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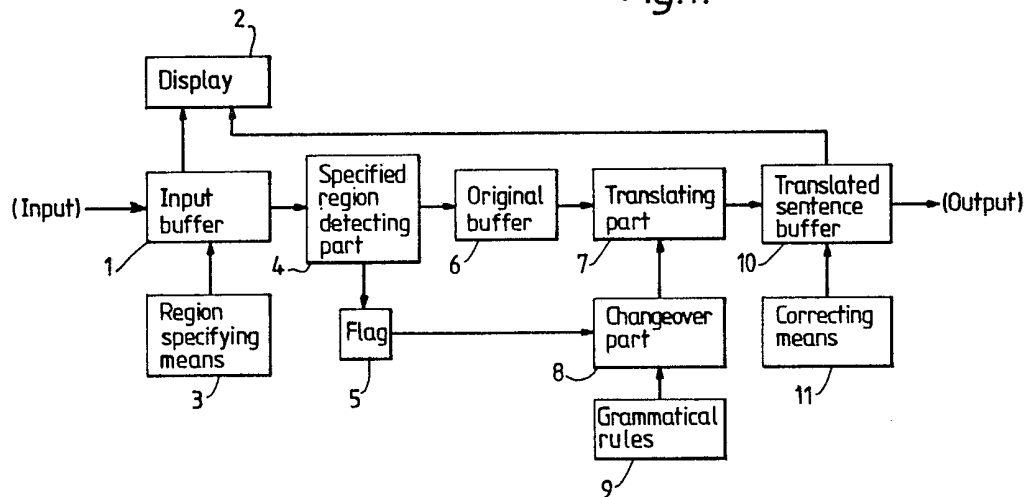
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(54) Machine translation

(57) A machine translation system to display an input sentence and a translated sentence thereof, comprises a region specifying circuit (3) for specifying a desired portion in the input sentence, and a partial translating circuit (7) for translating only the portion specified by the region specifying circuit.

Fig.1.



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Fig.1.

