

Case Marking Signals more than Structure Building:  
Processing Evidence from Korean Double Nominative Constructions  
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When two nominative marked NPs appear in a row, there is a slowdown in processing at NP2 (Miyamoto 2002) (1). Miyamoto (2002) suggests this difficulty is related to positing a clause boundary. This Clause boundary hypothesis (CBH) is based on the role of case markers in building sentence structure. In head final languages, a predicate with information on the argument structure arrives at the end of the sentence. The parser, however, builds structure with information from case markers. When two NPs cannot be in the same clause as in the case that two nominative NPs appear in a row, a clause boundary is posited at NP2 (cf. Pritchett 1991). Another possibility is that slowdown is due to perspective shift. The Perspective shift hypothesis (PSH) is originally proposed to explain the relative ease of subject relatives like (2; MacWhinney 1982). Under this hypothesis, the subject of a clause determines the perspective of the clause and shifting the perspective of a clause requires processing resources: i.e. whenever the subject of a clause changes, more processing resources are required. In this paper, we present three self-paced reading experiments showing that the perspective shift matters in processing double nominatives.

In Korean, double nominative construction occurs when the referents of NP1 and NP2 are in a close semantic relationship, such as kinship, or whole-part (Na & Huck 1993). Syntactically, NP1 is analyzed as a Major subject of the sentential predicate of which NP2 is the subject (Yoon 2004) (4). In experiment 1, we compare the processing of NP2 when NP1 and NP2 are in nominative case (DN (3)) in contrast with when NP1 and NP2 are in genitive and nominative case, respectively (GE) (2 conditions, n=80 per condition, 32 participants). The prediction by the CBH depends on whether the parser is sensitive to the semantic relation of NP1 and NP2. If sensitive, because the two NPs can appear in the same clause, the parser will not posit a clause boundary at NP2: there will be no slowdown. If the parser is not sensitive, a clause boundary will be posited at NP2: there will be a slowdown. The PSH predicts that there will be a slowdown at NP2 because NP2 is the subject of the inner predicate. The results showed that there was a significant slowdown at NP2 [ $F(1, 31) = 32.11, p < .0001$ ] (DN=1052, GE=783 ms). In addition, there was a significant slowdown at the sentence final word in the DN condition [ $F(1, 31) = 9.86, p < .0034$ ] (DN=674, GE=614 ms). The slowdown at NP2 is consistent with both hypotheses. But with the CBH, we should assume the parser is not sensitive to the semantics (cf. Shin 2005). In addition, the slowdown at the final position would be due to the reanalysis from bi- to mono-clausal structure because of the initial incorrect prediction driven by the two nominative NPs. Conversely, according to the PSH, slowdown at the final word would be due to the perspective shift back to NP1 because at that position, the parser evaluates semantic relation between NP1 and the sentential predicate, realizing that NP1 is the Major subject of it. Therefore, the results from experiment 1 are unable to tease apart the two hypotheses.

We further tested these hypotheses by changing the forty sets of monoclausal sentences in Experiment 1 to biclausal sentences (5). In Condition 1, NP1 and NP2 form a **Double Nominative** construction (DN). In Condition 2, NP1 is marked **Genitive** (GE), and in Condition 3, NP1 and NP2 are the subjects of **Main** and **Embedded** clauses, respectively (ME). At the embedded predicate, which is marked with a complementizer, the CBH predicts that DN and ME will be processed faster than GE. It is because the second nominative NP in DN and ME should have signaled the start of a new clause. Conversely, in GE, there was no warning that the incoming sentence is biclausal. In contrast, the PSH predicts that DN and ME will be harder to process than GE because of the perspective shift back to NP1; NP1 is the Major subject in DN and the subject of main clause in ME. Thus, NP1 determines the perspective at that point. Experiment 2 (3 conditions, n=40 per condition, 32 participants) confirmed the PSH. At the embedded predicate position, DN and ME where NP1 and NP2 are both in nominative case were more slowly read than GE sentences [ $F(1, 31)=5.68, p < 0.02$ ] (DN & ME =570, GE=523 ms).

