

A Research
on Machine Translation
in Hitachi Ltd.

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1. Motivation

- (1) Increase of international activities brought the amount of documents overflows the limit of manual translation power.
- (2) Improvement of computing power and memory devices, accompanied with the advancement of the study on computing linguistics makes it possible to pursue MT on not only accademic but also commercial basis.
- (3) To utilize the potential power compiled in Hitachi so far, through the study of formal languages, IR etc.

2. Aim & Approach

- (1) Machine Translation System for Japanese people with editing facilities.
- (2) English into Japanese and Japanese into English at first.
- (3) Syntax-directed translation is aimed at, with the help of restriction rule on semantic categories.
- (4) Mixture of phrase structure grammar, ATN, Production System, like constraints, procedural tree-manipulation.
- (5) Universal meta language will be studied after the powerful main translation system was completed.
- (6) For lexical data such as word meaning, idioms and phrasal patterns, we think that a simple description rule should be

prepared in its early stage, because such data are enormous in volume and moreover made by the users.

(7) Implementation language is now PL/I.

3. Result So Far

(1) Made fundamental study on parsing, phrase translation, and generation of natural language, and now implementing an experimental system of English into Japanese and vice versa on simple sentences and a few patterns of compound sentences.

(2) We start investigation on semantic manipulations, to reduce dependency or modification ambiguity.

4. Future Plan

(1) Implementation languages such as LISP or PROLOG will be considered in the near future.

(2) Positive investigation will be made on sublanguage effect along with the restriction on the field of Input text.

(3) The system with human-aid, especially post-editing, will be strongly investigated.

(4) We want to extend our Machine Translation Project into Knowledge Information Processing such as QA, Knowledge base, Inference system and so on.