[From: IFTT'89, April 26-28, Oiso Prince Hotel, Japan]

TRANSLATION ASSISTANCE FUNCTIONS
(PRE-EDITING and POST-EDITING)

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1. Introduction

With the present level of machine translation (MT) technology, completely automatic translation is impossible. For this reason, a pre-editing function must revise the original sentences to match the MT system ability, and *a* post-editing function must correct the deficiencies in the translated results. This means rewriting the original sentences into sentences to suit the MT system before actually putting the machine to translation work; the translation results are appropriate for the post-editing work. However, it is unrealistic to expect every document writer to acquire the know-how to write expressions and sentences fit for the MT system; even in pre-editing work, translation assistance functions supported by the MT system or other software are needed.

In this paper, I cite concrete examples of assistance functions, having in mind Japanese-to-English translation; however, similar concepts would be applicable to the translation problem of other languages. I would like to leave the users judge what functions are actually more effective.

2. Pre-editing Assistance Functions

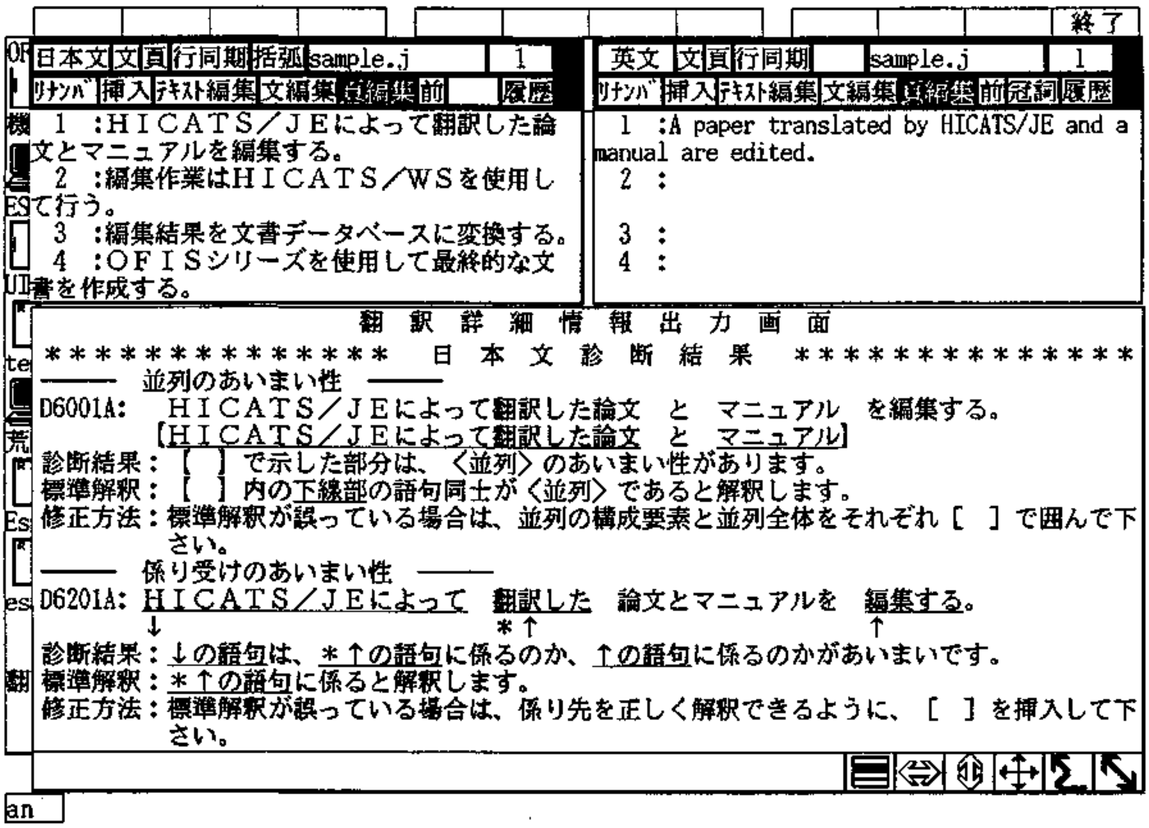
Pre-editing work for utilizing the MT system involves the following two tasks:

(1) Direct modification of original sentences

The original sentences are rewritten. Erroneous words and usages are modified, terminology is unified, abbreviated information is supplemented, and expressions are altered. Two types of assistance functions for this work are now commercially available:

(a) One function points out linguistic problems such as the usage of words, terminology, expressions, etc. (morphological analysis level), and supports correction work. When errors in declensional Kana endings and old style language expressions are included in the original sentences, the MT system fails to analyse them correctly.

