Problems on Connective Expressions
In Machine Translation from Japanese into Chinese

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1. Introduction

This paper discusses translation rules of Japanese connective expressions into Chinese. A Japanese connective here refers to a certain adverb or an adverbial phrase applying to the sentence as a whole, which shows some logical relationships between two sentences. A connective can exist at the end of the first simple sentence or at the beginning of the second sentence.

Many Japanese connectives have more than one corresponding Chinese. We investigated seventy-eight Japanese connectives and found that they can be divided into three types according to corresponding Chinese patterns. Type 1 is one to one correspondence which means one Chinese equivalent can be found for one Japanese connective. Type 2 is one to several, meaning it can have several Chinese equivalents according to different sentence patterns with the same Japanese connectives. Type 3 is one to several correspondences including one that one Japanese pattern has more than one Chinese structure according to different meaning.

We found that sixty-five connectives belong to type 1 and two belong to type 2 and sixteen to type 3. In machine translation it will be no problem to convert Japanese into Chinese in type 1 because there is no ambiguity. In type 2 Japanese connectives have structural ambiguities, but they can be managed by syntactic analysis. However for type 3 machine translation will have some problems since the ambiguous meanings of Japanese connectives cause Chinese ambiguous structure, so it needs semantic analysis.

2. Type 1

Among the three, one to one is the most frequent. Hence, we can find that one Japanese connective corresponds to one Chinese. For example, the connective of "そこで" can be translated "于是" in Chinese.

わからなくて困った、　そこで　先生に尋ねた。
怎么也不懂、　于是　就问老师。

3. Type 2

In this case a Japanese connective can correspond to several different Chinese expressions which are determined by the sentence structure. For example, "し" has four corresponding Chinese expressions.

1. 彼女は、きれいだ⬚し、やさしいです。
   她长⬚又得漂亮、对人⬚又亲切。
   The feature of this sentence structure is that "し"is put between two verbal phrases which shows the relation of the compound.

2. 年もとった⬚し、あまりむりな仕事はしないほいがいい。
   岁数大了一些勉强的工作还是不干的为好。
   In this case "も" is used after the subject in the first simple sentence and the semantic relation of the two simple sentences is cause and effect. There is no corresponding Chinese expression.

3. 雨がふるし、風も吹きます。
   ⬚又下雨、⬚又刮风。
   The feature of this one is that " も" is used in the second simple sentence.

4. 何も食べないし、飲みません。
   什么⬚也不吃、什么⬚也 不喝。
   In this case the negative is in both sentences   and "も" is used after the subject in the first simple sentence.

4. Type 3

For one to several types meaning correspondences, it will be hard to make the machine to understand the translation rules because one Japanese connective has several meanings in Chinese. "ば" will be cited as an example here, which has two lexical meanings when it connects two sentences. One expresses the relation of two sentences as the hypothetical condition and the other real condition. The pattern will be changed whether "も" is in the sentence or not. "ば" has six cases.

   (1). With も
   J pattern: A ば、 B.sub も B.vp
   C pattern1: ⬚如果A ⬚的话、 B. sub ⬚也 B. vp
   C pattern2: A、B. sub ⬚也 B. vp
   C Pattern3: A、B. sub ⬚都 B. vp
   Example1: あなたが行けば、私も行きます。
              ⬚如果你要是去⬚的话、 我⬚也去。
   Example2: 春が来れば、たんぽぽも咲きます。
              春天来、蒲公英花⬚也开了。
   Example3: もし雪が降れば、私はどこへも出かけません。
              明天若下雪⬚的话、我哪儿⬚都不去。

The three Japanese sentences have exactly the same structure. "ば" is used at the end of sentence A, and "も"is put between the subject and verbal phrase in sentence B. However it generates three meanings in Chinese according to the characteristics of its connective.

In pattern 1 the sentence A should be a hypothetical condition for B and sentence B should have "も" which should be located between the subject and verb phrase.

In pattern 2 the sentence A is the real or fixed condition of B as an idiom or natural phenomena.

In pattern 3 the second sentence should have a word どこ（だれ、いつ）before も.

