questions mode table), answer_key and answerexplain. There are five records in the two tables, that is, the five modes were shown as above. The two tables get together to determine the questions mode. We extracted the first noun, the second noun and the last noun.

The steps to determine question mode as follows:

Step 1: Lexical analysis, to extract nouns in the sentence such as: noun1 + noun2 + ... + nounn;

Step 2: To determine the noun1 is which one type of concept in ontology, and match it with key1 field in the questions mode table;

Step 3: To determine the noun2 is which one type of concept in ontology, and match it with key2 field in the question mode table. If the extracted nouns are only two nouns, the noun2 is null, then skip this step, turn to step 4;

Step 4: To determine the nounn is which one type of concept in ontology, and match it with answer_key field in the answer mode table.

Step5. Integrate step 2,3,4 as above, a) If the matching is successful, then we can determine questions mode; b) If the matching is unsuccessful, then compute word similarity and match it again, this time if the matching is successful, we can determine questions mode, otherwise, the question does not belong to questions mode in the system, then the system prompts user to ask question again according to the modes in the system.

$$Sim\ (C1, C2) = 1 - \sqrt{\frac{\alpha - 1}{\alpha} \times Dist\ (c1, c2)}$$

At present concepts are used to measure the correlation among links of concept in the field of information retrieval, we mainly consider semantic similarity and semantic relevancy two factors from the angle of natural language. Semantic similarity is concept consistent in the sense. We compute semantic similarity through semantic distance of the concept in semantic tree. Semantic distance of concept is inversely proportional to the semantic similarity. In this paper, we compute semantic similarity by semantic distance. With the concept of Cl and C2, the semantic similarity computing method as follows:

Where Dist (C1, C2) is semantic distance between C1 and C2, α is an adjustable parameter.

Retrieve Analysis Module. The type of retrieval analysis can be divided into two types: one is precise searching, it is a particular search to a concept, such as the first three modes in questions mode; another is about the retrieval of semantic relations, this retrieval is usually two or more keywords and keywords which exists semantic relations, such as the latter two modes in questions mode.

To sum up, we give the steps of ILQO retrieval model:

Step 1: We cut the words for user's query, and obtain keywords of the query. Next we determine questions mode, and then submit them to query analysis module.

Step 2: Query analysis module analyzes the submitted question, and question is divided into two kinds of situations to deal with:

Case 1: It is a precise searching, in other words, it is a simple query. It can be directly search through ontology database;

Case 2: It is about the retrieval of semantic relations. To the retrieval, first we compute semantic similarity between the main concepts, definite the description of its semantics and understand the user's searching intention, and then transmit the semantic description to the retrieval module, finally we get searching results through ontology database.

Step 3: Sum up the above two steps, we return the searching results to user.

Ⅳ. CONCLUSION

In this paper, we put forward an information retrieval system based on ILQO, it can make up for defects as following: you can not find the information, or the information which found is not accurate. In this system, we proposed questions mode and answers mode, and combined similarity algorithms with them, thereby improved the efficient of query. However, natural language is flexible, so it will still affect the accuracy and integrity of understanding questions, such as how to determine the specific questions, this will be our next research work. In addition, the improvement about similarity computing is a problem what we need to be resovled later.

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