When are Clause-Final Verbs Facilitated in Korean?

The strong head-finality of Korean raises many potential challenges to incremental parsing. In languages like Korean, there is normally no indication of clause structure before the parser encounters the verb or the relative head at the end of the clause. This uncertainty of the clause structure can potentially give rise to the processing difficulty of verbs in head-final languages. Building on previous studies in Japanese ([1,2]), this study presents four experiments (offline and online) to show that there are, however, cases where the processing of clause-final verbs can be indeed predicted and facilitated. One is when the presence of a conditional clause structure and a conditional verb morphology is signaled by the conditional adverb which is licensed only by a conditional-marked verb ([1]). The other is when the upcoming head of a relative clause (RC) is signaled by a numeral classifier ([2]). Once the presence of the relative clause and the relative head is signaled, the verb morphology can be expected because the verb in RCs must bear adnominal morphology (noun-modifying inflection). As the numeral classifier does not have any direct relation with the verb, the observed facilitation for the verb processing in RCs is attributed to the interaction between the expectation of an upcoming relative head noun and the grammatical knowledge that the verb must be inflected for adnominal form in RCs.

Korean conditional if-clauses normally cannot be detected until the clause-final conditional verb is reached, but the optional conditional adverbial manyak may provide a cue for the upcoming verb form. Experiment 1 (sentence completion, n=40) showed that the presence of manyak modulated expectations for conditional verbal morphology. Fragments containing manyak as in (1a) yielded if-clause completions on 97.1% of trials, whereas if-clause completions were extremely rare (0.6%) when manyak was replaced with a non-conditional adverb like always as in (1b).

(1)a./b. NP-top manyak/Adv Adj NP-nom ____

Experiment 2 (self-paced reading, n=40) showed that information from manyak considerably facilitated the processing of conditional verbs online. Reading times at ‘V-cond’ were faster in the manyak condition (2a) than in the adverb condition (2b) (ps<.05). These results indicate that the conditional adverb provides a reliable cue to the upcoming verb form.

(2)a./b. NP-top [if-clause manyak/Adv Adj NP-nom NP-dat NP-acc [V-cond]] NP-acc V.

Likewise, Korean RCs tend not to be detected early due to the head-finality. However, a numeral-classifier can signal the upcoming relative head. The semantic incompatibility between the classifier (e.g., book) and the immediately following subject NP (e.g., student), forces the classifier to be associated with the relative head noun (e.g., book). Thus, if such mismatch happens, the presence of the upcoming relative head noun can be detected. Additionally, in Korean RCs, the embedded verb must be in adnominal (noun-modifying) form. Therefore, if the upcoming relative head is anticipated, the verbal form can also be expected. Experiment 3 (sentence fragment completion, n=40) showed that locally matching vs. mismatching numeral classifiers strongly biased the type completion. In classifier-mismatch conditions (3a) 81.4% of completions involved RCs, contrary to classifier-match conditions (3b) (0.7%).

(3)a./b. 3-classifier(book/human)-gen student-nom ____

Experiment 4 (self-paced reading, n=40) showed that information from mismatching numeral classifiers led to the facilitation for the embedded verb processing. Reading times at the embedded adnominal verb showed a significant facilitation in the classifier-mismatch condition (4a), in sharp contrast to the classifier-match condition (human-student) (4b) (ps<.05).


These findings suggest that the parser utilizes the information in the left context to anticipate the form of the upcoming verb, not only when there is a direct dependency between the verb and the adverb but also when the verb has an indirect relation with the classifier. Thus, this study supports previous arguments in the literature that the parser does not wait until the clause final verb to build the sentence structure even in head-final languages [3].