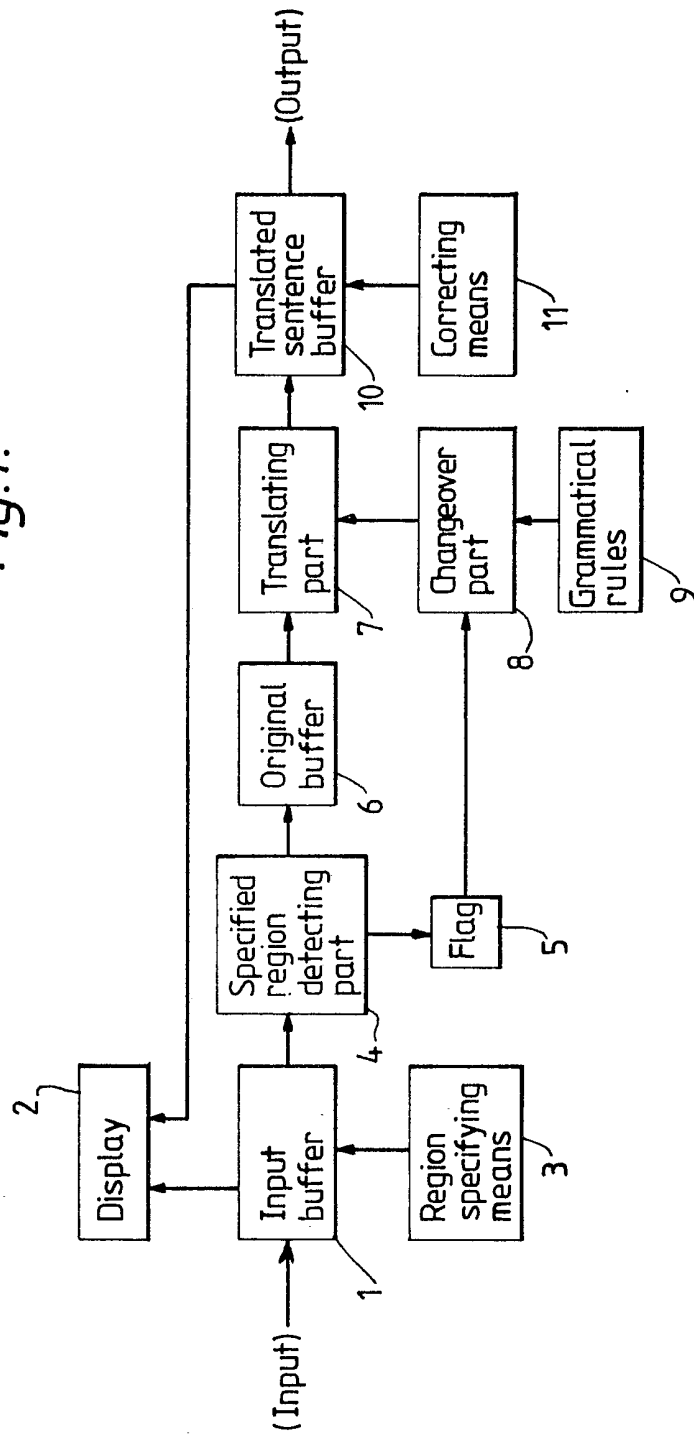


Fig.2.

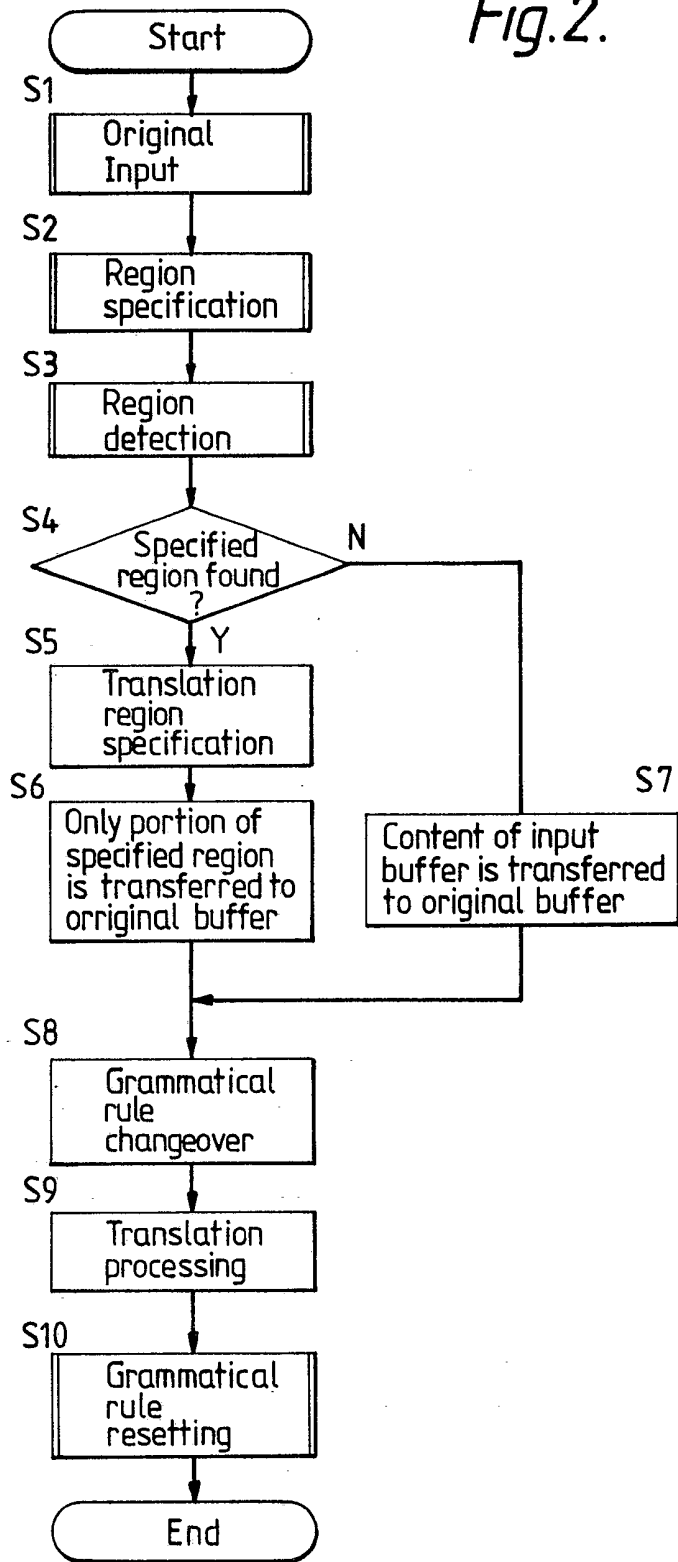


Fig.3(a)

ORIGINAL	TRANSLATION
◇ A replica of the Liberty Bell, which is the symbol of American independence, is to be displayed all over the world.	

