Application of Computer Intelligent Proofreading System in English Phrase Translation

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Abstract. To solve the problem of poor coherence, an intelligent proofreading system based on improved phrase translation model is proposed. Firstly, semantic ontology model is created by creating semantic ontology model and phrase translation combined translation algorithm. In addition, the overall design of the system. Through the overall architecture of the system, the software and hardware of the system are designed. The hardware design is mainly the search module, so as to improve the accuracy of the search. In the software module process, it mainly includes the system application framework, network topology, client, translator organization and management, online collaborative translation and other modules, and can support the translation and proofreading of multiple languages. Finally, the system is tested. The test results show that the system can meet the needs of users and improve the efficiency of proofreading.

Keyword: Phrase Translation; Model Building; Intelligent Proofreading; System Testing

In the context of the accelerating process of global economic integration, China's trade with other countries is becoming more and more frequent, and English translation has become the primary language used by all countries. In addition, in the process of the continuous development of modern information technology, the way of English learning is gradually diversified, especially the English electronic dictionary, which makes English learning more simple. Under the background of the change of users' habits and the development of smart phones, mobile electronic dictionary app has become the key point of use, which is welcomed and concerned by people. It enables English lovers to learn English by using mobile phones. However, the reliability of the English translation results needs post proofreading, and the speed of manual proofreading can not meet the needs of translation, and the investment is large. Therefore, this paper proposes the design of computer intelligent angle system based on phrase translation model, which can realize the intelligent proofreading of English translation.

1. Design of Automatic English Translation Algorithm

1.1. Creating Semantic Ontology Model
Through the combination of machine translation and semantic features, English automatic translation algorithm can be realized, and the semantic ontology model of English automatic translation can be
created. If the quintuple \( O = \{C, H^c, R, I, A\} \) is applied to English translation semantics, the fuzzy mapping of the translation system is set as follows:

\[
\theta : S \rightarrow S \ast [\cdot 0.5, 0.5]
\]

The distribution structure model of English automatic translation phrases is defined as follows:

\[
O = \langle C, H^c, R, I, A \rangle
\]

The concept of English translation is realized by extracting semantic features, and the parameters of automatic English translation can be obtained by using fuzzy reasoning method:

\[
[0, T] \rightarrow S \ast [\cdot 0.5, 0.5]
\]

That is:

\[
\Delta(\beta) = \{s_k, K = round(\beta)\}
\]

\[
a_k = \beta - k, a_k \in [-0.5, 0.5]
\]

In the process of creating English translation, the evaluation index is set as II1 (= 1, 2, ..., n). Through logical fuzzy reasoning, an effective semantic concept tree can be created, and the model of semantic ontology can be obtained. See Figure 1 for details.

![Figure 1. semantic ontology model of automatic translation system](image)

### 1.2. Phrase Translation Combination Algorithm

Based on the analysis of semantic features and phrase translation, the optimization of English automatic translation algorithm is realized, and phrase translation combination is created:
\[ X_1 = \begin{bmatrix} M & T & P & P \\ P & VP & M & P \\ G & M & G & EP \\ EG & EP & VP & M \end{bmatrix} \]

\[ X_2 = \begin{bmatrix} P & M & VP & VP \\ VP & VP & M & P \\ G & M & P & VP \\ EG & VP & VP & M \end{bmatrix} \]

\[ X_3 = \begin{bmatrix} G & T & P & P \\ P & VP & M & G \\ G & M & G & EP \\ G & EP & VP & M \end{bmatrix} \]

Through the dimensionless processing of phrase translation combination, and automatic matching of English translation by similarity degree estimation and semantic similarity, the formula for calculating the comprehensive evaluation value of English translation output can be obtained:

\[ Q_i = xT_i + yY_i, x + y = 1 \]  

(6)

In the formula, \( t \) refers to the relative closeness of distance, \( y \) refers to the relative closeness of the combination of phrase translation, and \( R \) and \( y \) can fully reflect the relevance coefficient and comprehensive evaluation coefficient in English translation[1-2]. Through the above algorithm, the automatic translation algorithm of English translation combination is realized. The algorithm realizes cross compilation and program loading in the system information processing module, and optimizes the translation and proofreading system by combining with software.

2. System Design

2.1. The Overall Architecture of the System
Through the above module to achieve the proofreading of English translation, so as to get the data in the process of work, and use the behavior log to record. Background engineers can view the system in real time through the behavior log, and improve the problems in the research in time, so as to further improve the proofreading performance of the system. By translating English sentences, this intelligent proofreading system can replace the wrong contents in the original translation process, so that the proofreading can be realized intelligently and the correct translation results can be obtained. The system uses the proofreading of sentence features to search the translation information on the Internet and store it in the working mode.

In addition, in the process of mobile phone networking, users use this module to realize English Chinese translation, the latter English Chinese translation and other operations. If there is no Internet connection, it can use local thesaurus to realize offline query; it can also provide users with software function setting services, mainly including clearing the system cache, closing the voice generation function and deleting the new word book, and it can also regularly check the system updates to provide users with software updates[3]. Users add words according to their own needs, which is convenient for users to realize offline query of word information. And use this module to modify word explanation and example sentence in time to enrich word interpretation.
2.2. Hardware Design
The main function of search module is to extract and analyze the lexical features in sentences. Through this process, the search module can search the meaning and information of words, imitate the human brain storage mode, update the vocabulary features, and obtain the accurate English translation intelligent proofreading results. The search module can process the words and search the features of the words when receiving the user input information. Through the creation of mapping thread, the search module searches the meaning and subject content of words to be proofread, and extracts the features of words without proofreading. This mapping thread refers to a one to multi-mode thread, and all mapping points in the thread are the lexical subject content to be proofread. This method can make the answer close to the search range and reduce the search error rate of users.

3. Implementation of the System

3.1. Development Tool
Using win7 to develop operating system; Intel (R) core (TM) i5cpu; 4.00g memory. Use eclipse tools to deploy the integrated environment, and realize the installation of Android SDK toolkit, so as to deploy the development environment.

3.2. Realization of Pronunciation Module
Pronunciation module is the main function of English translation, which can make the translator learn how to read correctly in time. In the implementation of this module, the speech is read through the self-contained voice synthesis function in Android system.

3.3. Implementation of User Interface
Mobile phones are fashionable products, so the design of mobile phones is required to be beautiful, and the software interface should also be beautiful. In this paper, the design of the system pay special attention to the performance and function, but in the interface should be properly integrated. Because aesthetics is not the scope of this paper, the rationality of interface layout should be considered. The main measures include the layout of the interface buttons of the video, the normality of the main interface and the beauty of the online translation interface[4].

4. Conclusion
For the design of intelligent proofreading system in this paper, we can use the design search module to search the meaning of the word, analyze the user's behavior data through the behavior catalog, and upgrade the system. Through the verification of this paper, it shows that the system designed in this paper can improve the accuracy of English translation results, proofread the problems existing in the process of English translation, compare with similar systems, improve the accuracy of the designed system, and have consistency. This design can effectively realize the intelligent proofreading of English translation, reduce the cost of manual proofreading, and improve the efficiency of English translation proofreading.

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