Case marking as a predictive cue in Korean (heritage) speakers' real-time comprehension

Korean is a verb-final language that allows both SOV (default) and OSV order due to case marking. To examine how Korean listeners make use of case marking on the first argument together with verb semantics for anticipating upcoming arguments, we conducted a visual-world eye-tracking experiment adapted from Kamide et al. (2003), who had demonstrated such effects for native speakers of German. We employed prenominal relative clauses (RCs) in Korean, where case marking on the first NP together with the semantics of the verb should allow for prediction of the RC head, which follows both NP1 and the verb (1). In light of previous work showing case marking is a vulnerable property for heritage speakers (HS; Laleko & Polinsky, 2016) and predictive processing may be reduced among HS (Fuchs, 2021; Karaca et al., 2024), we included both native speakers raised in Korea (NSK, Exp1) and HS in the U.S. (Exp2) to further examine the potentially modulating role of language experience.

Participants viewed scenes with four objects (Fig1): NP1 (wolf), a potential agent (hunter), a potential patient (deer), and a distractor (mountain), while listening to subject and object RCs (1). We expected accusative-marked NP1 (*nuktay-**lul***) to increase looks to the agent (hunter), reflected by positive log-ratios ((propagentfix + 0.5)/(proppatientfix + 0.5); Ito & Knoeferele, 2023) in a predictive region from verb offset to onset of NP2, and nominative-marked NP1 (*nuktay-**ka***) to prompt looks to the patient (deer), reflected by negative log-ratios.
Additionally, offline picture-selection tasks assessed participants' knowledge of Korean case and RCs.

Exp1. 20 NSK with limited U.S. residence (1–31 months, *M* = 5.7) showed ceiling performance on the offline tasks. LMER models of their fixation biases revealed a main effect of condition (*β*=.186, *SE*=.006, *t*=3.114, Fig2), with significant agent-bias in subjectRCs (mean log-ratio = 0.184, *p*=.027), but no clear bias in objectRCs (mean log-ratio = -0.0005, *p*=.993). This asymmetry aligns with Kamide et al.'s (2003) findings from German, where predictive effects of case emerged only for easier-to-process structures (SVO, not OVS), and supports findings that Korean subjectRCs are easier to process than objectRCs (O'Grady, 2011).

Exp2. No effect of condition emerged in the data from the 22 HS in the U.S. (*β*=.067, *SE*=.061, *t*=1.104, Fig3). Notably, this group performed more variably on the offline tasks. Yet even when including only data from HS with consistent offline performance (*N*=12, Fig4), the effect of condition remained non-significant (*β*=.104, *p*=.200), with only a numerical trend towards agent bias in subjectRCs (mean log-ratio = 0.162, *p*=.100).

Models of data from both experiments combined (*N*=42) show only a main effect of condition (*β*=.186, *SE*=.060, *p*=.002), with no significant modulation by group (*β*=-.123, *SE*=.085, *p* =.146), potentially due to lack of statistical power. Collectively, these findings indicate that case can be used predictively by speakers of Korean, although reliance on this cue may be attenuated by reduced and/or less consistent language experience, in line with proposals that have identified case as a vulnerable property for HS.

(491 words)

(1) a. SubjectRC ← predictive region→

yeki	*neuktay-lul*	*cwuki-lyeko*	*ha-nun*	*sanyangkkwun-i*	*iss-sup-ni-ta*
here	wolf-ACC	kill-	in order to	do-ADN	hunter-NOM	exist-HON-DEC

"This is the hunter that is trying to kill the wolf."

b. ObjectRC ← predictive region→

yeki	*neuktay-ka*	*cwuki-lyeko*	*ha-nun*	*sasum-i*	*iss-sup-ni-ta*
here	wolf-NOM	kill-	in order to	do-ADN	deer-NOM	exist-HON-DEC

"This is the deer that the wolf is trying to kill."

Figure 1: *Sample of Visual Displays (adapted from Hopp, 2015)*

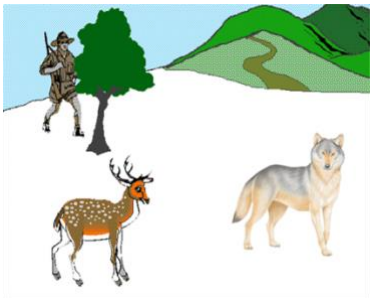


Figure 2: *Proportion of Looks to the Agent vs. Patient (Exp1)*

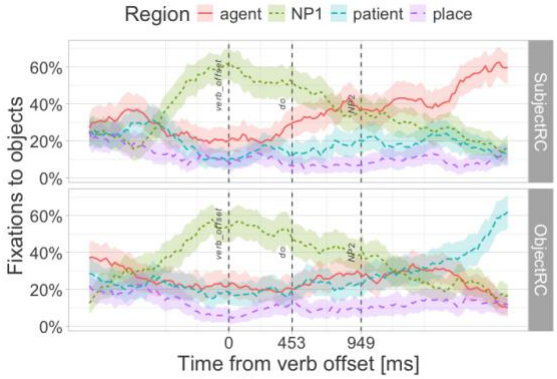


Figure 3: *Proportion of Looks to the Agent vs. Patient (Exp2, n = 22)*

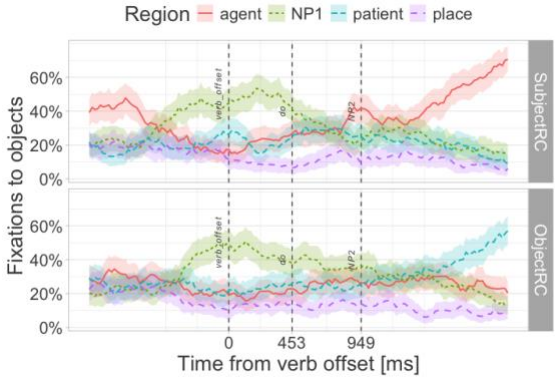
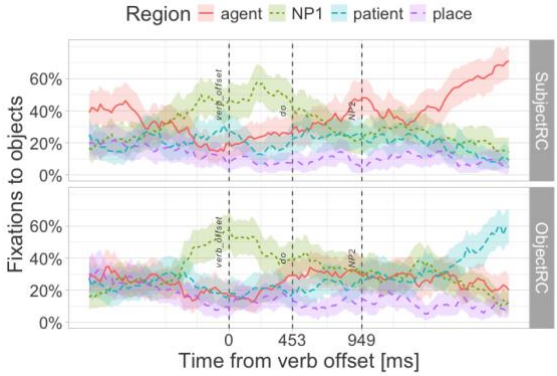


Figure 4: *Proportion of Looks to the Agent vs. Patient (Exp2, n = 12)*



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