

The syntactic count/mass distinction in generalized classifier languages: evidence from classifier processing in Korean

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Research on the count/mass distinction has investigated the question of whether generalized classifier languages (i.e., Korean, Chinese) make the count/mass distinction in their grammars^{1,2,3,4} and if it is reflected in the use of the classifier system^{5,6}. Currently, there are two conflicting accounts of the count/mass distinction in these languages. Some^{2,3,7} argue that there is no syntactic count/mass distinction in these languages and that all nouns are mass nouns. In contrast, recent work⁸ claims that there is a count/mass distinction in generalized classifier languages, reflected in the system of classifiers. So far only a few studies have investigated this debate, but the findings are mixed^{9,10} and limited to a single language (Japanese). Using event-related potentials (ERPs), Muller et al. (2015) found effects associated with syntactic processing (P600) for count/mass violations. Kanero et al. (2015), instead, found N400 effects, which are linked to semantic rather than syntactic processing; these were modulated by noun type: such that the effect was bigger for mass nouns with mismatched classifiers than for count nouns with mismatched classifiers. In the current study, we seek to make headway on this debate by focusing on Korean, another generalized classifier language that has not yet been investigated.

Method: Native speakers of Korean (N=30) recruited at the University of Illinois were asked to read and judge the grammaticality of 384 sentences, including 128 critical trials, all of which were presented using rapid serial visual presentation (RSVP). Critical trials contained the construction numeral + classifier + noun shown in (1) where the classifiers and nouns were varied in terms of count/mass. For example, *cang* is a count classifier used for entities such as sheets of paper and pieces of clothing, whereas *can* is a mass classifier referring to containers (cups) holding liquids. We recorded the continuous EEG and extracted ERPs time-locked to the onset of the critical noun. We compared ERPs in two conditions manipulated in a within-subjects design: i) count/mass classifiers matched with nouns as in (1), and ii) count/mass classifiers mismatched with nouns as in (2). Noun type (mass vs. count) was manipulated in a between-subjects design. If native speakers of Korean treat the count/mass distinction as a syntactic dimension, we expect to see a P600 in the classifier-mismatched condition compared to the classifier-matched condition. If, instead, an N400 effect is obtained (similar to Kanero et al., 2015), this would suggest that comprehenders treat the mismatch as semantically unexpected and thus not as a syntactic violation.

Results: We found an increased N400 in the classifier-mismatched condition compared to the classifier-matched condition ($t=-4.72$, $p<.05$; Fig 1). The N400 was not modulated by noun type; neither the effect of noun type (mass vs. count; $t=0.07$, $p>.05$) nor the interaction between grammaticality (matched vs. mismatched) and noun type ($t=-0.72$, $p>.05$) was significant. Further, no significant P600 was observed ($t=-1.53$, $p>.05$). Our finding is consistent with the results of Kanero et al. (2015) and suggests that classifiers are processed primarily semantically, eliciting the N400 effect related to semantic processing, rather than as a syntactic (P600-eliciting) violation.

Conclusion: Our data support claims that the count/mass distinction is not a syntactic property of the classifier system in Korean. Because the findings of this study are consistent with those of Kanero et al. (2015) in Japanese, we suggest more generally that generalized classifier languages do not encode the count/mass distinction in the grammars via the classifier system. Additionally, it is notable that no syntactic effects (P600) were elicited even though the participants were asked to judge the grammaticality of the given sentence after each item, which is known to have tendency to promote the elicitation of syntactic effects (P600). Taking it into account, it can be said that our results provide stronger evidence that Korean native speakers process classifiers at the semantic level, rather than at the syntactic level.

Example Stimuli.

(1) Count, matched condition

Swuyeni-nun onul han cang-uy thisyechu-lul phal-ass-ta.
Suyeon-Top today one **count.cl-Gen** **T-shirt-Acc** sell-Pst-Decl.
'Suyeon sold a T-shirt today.'

Mass, matched condition

Changwu-nun ecey han can-uy kholla-lul ssot-ass-ta.
Changwoo-Top yesterday one **mass.cl-Gen** **soda-Acc** spill-Pst-Decl.
'Changwoo spilled a cup of soda yesterday.'

(2) Count, mismatched condition

Swuyeni-nun onul han can-uy thisyechu-lul phal-ass-ta.
Suyeon-Top today one **mass.cl-Gen** **T-shirt-Acc** sell-Pst-Decl.
'Suyeon sold a T-shirt today.'

Mass, mismatched condition

Changwu-nun ecey han cang-uy kholla-lul ssot-ass-ta.
Changwoo-Top yesterday one **count.cl-Gen** **soda-Acc** spill-Pst-Decl.
'Changwoo spilled a cup of soda yesterday.'

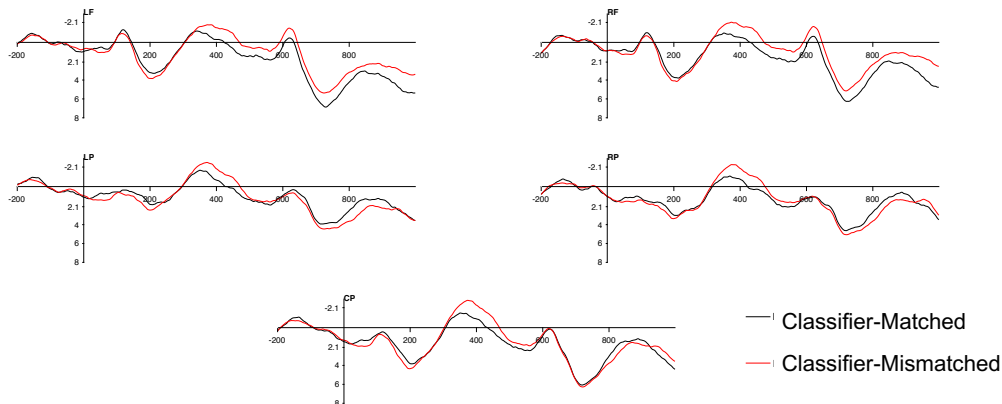


Figure 1. ERP results including both count and mass nouns (LF = Left Frontal electrodes, RF = Right Frontal electrodes, LP = Left Parietal electrodes, RP = Right Parietal electrodes, CP = Central Parietal electrodes).

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