make it possible to carry out automatic scoring with artificial assistance. The first characteristic of College English translation test is that it is limited by the length and content of the test paper, and the score of translation part is not much. At the same time, undergraduate students' foreign language ability is limited, which makes the question type basically limited to the translation of words and sentences, and there will be no paragraph or even text translation, so on the whole, translation is not particularly difficult. Another characteristic of College English test is that there are many examinees, a large number of papers and heavy work of evaluation [3]. Because of the large number of people who take part in the examination, especially those similar to CET-4 or CET-6 and professional English (As is shown in the figure 2). In order to maintain the same scale and standard in the large-scale evaluation work and ensure the reliability and validity of the scoring, the proposition teachers have formulated detailed and clear scoring standards for the translation part, whose main goal is to make it as quantitative as possible and easy to operate. However, manual marking not only affects the speed, sometimes there will be some errors in subjective judgment, so a computer-aided scoring system is derived to help the classroom to correct college students' English translation.
Design of computer intelligent scoring system for English translation

The computer scoring system is to annotate the selected corpus with grammar and semantics. As the technology of corpus grammar annotation is mature, we can use the corresponding software. For example, we can use the parser of group n of Stanford University to annotate English and Chinese sentences, and then analyze the English and Chinese semantics of the corpus. In this paper, we use English semantic analysis online resources for deep semantic tagging, that is, semantic frame recognition and tagging. At present, there are no corresponding WordNet, FrameNet and verbnet semantic analysis resources in Chinese. For the marked English sentences, the semantic framework of Chinese sentences is marked by the semantic framework of English sentences, and then manually proofread and edited. Traditional translation teaching is teacher centered, which can't arouse students' enthusiasm. With the help of corpus in translation teaching, students can discover, summarize and summarize the characteristics and rules of language use through exploratory, discovery and "learning by doing" activities, which is conducive to cultivating students' problem-solving ability and learning ability. Therefore, the construction of scoring translation system can not only help teachers to correct the test questions, but also make students more active in learning.

3.1. Construction of English translation scoring system

The computer intelligent scoring system for college students' English translation includes: translation data collection module, information feature extraction module, analysis model construction module and result feedback scoring module. In the initial stage of the system, students' English translations are input through the translation data collection module, and the standardized database files are generated through the processing of the collection module. The information feature extraction module is mainly used for the content segmentation of database files, and the module software algorithm is used to realize the file feature extraction. The analysis model building module mainly constructs the score evaluation model and generates the corresponding model file according to the feature extraction results obtained from the information feature extraction module. On this basis, the translation scoring and comment feedback are completed through the result feedback evaluation module. At present, the generally accepted translation evaluation standard is "faithfulness, expressiveness and elegance" proposed by Yan Fu. Any translation must be faithful to the original [4]. The evaluation method based on test points proposed by some people is the concrete embodiment of this principle. In students'
translation, whether each word can be accurately translated is the basic standard to measure the quality of the translation. We now have tools to automatically align the words in the original text and the translated text, which can match the words of a translation sentence pair.

3.2. English translation scoring system based on natural language processing
Natural language processing system is a computer intelligent system for effective communication between people and computers. The system can be used as an auxiliary part of English translation scoring system to realize information exchange. The overall framework of the English translation system based on natural language processing is obtained by analyzing all levels of the scoring system. College students upload the translation through the client, after the natural language intelligent processing and information interaction of the computer, input into the English translation scoring model of the system, use the model file to complete the scoring, and feedback the scoring and evaluation results to the user. The manual review and evaluation terminal can use the information exchange module to check the user's English translation documents, and select the document conversion format and training model translation set data to improve the overall effect of the scoring module. A good translation must be accurate in terms of vocabulary and close in length to the best translation. Therefore, we take the length of translation as an index to evaluate it. The computer scoring system takes the length of translated sentences as an evaluation index, and there are corresponding sentencing standards for long and short translated sentences. In the process of establishing the scoring model of English Chinese translation, a slightly complicated process is also applied. In this process, we also need manual assistance to process some data, build a dictionary of students' answers and answers, and then compile algorithms and related programs to score.

3.3. The English translation score is the similarity between the English translation results and the standard answers
From the above two features, we can conclude that a good translation sentence is similar to the best translation in terms of key words and sentence length. We say that since there is "the best translation", there must be "the second best translation". If a translated sentence is not similar to the best translation, we will naturally think that maybe it will be similar to the second best translation, so that we can compare again until the sentence is the most similar to a certain translation sentence that we have set in advance [5]. Therefore, we classify it as a translation sentence that meets this kind of standard, and then make an evaluation and give the corresponding score. The similarity of feature keywords is calculated, and the BP network optimized by particle swarm optimization is used for fitting calculation. According to the comparison between the calculation results and the set scoring criteria, the scoring results of the translation to be scored are obtained. The computer analyzes the error points in the user's English translation through the size of the keyword similarity value, gives the corresponding comments, and realizes the intelligent scoring and result feedback of English translation. In practice, we can use the manual method to select a number of sentences to be answered by students for manual grading, the sentences are divided into various levels according to the quality of translation, and given a certain evaluation score, and the standard answers are classified as the best translation. Then these sentences are numbered, and a tree structure is formed with the standard answer as the root node. The remaining and graded sentences are compared with these sentences by hierarchical traversal algorithm, and the students' scores are corrected according to the evaluation marks. See table 1 for specific data.
Table 1. Comparison of similarity between computer translation and manual translation.

| Dataset | System      | Sent-level Dev | Sent-level Test |
|---------|-------------|----------------|-----------------|
| WMT19   | QE-BERT     | 54.50          | 52.60           |
|         | SOURCE      | -              | 54.74           |
|         | UNBAEL      | 59.68          | 57.18           |
|         | DirectQE    | 60.95          | 57.25           |
| WMT17   | UNBABEL     | 64.33          | 64.10           |
|         | POSTECH     | -              | 69.54           |
|         | QE-Brain    | -              | 71.59           |
|         | DirectQE    | 77.63          | 76.29           |

4. Conclusion

In the part of College English translation test, the promotion of machine automatic scoring system can reduce the work intensity of teachers in translation scoring and improve the scoring accuracy to a certain extent. After the hierarchical structure of the system is constructed, the modules of each level are designed. Combined with the operation process of the system modules, the overall framework of the translation scoring system is obtained, and the language model and other related algorithms are adopted to realize the effectiveness of the corresponding modules [6]. The scoring rules, operation rules and corresponding scheme model for the automatic scoring system also have certain research value, and have certain practical value and potential commercial value.

References

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