Fig.3(b).

ORIGINAL	TRANSLATION
◇ I want to advise you that, if I can, you should not go there	

Fig.4(a).

ORIGINAL	TRANSLATION
◇ [(A replica of the Liberty Bell, which is the symbol of American independence)], is to be displayed all over the world.	アメリカ合衆国の独立の象徴である Liberty Bell の原作の写し

Fig.4(b).

ORIGINAL	TRANSLATION
◇ I want to advise you that ((, if I can,)) you should not go there	私はあなたにあなたがそこに行くべきではないと知らせたい。

SPECIFICATION

Machine translation system

5 This invention relates to a machine translation system capable of promoting translation works in interactive method between the operator and the system, by displaying an input sentence (original) and the result of translation
10 of this input sentence, that is, the translated sentence on the CRT screen, and in particular it is intended to specify the translating region of the input sentence arbitrarily.

Machine translation systems proposed so far were the method of translating the entire input sentence (original), and did not possess any function to translate only a desired portion of the input sentence. Accordingly, the conventional systems involved the following
20 shortcomings.

(1) A long input sentence (original) takes a long time in translation, and the result is not known unless waiting a long time continuously till the end of translation.

25 (2) If part of input sentence (original) is wrong, or a phrase hard to translate for the machine is inserted in part of the input sentence, the translation result of the entire input sentence cannot be obtained.

30 (3) When desiring to translate only part of input sentence (original), that portion must be entered again as an independent input sentence.

35 SUMMARY OF THE INVENTION

This invention is achieved in the light of the conventional problems above, and it is intended to present a very easy-to-use machine translation system, allowing to specify the translation region of input sentence arbitrarily
40 so as to enhance the controllability by the operator and enable to adjust the translation time.

Briefly described, in accordance with the present invention, is a machine translation system capable of displaying the input sentence and the translated sentence thereof, comprising a region specifying means for specifying a desired portion of said input sentence, and a partial translation means for translating only the portion specified by said region specifying means.
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BRIEF DESCRIPTION OF THE DRAWINGS

55 The present invention will become more fully understood from the detailed description given hereinbelow and the accompanying drawings which are given by way of illustration only, and thus are not limitative of the present invention and wherein:

Fig. 1 is a block diagram of essential parts of a machine translation system according to this invention; Fig. 2 is an operation flow chart, Fig. 3 (a), (b) show display examples of input sentences, and Fig. 4 (a), (b) show dis-
65

play examples of input sentences and their translated sentences.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, this invention is described in details below.

70 Fig. 1 is a block diagram of essential parts of a machine translation system according to this invention.

In the diagram, numeral 1 denotes an input buffer for storing the input sentence (original) fed by an input means such as keys or optical character reader (OCR), 2 is a CRT display unit to display the contents of said input buffer 1 and of a translated sentence buffer which is mentioned later, and 3 is a region specifying means for specifying a translation region in the input sentence once fed in said input
75 buffer 1 and displayed on the CRT screen. In this embodiment, as stated below, keys em[em, em]em, em(em, em)em are used as region specifying means.

80 Numeral 4 represents a specified region detecting part by searching the input sentence in said input buffer and detecting whether a specified region by said region specifying means 3 is present in the input sentence or not, 5 is a flag which is turned on if a specified region is present as a result of detection, 6 is an original buffer which introduces only the specified region, if any, if the input sentence (original), and introduces the entire input sentence if specified region is not present, and 7 is a translating part for translating the content in said original buffer 6, which is composed, for example, of dictionary look-up/morpheme analyzing part, syntax analyzing part, transforming part, and generating part. Numeral 8 is a
85 changeover part to change over the grammatical rules on a grammatical rule table 9 applied to the translating operation of said translating part 7 depending on the state of flag 5, 10 is a translation buffer for storing the result of translation, and 11 is a correcting means used by the operator to correct the translation result displayed on the CRT.

Fig. 2 is a processing flow, referring to which the operation is described below.