Experiment 3 was conducted to further test these hypotheses using subject-to-object raising (SOR), as in (6) (cf. Yoon 2004) (2 condition, n = 40 per condition, 35 subjects). In both conditions, W7 starts a new clause since it is preceded by the complementizer *-ko* at W6. Therefore, if postulating a clause boundary induces slowdown, there should be a slowdown at W7 in both conditions regardless of the case markers on the NP. On the other hand, the PSH makes the prediction that the Non-SOR condition will be harder to process than the SOR condition at W7 due to the perspective shift signaled by the nominative marker. Again the PSH was confirmed. The nominative marked NP, W7 in the Non-SOR condition was processed more slowly [ $F(1, 34)=7.56, p < 0.009$ ] (Non-SOR=603, SOR=708 ms). There was no difference at the embedded predicate position [ $F(1, 34)=0.02, p < 0.87$ ] (SOR=566, Non-SOR=565 ms).

In this paper, we presented three self-paced reading experiments, whose results suggested that the PSH more adequately predicts the processing difficulty incurred by multiple nominative-marked NPs. We argue that the slowdown at the second nominative-marked NP can arise due to a change in our attention from one entity to another, regardless of structure building. We do not dismiss the role of case markers in structure building. Instead, we argue that nominative marked NPs are more than simply signals to structure building.

(1) [Andy-ka [Gina-ka aisukhurim-ul cohahanta-ko] mitnun]ta]  
 Andy-NOM Gina-NOM ice cream-ACC like-COMP believes  
 ‘Andy believes that Gina likes ice cream.’

(2) The reporter<sub>i</sub> who \_\_\_<sub>i</sub> harshly attacked the senator admitted the error.

(King and Just 1991: 581)

(3) DN:

ku hoysawon-i tongsayng-i phulo nongkwu-lul culkye ponta.  
 that worker-NOM brother-NOM pro basketball-ACC enjoying see  
 ‘The worker, his brother often watches pro basketball.’

GE:

ku hoysawon-uy tongsayng-i phulo nongkwu-lul culkye ponta.  
 that worker-GEN brother-NOM pro basketball-ACC enjoying see  
 ‘The worker’s brother often watches pro basketball.’

(4) Cheli-ka apeci-ka pwuca-i-si-ta  
 C-NOM father-NOM rich-is-HON-DECL

Major subject Sentential predicate

‘As for Cheli, his father is rich/It is Cheli whose father is rich.’

(5) DN:

[[ku hoysawon-i tongsayng-i phulo nongkwu-lul culkye ponta-ko] Hyekswu-ka malhayssta]  
 that worker-NOM brother-NOM pro basketball-ACC enjoying see-COMP Hyeswu-NOM said  
 ‘Hyekswu said that the worker, his brother often watches pro basketball.’

GE:

[[ku hoysawon-uy tongsayng-i phulo nongkwu-lul culkye ponta-ko] Hyekswu-ka malhayssta]  
 that worker-GEN brother-NOM pro basketball-ACC enjoying see-COMP Hyeswu-NOM said  
 ‘Hyekswu said that the worker’s brother often watches pro basketball.’

ME:

[ku hoysawon-i [tongsayng-i phulo nongkwu-lul culkye ponta-ko] Hyekswu-eykey malhayssta]  
 that worker-NOM brother-NOM pro basketball-ACC enjoying see-COMP Hyeswu-DAT said  
 ‘The worker told Hyekswu that his brother often watches pro basketball.’

(6) ‘After he read an entertainment newspaper, the actor of the soap opera thought that Yujin is the best entertainer at present.’

Non-SOR

[w<sub>1</sub>ku w<sub>2</sub>tulama-uy w<sub>3</sub>paewu-ka [pro w<sub>4</sub>yenye w<sub>5</sub>sinmwun-ul w<sub>6</sub>ilk-ko]  
 that drama-GEN actor-NOM [pro entertainment newspaper-ACC read-and  
 [w<sub>7</sub>Yujin-i w<sub>8</sub>tangtay w<sub>9</sub>choyko-uy w<sub>10</sub>inkiinila-ko] w<sub>11</sub>sayngkakhayssta]  
 Yujin-NOM contemporary the best entertainer-COMP thought

SOR

[w<sub>1</sub>ku w<sub>2</sub>tulama-uy w<sub>3</sub>paewu-ka [pro w<sub>4</sub>yenye w<sub>5</sub>sinmwun-ul w<sub>6</sub>ilk-ko]  
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 Yujin-ACC contemporary the best entertainer-COMP thought

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