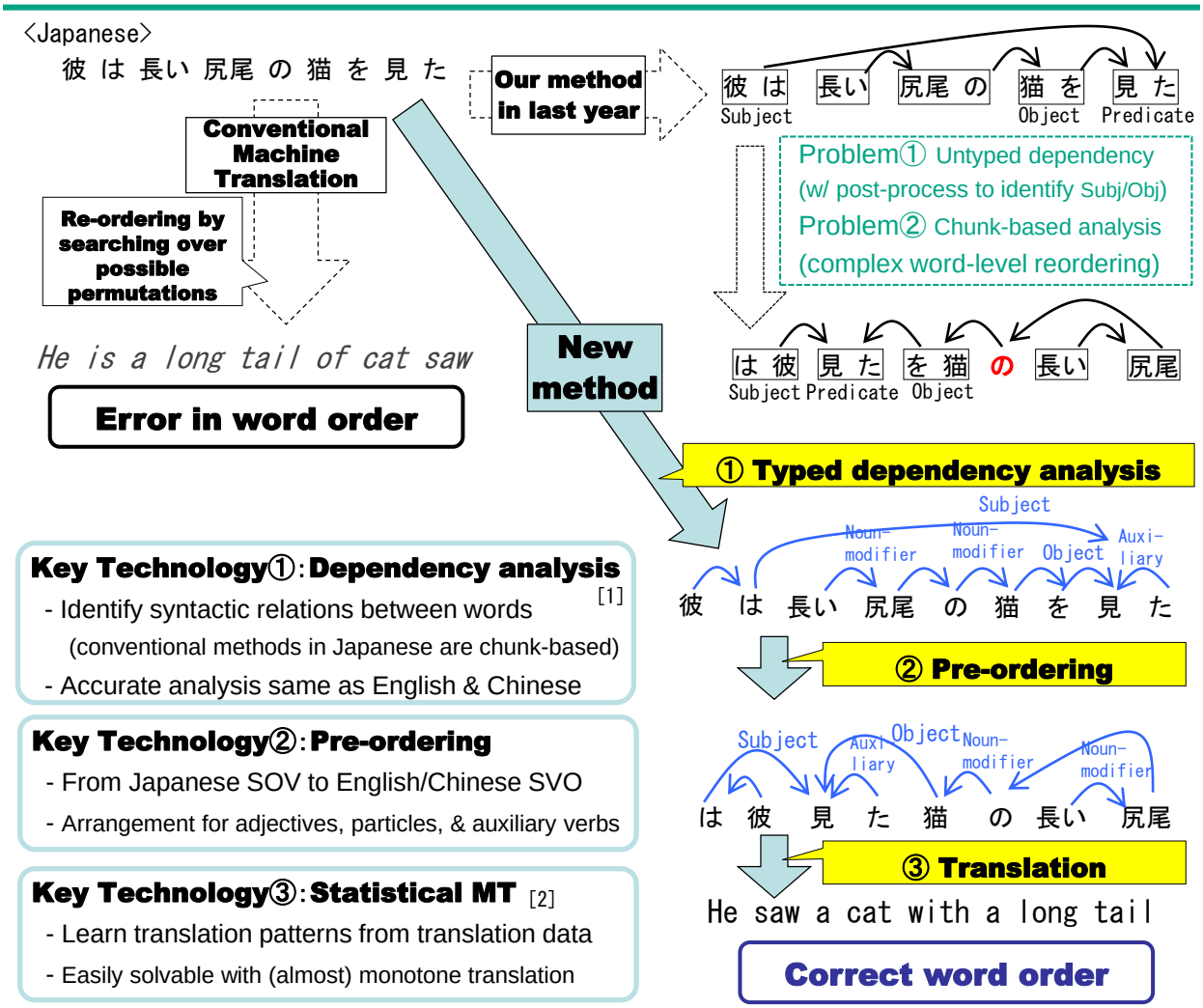
12 Better Japanese understanding helps better translation

～Pre-ordering machine translation by deep syntactic analysis～

Abstract

Word order differences between Japanese and other languages cause serious translation errors by machine translation. We propose a method that reorders Japanese words into English or Chinese word order prior to machine translation, to make the translation easy.

Our key idea: reordering Japanese *subject-object-verb* order into *subject-verb-object* order by deep syntactic analysis. Typed dependency analysis in Japanese to identify syntactic relations between modifier and modifee words. These relations reorder Japanese words and more easily and accurately translate the reordered Japanese sentences into English/Chinese. Such machine translation technologies will ease language barriers in global communication.



Key Technology①:Dependency analysis [1]

- Identify syntactic relations between words
  (conventional methods in Japanese are chunk-based)
- Accurate analysis same as English & Chinese

Key Technology②:Pre-ordering

- From Japanese SOV to English/Chinese SVO
- Arrangement for adjectives, particles, & auxiliary verbs

Key Technology③:Statistical MT [2]

- Learn translation patterns from translation data
- Easily solvable with (almost) monotone translation

Related works

[1] T. Tanaka and M. Nagata, “A Study on Typed Dependency Analysis in Japanese,” in Proc. ANLP, 2015. (In Japanese)
[2] M. Nagata, K. Sudoh, J. Suzuki, Y. Akiba, T. Hirao, H. Tsukada, “Recent Innovations in NTT’s Statistical Machine Translation,” NTT Technical Review, Vol. 11, No. 12, 2013.

Contact

Katsuhito Sudoh Linguistic Intelligence Research Group, Innovative Information Laboratory
E-mail : sudoh.katsuhito(at)lab.ntt.co.jp