115 When an input sentence (original) is fed by a key input means (s1), it is stored in an input buffer 1 and is displayed on the CRT display unit at the same time (see Fig. 3 (a), (b)). Then, while observing the display information, when a desired portion of the input sentence is specified by using em[em, em]em keys as [[...]] as shown in Fig. 4 (a) and a conversion key is pressed (s2), the content in the input buffer 1 is searched sentence by sentence by
120 a specified region detecting part 4, to detect if a specified region is present in the sentence or not (s3). When a specified region is found (s4), the marks used in the specification of region are detected, and if the marks are ((emem)), only the portion within the marks is
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transferred to the original buffer 6, or if the marks are ((emem)), only the portion other than the content enclosed by the marks is transferred to said original buffer 6 (s5, s6).

5 Of course, specified region is not found, the whole input sentence is transferred to the original buffer 6 (s4 to s7 to s8). At the same time, if a specified region is present, said flag 5 is turned on, and the grammatical rules in the table 9 applied in translation are changed over by the changeover part (s8), and the content in the original buffer 6 is translated in said translating part 7 while referring to the grammatical rule (s9). After finishing translation processing of one sentence, the flag 5 is reset (s10), and the translation is over. The result of translation is delivered to a translated sentence buffer 10, and is displayed on the CRT display unit 2 at the same time.

20 Incidentally, Fig. 4 (a) is an example of translating only the portion enclosed by [[mark and]] mark, and displaying the translated sentence and input sentence (an English text) on the CRT screen at the same time, while Fig. 4 (b) is an example of translating only the portion other than the part enclosed by ((mark and)) marks, and displaying the translated text together with the input sentence.

Thus, by specifying a necessary portion in an input sentence (original) by using marks, only the specified region may be translated. As a result, it is very advantageous for adjusting the time required for translation or for the operation of translation, in translation processing of a very long input sentence (original).

As described herein, by using the machine translation system of this invention, since only a necessary portion can be translated by specifying the portion in the input sentence (original), the following effects may be enjoyed.

(a) It is possible to translate by excluding a portion in a long sentence (input sentence), the translation time can be adjusted by properly specifying the region to be omitted.

(b) By excluding a partial error in the sentence or a hard-to-translate phrase, the sentence which could not be translated by conventional machines can be translated.

While only certain embodiments of the present invention have been described, it will be apparent to those skilled in the art that various changes and modifications may be made therein without departing from the spirit and scope of the present invention as claimed.

55 CLAIMS

1. A machine translation system for conducting a machine translation by the way of a man-machine communication and displaying an input sentence and a translated sentence thereof, comprising:

region specifying means for specifying a desired translation portion in said input sentence; and

65 partial translating means for translating only

a portion specified by said region specifying means.

2. A machine translation system comprising: buffer means for storing an input sentence; display means for displaying the input sentence;

70 region specifying means for specifying a translation region in said input sentence; specified region detecting means for detecting whether a specified region by said region specified means is present in the input sentence or not;

flag means turning on in the case where the specified region is present;

80 original buffer means for storing the specified region if the specified portion is present in the input sentence and storing the entire input sentence if the specified region is not present;

translating means for translating the contents of the input sentence stored in said buffer means;

85 changeover means for changing over the grammatical rules of a grammatical rule table used for the translation operation from a first language to a second language of the translating means; translation buffer means for storing the result of the translation by said translation means; and

90 correction means for correcting the result of the translation by said translation means.

3. The machine translation system of claim 2, wherein said translation means comprises dictionary lookup and morpheme analyzing means for analyzing the morpheme of the words;

100 syntax analyzing means for analyzing the syntax of the words;

transforming means for transforming a first language into a second language with reference to the grammar of the first and second languages; and

generation means for generating target words of the second language.

4. The machine translation system of claim 2, wherein said region specifying means comprises keyboard means operated by the operator.

5. The machine translation system of claim 4, wherein said keyboard means comprises key switch means operated to input a first and second types of marks.

6. The machine translation system of claim 6, further comprising optical reader means for inputting the input sentence into said buffer means.

7. The machine translation system of claim 5, wherein said first type of mark is used to enable said translation means to translate the specified region enclosed with the first type of mark.

8. The machine translation system of claim 5, wherein said second type of mark is used to enable said translation means to translate the portions other than the specified portion enclosed with said second type of mark.

9. A machine translation system which is capable of translating a user-specified portion of an input word group.

5 10. A machine translation system substantially as hereinbefore described with reference to the accompanying drawings.

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