

【Grant-in-Aid for Scientific Research(S)】
Humanities and Social Sciences (Humanities)



Title of Project : A field-based cognitive neuroscientific study of the processing of OS-type languages

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Research Area : Linguistics

Keyword : linguistics, foreign language, experimental psychology, neuroscience, Kaqchikel

【Purpose and Background of the Research】

In Japanese, English, and many other languages, sentences are easier to process when the subject precedes the object, as compared to when the object precedes the subject (the SO order preference) (Figure 1).

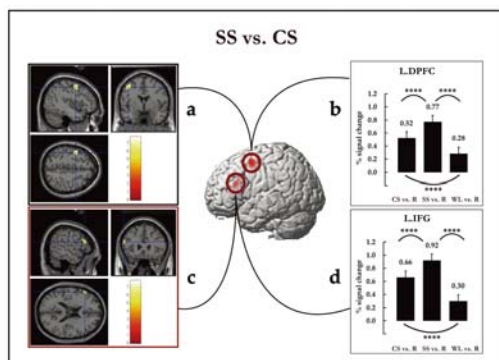


Figure 1: Processing loads modulated by word orders (Kim, Koizumi, et al. 2009)

Previous studies on sentence processing have focused on languages in which the subject precedes the object in the syntactically basic word order (SO-type languages). It is not clear whether the abovementioned SO order preference reflects the syntactically basic word order in particular languages or a universal preference of the human cognitive system.

【Research Methods】

In this study, we aim to understand the nature of the human language faculty by investigating factors affecting word order preferences in the comprehension, production, and acquisition of OS-type languages in general and Kaqchikel Mayan (a language spoken in Guatemala) in particular from the perspective of field-based cognitive neuroscience pertaining to language, combining various research methods from field-linguistics, theoretical linguistics, experimental psychology, and neuroscience.

【Expected Research Achievements and Scientific Significance】

- (1) The faculty of language
By revealing the properties of the human language faculty that are not pronounced

in SO-type languages, the present study will develop a new psycholinguistic theory that is equally applicable to SO and OS-type languages.

- (2) Evolution of language
The present study will help promote research in the origins and evolution of human language through the exploration of language particular properties and linguistic universals.
- (3) Diversity of languages and cultures
Through an analysis of endangered languages, the present study will help promote, protect, and preserve the diversity of languages and cultures globally.
- (4) Field-based cognitive neuroscience
The present study intends to create a new research area that may be called “the field-based cognitive neuroscience of language,” as described above.

【Publications Relevant to the Project】

- Koizumi, M., and K. Tamaoka. (2010) Psycholinguistic evidence for the VP-internal subject position in Japanese. To appear in *Linguistic Inquiry* 41(4).
- Kim, J., M. Koizumi, et al. (2009) Scrambling effects on the processing of Japanese sentences: An fMRI study. *Journal of Neurolinguistics* 22, 151-166.
- Tamaoka, K., H. Sakai, J. Kawahara, Y. Miyaoka, H. Lim, and M. Koizumi. (2005) Priority information used for the processing of Japanese sentences: Thematic roles, case particles or grammatical functions? *Journal of Psycholinguistic Research* 34, 273-324.

【Term of Project】 FY2010-2014

【Budget Allocation】 166,100 Thousand Yen

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