(2).Without も

J pattern: A ば B

C pattern1: 如果 A 的话, B.sub 就 B.vp
　　　　　(假如) A 的话，B 就
　　　　　(要是) A 的话，B 就

C pattern2: A ，B 就

C pattern3: Chinese idiom (unfixed pattern, case by case)

Example1: 雨が降れば、試合は中止されるでしょう。
　　　　　如果下雨的话，比赛就会中止吧。

Eexample2: 春が来れば、花が吹きます。
　　　　　春天到了就开花。

Example 3: 三人寄れば文殊の知恵。
　　　　　三个臭皮匠顶个猪葛亮。

　　　　　うわさをすれば何とやら。
　　　　　说曹操到曹操就到。

　　　　　二に三を加えれば五となる。
　　　　　二加三等于五.

In this pattern ば is used at the end of the sentence and there is not a word "も" in the sentence as opposed to the one above.

In pattern 1 sentence A should be the hypothetical condition for sentence B in meaning.

In pattern 2 sentence A is the real condition of sentence B.

In pattern 3 the Chinese correspondence is an idiom, so the pattern can not be fixed.

"ば" has two meanings, one is the hypothetical condition for sentence B, so the Chinese pattern indicates 如果 A 的话. B. The second is the real condition of B, so the translation rules are different. In addition the pattern will be changed depending on whether or not "も" is used. If they follow the same translation rules, the meaning of the Chinese sentence will be wrong. For example 春が来れば、花が吹きます, if this sentence used the translation rule of C pattern 1, the Chinese sentence will be translated like 如果 春天到了,就开花。which seems strange in meaning.

Every language is quite different in their linguistic structures. So it is a difficult task to match one language to another. As to conditional sentences, the Japanese and English sentence structure are different. "If" is subordinate in an English sentence, but it can not express the tense of the action in the sentence. So the tense of the verb will decide what kind of condition it is. The present tense can assume the future situation and predictability of situation and the past tense assumes the future time reference, whereas the past participle form assumes past time reference in a hypothetical condition.

In Japanese "ば" is a real condition or hypothetical one decided by the meaning of ば itself, not like in English where it is decided by the tense forms. So there occurs no ambiguity. In Japanese how to judge which one is the real condition and which is the hypothetical one in meaning is very important to translate ば correctly from Japanese into Chinese. We found the sentence of the real condition usually expresses the natural phenomena and idioms. For the natural phenomenon it occurs cyclically and the verb in the sentence indicates movement. For idioms there occur no ambiguities in translation because both languages are idioms. So there are some possibilities to disambiguate "ば" in the translation.

5. Summary

The list of all connectives collected in this paper is shown here.

Translation Pattern	Connectives	Total 78
Type1	ので、ながら、ために、したがって、いえる、そこで、それなら、こうして、まして、いっぽう、なぜならば、だって、というのは、ところで、しかし、だけど、ところが、それでも、それにもかかわらず、だが、それにしても、それにしては、のに、ものの、ものを、くせに、からといって、および、ならびに、とか、から、そして、それから、それに、そのうえ、しかも、さらに、おまけに、そればかりではなく、それどころか、または、もしくは、むしろ、というよりは、なり、かわりに、さて、それはさておき、それはそうと、すなわち、つまり、いわば、ようするに、けっきょく、たとえば、いわゆる、ただ、もっとも、なお、ちなみに	60
Type2	でも、し、	2
Type3	ば、たらば、ならば、と、て、だから、すると、それで、けれども、が、また、かつ、たり、つつ、あるいは、ないし(は)、	16

6. Conclusion:

This paper presents translation rules from Japanese connectives into Chinese based on the characteristics of structure and meaning. Three types of translation patterns were proposed. The first and the second types can easily be found in Chinese by syntactic analyses. However the third one can not be found in Chinese by the same methods because it involves ambiguity and to eliminate the ambiguity we should use sentence meanings. In this paper we have treated just a case of "ば" as an ambiguous example. There are many connectives belonging to this type, which are remained for my further study.

References:

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