Inflexible structural priming in flexible word order language

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Structural priming, speakers' tendency to reuse a previously used syntactic structure, has been considered a purely syntactic phenomenon. More recently, studies showed semantics, in particular, verb meaning and event structure can also modulate structural priming (Yi & Koenig 2016, Ziegler et al. 2018). This is aligned with one of the major findings in Lexical Semantics that verb meaning determines sentence structure to a great extent (Green 1974). Namely, once a speaker chooses a verb to convey a message, it also determines sentence structure. Thus the overlap in verb meaning facilitates syntactic repetition. Note that these results were obtained mostly in head-initial languages with fairly fixed word order like English. The proposed process is particularly reasonable in this type of language as sentence production unfolds incrementally and a verb occurs early in a sentence.

This study aims to investigate whether verb meaning also modulates structural priming in a typologically different language, i.e. head-final and flexible word order. Speakers produce a verb at the end of a sentence and can change the order of phrases preverbally. We conducted two structural priming experiments in Korean with dative (*give*-type) and source (*receive*-type) constructions that allow syntactic alternations as in (1). They differ in verb meaning but share the same set of syntactic structures and functional markers (i.e. -*eykey* is ambiguous between recipient and source marking). If Korean and English sentence production mechanisms are similar to each other, we expect to find semantic overlap in verb meaning additionally facilitates structural priming as shown in previous studies. If not, we expect different production patterns.

In Experiment 1, we conducted a picture description study where participants read out loud one of four types of prime sentences (*give*-type+struc1, *give*-type+struc2, *receive*-type+struc1, and *receive*-type+struc2) and described a picture which can be interpreted as both *give*- and *receive*-type events. We analyzed the data using mixed-effects logistic regression with subject and item as random variables. We found a significant priming effect in structural manipulation but no effect in semantic manipulation. Speakers produced more struc2 when target pictures were preceded by struc2 than when preceded by struc1 (b=0.72, z<.05) regardless of semantic types. In Experiment 2, we used a different structural priming methodology, i.e. sentence recall and RSVP, to further verify the result of Experiment 1. Target sentences were read in struc1 and preceded by either *give-type*+struc2 or by *receive*-type+struc2. Priming effect was measured by structural shift in target recall. Namely, if priming occurs, prime sentence recalls in struc2 is followed by targets misrecalled in struc2 as well. We found a significant effect in *give*-type primes both when targets were *give*-type (b=4.75, p<.05) and when they were *receive*-type (b=3.74, p<.05), but *receive*-type primes had no effect regardless of semantic types in targets. Again, the result showed no evidence for semantic structural priming in Korean.

The results showed that purely syntactic structural priming effect is robust in Korean while prior processing of verb meaning does not modulate speakers' upcoming structural choice. It suggests that sentence structure is not as strongly linked with verb semantic representations in Korean as in English and also that structural processing is more independent of semantic processing in Korean than in English. Our results agree with the previous finding in Korean sentence processing that speakers do not show verb interference effects, do not initially fixate on the action/verb region of a picture when producing a sentence (Hwang & Kaiser 2014). These results together suggest that sentence production mechanisms underlying Korean are qualitatively different from those for English.
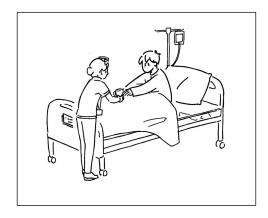
Example Stimuli

(1)   a. *Give*-type verbs

        Structure1 Jisu-*ka*   Sumi-*eykey* gong-*ul*   cwu-*ta*
                       Jisu-NOM Sumi-DAT   ball-ACC give-DECL
        Structure2 Jisu-*ka*   gong-*ul*   Sumi-*eykey* cwu-*ta*
                       Jisu-NOM ball-ACC Sumi-DAT   give-DECL
                       'Jisu gives a ball to Sumi'

    b. *Receive*-type verbs

        Structure1 Jisu-*ka*   Sumi-*eykey*   gong-*ul*   pat-*ta*
                       Jisu-NOM Sumi-SOURCE   ball-ACC receive-DECL
        Structure2 Jisu-*ka*   gong-*ul* Sumi-*eykey*   pat-*ta*
                       Jisu-NOM ball-ACC Sumi-SOURCE   receive-DECL
                       'Jisu receives a ball from Sumi'

(2)   An example target picture in Experiment 1

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