

Effects of verb frequency and L1 transfer in L2 processing of English dative constructions

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Constructionist approaches maintain that an argument structure construction integrates or *fuses* with a verb to contribute to an overall sentence meaning^[1]. While previous studies have shown that first language (L1) and second language (L2) speakers draw upon information from both verbs and constructions to derive a sentence meaning^{[2][3]}, few studies have examined the process of fusion between a verb and a construction in real-time sentence processing. This study investigated how L2 learners integrate verb and constructional meanings in the online processing of English dative constructions. We tested effects of two potentially influencing factors in this integration process – verb frequency and similarities of constructions between learners' L1 and L2. To examine the role of verb frequency, we included either highly frequent verbs (e.g., *give*) or less frequent verbs (e.g., *offer*) in the target constructions. To assess the role of L1 transfer, we presented learners with two types of dative constructions: double object datives (DODs, e.g., *Tom gave Mary a book.*) and prepositional datives (PDs, e.g., *Tom gave a book to Mary.*). These two constructions exhibit different degrees of similarities to their correspondences in Korean, the native language of the learners in this study. The dative construction in Korean is best translated into the English PDs, yet it seldom allows for a double object complement as in the English DODs.

Methods. 13 advanced Korean-speaking L2 learners of English and 7 English L1 speakers (data collection ongoing) completed a self-paced reading task. Materials for the task included 24 English sentences in four conditions by crossing dative construction types (PD vs. DOD) and verb frequency (high-frequency (HF) vs. low-frequency (LF)) (see Table). Task items were presented on a computer screen in a non-cumulative, word-by-word fashion. Each trial began with a series of dashes indicating the position of target words in the middle of the screen, prompting participants to press the spacebar to reveal each word within a sentence. After reading each sentence, participants were asked to respond to a comprehension question by clicking one of the choices on the screen.

Prediction. If verb frequency affects the fusion process, readers will spend longer times for fusion when the sentence includes a low-frequency than a high-frequency verb. If L1 transfer plays a role, L2 readers will spend longer times for fusion in the DODs, which diverge from the Korean dative constructions, than in the PDs, whereas English L1 speakers will show little reading time difference between the two construction types.

Results. Participants' reading times on the critical and spill-over regions (V+1, V+2, V+3, & V+4) were compared across the groups and conditions (see Figure). Linear mixed-effects regression was fitted to residual reading times (log-transformed) in each region, including group (L1, L2), verb frequency (high, low), and construction (DOD, PD) as fixed effects, and participant and item as random effects. Results showed significant effects only in the V+3 region: a main effect of group ($b=-0.22, p=.002$), an interaction between group and construction ($b=-0.12, p=.040$), and an interaction between group and verb frequency ($b=0.13, p=.029$). Separate analyses conducted within each group in this region revealed that, while the L1 group showed only a main effect of verb frequency ($b=-0.10, p=.030$) with longer reading times in the LF than the HF condition, the L2 group showed only a main effect of construction ($b=-0.10, p=.007$) with longer reading times in the DODs than in the PDs. These findings indicate that L2 learners' fusion is affected by constructional similarities between L1 and L2, rather than verb frequency, whereas L1 speakers' fusion is not influenced by the construction types but instead is affected by verb frequency.

Table. Example stimulus for the self-paced reading task

Condition	Region						
	S	V	V+1	V+2	V+3	V+4	V+5
a		<u>gave</u>	the laptop to his girlfriend				
b	The	<u>offered</u>	the laptop to his girlfriend	because	hers	was	broken.
c	businessman	<u>gave</u>	his girlfriend the laptop				
d		<u>offered</u>	his girlfriend the laptop				

Note. Condition a: PD & HF; b: PD & LF; c: DOD & HF; d: DOD & LF

References: [1] Goldberg, A. E. (1995); [2] Bencini, G. M. L., & Goldberg, A. E. (2000); [3] Gries, S. T., & Wulff, S. (2005).