

The effect of semantic constraint and cloze probability on Chinese classifier-noun agreement in aphasia

Chia-Ju Chou, Hsin-Chi Wu, Chih-Ting Chang, Jong-Ling Fuh, Chia-Ying Lee
Institute of Neuroscience, National Yang-Ming University

This event-related potentials (ERPs) study aimed to investigate whether aphasic patients with comprehension deficits are capable of using top-down information to predict or integrate upcoming words. Two levels of classifier constraint strength (strong and weak) and three levels of cloze probability for the pairing noun (high, low, implausible) were manipulated in 120 pairs of Chinese classifier-noun agreements. The aphasic patients (n=16) were subdivided into high and low reading comprehension groups, based on their reading comprehension scores on the subtest of the Chinese Concise Aphasia Test (CCAT). A group of 10 neurologically unimpaired age-matched elders were served as the control group. For the control group, ERPs elicited by the pairing nouns showed a graded cloze probability effect on the N400, no matter the nouns following the strongly or weakly constrained classifiers. The aphasic patients with high reading ability revealed a more reduced cloze probability effect on the N400 for the pairing nouns that followed the strongly constrained classifiers (implausible = low cloze > high cloze). However, there was no difference between high and low cloze probability nouns (implausible > low cloze = high cloze) for pairing nouns that followed the weakly constrained classifiers. For the aphasic patients with low reading ability, their ERP data showed no typical pattern on the N400. Overall, our data suggest that cloze probability effect on the N400 could be used to index the severity of comprehension deficit. The patients with higher reading comprehension scores tend to show greater cloze probability effects on the N400.

NOTE: Partial results had been presented at the sixth annual meeting of the Society for Neurobiology of Language, Amsterdam, Netherlands.