(b) The other function diagnoses Japanese language (Fig. 1) to identify ambiguities in parallel relationships and modifying relationships, etc., after the MT system has executed syntactic and semantic analysis. After examining the evaluation results of the Japanese language diagnosis function, you can obtain correct translation results by inserting the pre-editing symbols (shown in Item(2)) in original sentences and re-translating them.



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 1 :HICATS/JEによって翻訳した論
文とマニュアルを編集する。
 2 :編集作業はHICATS/WSを使用し
て行う。
 3 :編集結果を文書データベースに変換する。
 4 :OFISシリーズを使用して最終的な文
書を作成する。
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 1 :A paper translated by HICATS/JE and a
manual are edited.
 2 :
 3 :
 4 :
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                       翻 訳 詳 細 情 報 出 力 画 面
************** 日 本 文 診 断 結 果 **************
―――― 並列のあいまい性 ――――
D6001A:  HICATS/JEによって翻訳した論文 と マニュアル を編集する。
        [HICATS/JEによって翻訳した論文 と マニュアル]
診断結果:[ ] で示した部分は、〈並列〉のあいまい性があります。
標準解釈:[ ] 内の下線部の語句同士が〈並列〉であると解釈します。
修正方法:標準解釈が誤っている場合は、並列の構成要素と並列全体をそれぞれ [ ] で囲んで下
        さい。
―――― 係り受けのあいまい性 ――――
D6201A: HICATS/JEによって 翻訳した 論文とマニュアルを 編集する。
        ↓                 *↑                       ↑
診断結果:↓の語句は、*↑の語句に係るのか、↑の語句に係るのかがあいまいです。
標準解釈:*↑の語句に係ると解釈します。
修正方法:標準解釈が誤っている場合は、係り先を正しく解釈できるように、[ ] を挿入して下
        さい。
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Fig. 1 Example of a Japanese Language Diagnosis Function

(2) Insertion of pre-editing symbols

This method gives information to systems through inserting symbols having predetermined specific roles into the original sentences. The following functions can be considered for this purpose:

(a) Parallel relationships and modifying relationships are made clear by such symbols as parentheses({ } , [ ]).

HICATS/JEによって翻訳した[[論文]と[マニュアル]]を編集する。

(b) Words and phrases (including compound words liable to be mis-interpreted) that adversely effect the analysis of sentence structures and meanings, are compulsorily treated as "unknown words" (that are not registered in the dictionary) by using the parentheses(<< >>). By this means, erroneous analysis can be avoided.

(c) Sentence styles to be translated (ordinary sentences, title sentences, imperative sentences, infinitive sentences, etc.) are specified for each original sentence before the translation is done; for example, sentences with subject omitted are normally translated in the passive voice, but the post-editing becomes easier, if translated in an imperative mood.

3. Post-editing Assistance Functions

Post-editing work includes, in a wider sense, not merely correcting translated sentences, but also re-translating the unsuccessfully translated sentences or tracing tables and figures. However, in this paper, the contents are limited to assistance functions for obtaining better translations only. For this purpose, the following functions are taken into consideration:

(1) Multiple Translated Sentences Selecting Function

With sentence-by-sentence translation, multiple translation results are liable to be obtained owing to the ambiguities of the original sentence. This function allows the system to indicate these different results and leave the selection of the optimal result to the user.

(2) Translation Word Selecting Function

Translated words are not always appropriate, even if a translated sentence is obtained. The same word sometimes has to be translated differently for different fields. When appropriately translated words are not obtained, those will have to be changed. This function allows the system to indicate the translated words suitable for the words specified by the user and to leave the user select an appropriate word. The system can learn the translated words if the system stores the selected information in its memory.

(3) Electronic Dictionary Access Function

This function differs from the translation word selecting function; that is to say, this is a function to utilize dictionaries sold in the marketplace by coding and storing their contents in hard disk or CD-ROM and to gain access to them, whenever necessary, so as to be able to utilize their information. Through this method, we can refer to the dictionaries far more quickly than looking them up manually.

(4) Articles Exchange and Spelling-check Function

With sentence-by-sentence translation, The system cannot give appropriate articles. The system gives articles in accordance with a certain rule. Therefore, it is imperative to check this point when post-editing. The function to toggle "a" and "the" by just one command is the feature of this Articles Exchange Function. Further, it is more convenient if functions of the spelling-check and the checking of the appropriateness of the usage of the words are made available.

4. Conclusion

I have mentioned various types of translation assistance functions, but the questions of what type of function to utilize and the extent of utilization depend on the users' desire as to the degrees of refinement of the translated documents, and the total cost. If the translated documents need only the meaning of the originals, then pre-editing alone may be sufficient for the purpose; if better translation is desired, some time must be spent on post-editing. In any event, it is essential that the cost be kept to less than that of manual translation. To achieve that purpose, the functions stated above require workstations of good operability.