

Title	日中翻訳機能を用いた単語チャット・コミュニケーションに関する研究
Author(s)	李, 芬慧
Citation	
Issue Date	2010-03
Type	Thesis or Dissertation
Text version	author
URL	<a href="http://hdl.handle.net/10119/8887">http://hdl.handle.net/10119/8887</a>
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Description	Supervisor: 由井 蘭 隆也, 知識科学研究科, 修士

# **Study of Chat Communication by Sequencing Words between Japanese and Chinese with Machine Translation**

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March 2010

**Keywords:** Chat Communication, Sequencing Words, between Japanese and Chinese

There are increasing opportunities of communication using a foreign language, not a mother language, for most people over the world. The communication is not limited to business, and is diffused to travel and abroad study, etc. This required a common language to communicate with each other, namely, either that one person can use the language that another person can use or that both persons know English as the common language. But, it is very burden and not easy task for most adults to acquire a new language. Especially, they feel difficulty to learn complex syntax and complex pronunciation apart from mother language.

However, Donald Davidson who is an analytic philosopher suggested the principle of charity that the most important principle for human communication is understandability of other person as rationality person talking true, not syntax. For examples: an infant sequences many words to communicate with his or her mother, and the mother thoughtfully reply to her infant; and, in the case of abroad travel, two persons can cooperatively communicate with each other by talking few words. Therefore, we assumed that sequencing words is applicable to human communication.

Looking over the research of intercultural collaboration with information communication technology, there are some researches to support communication between persons using different languages. There are two approaches, using a machine translation or sequencing pictograms. People using the machine translation conscious of knowledge in mother languages, such as syntax and semantics of words, but the people

sequencing pictograms explicitly ignore the knowledge of mother language.

In this research, we estimated the potential of sequencing words using machine translation. This approach falls between the two approaches, because the approach ignores the syntax but uses the semantics of words. For the evaluation, the sequencing words using machine translation in chat system was compared to the conventionally statements in chat system. Eight pairs of Japanese and Chinese participated in these experiments. They used only mother language in the chat communication and its topics of chat were free.

The results of experiments and their analysis showed that; (1) sequencing words in chat conversation was as same speed and same understanding as conventional chat conversation, (2) users liked conventional chat by comparison with sequencing words, (3) the right meaning of words was enough for the chat communication though having a difference of syntax, (4) the response rates of sequencing words was as same as that of conventional chat, and (5) the difference of understanding about translated statements between a Japanese evaluator and a Chinese evaluator was obtained.

In future research, the relationship between evaluators and their mother language will be investigated to consider some cultural effects, which include habit of language use. And, the user interface for sequencing words will be considered on the mobile devices.