



Linguistic Features of Agrammatism in Korean-speaking Individuals with Aphasia

Jee Eun Sung¹, Ph.D., Gayle DeDe², Ph.D., Soo Eun Lee¹, Woon Jeong Kim¹

¹ Department of Communication Disorders, Ewha Womans University, Seoul, Korea

² Department of Communication Sciences and Disorders, Temple University, Philadelphia, PA, USA



Introduction

Linguistic symptoms of aphasia may manifest themselves in very different ways across the languages.

Agrammatism in people with aphasia

- Agrammatic symptoms may manifest differently as a function of cross-linguistic variability.
- Research on Korean-specific linguistic symptoms in aphasia is limited.

Distinctive linguistic characteristics of Korean

- Korean is a predicate-final language.
 - Relative free word order
 - A rich case marking system
- Korean allows linguistic elements to be omitted in a sentence as far as it is predictable from the discourse context.
 - Due to the pro-drop tendency, Korean is often regarded as a predicate-salient language because predicates alone can build a sentence (Sohn, 2013a).

Korean predicates: verbs and adjectives

- Korean adjectives inflect for honorifics, tenses and modality, and thus there are no differences between verbs and adjectives in syntactic morphological inflections (Sohn, 2013a).
- Verb compounding in Korean is very common, and include both serial-verb and auxiliary-verb constructions (Sohn, 2013a).
 - e.g., ‘crawling into’: *kita* (‘crawl’), *tulta* (‘enter’), and *ota* (‘come’) → *ki-e tul-e o-ta*
- Korean speakers very commonly combine verbs in order to add semantic information.
 - e.g., “they are trying to eat” or “they are wanting to eat,” rather than “they are eating.”
 - Mek-a pota* (‘try eating’) instead of “mek-ta”

Hypothesis

- Sung and colleagues (2015) - Korean speakers with aphasia produced more verbs than English speakers with aphasia, resulting in lower noun-verb ratios.
- Noun-verb ratios did not differ for individuals with Broca’s and anomic aphasia in either language group.
- Nonetheless, it is possible that Korean speakers with Broca’s aphasia differ from those with anomic aphasia in their use of other aspects of grammatical morphology, such as case markers.

Purpose of the Study

To determine whether Korean-speaking individuals with Broca’s and anomic aphasia differ in the types of predicates and case markers that they use during picture description tasks.

Participants

Non-brain damaged control group

- 10 age- and education-matched Korean speakers

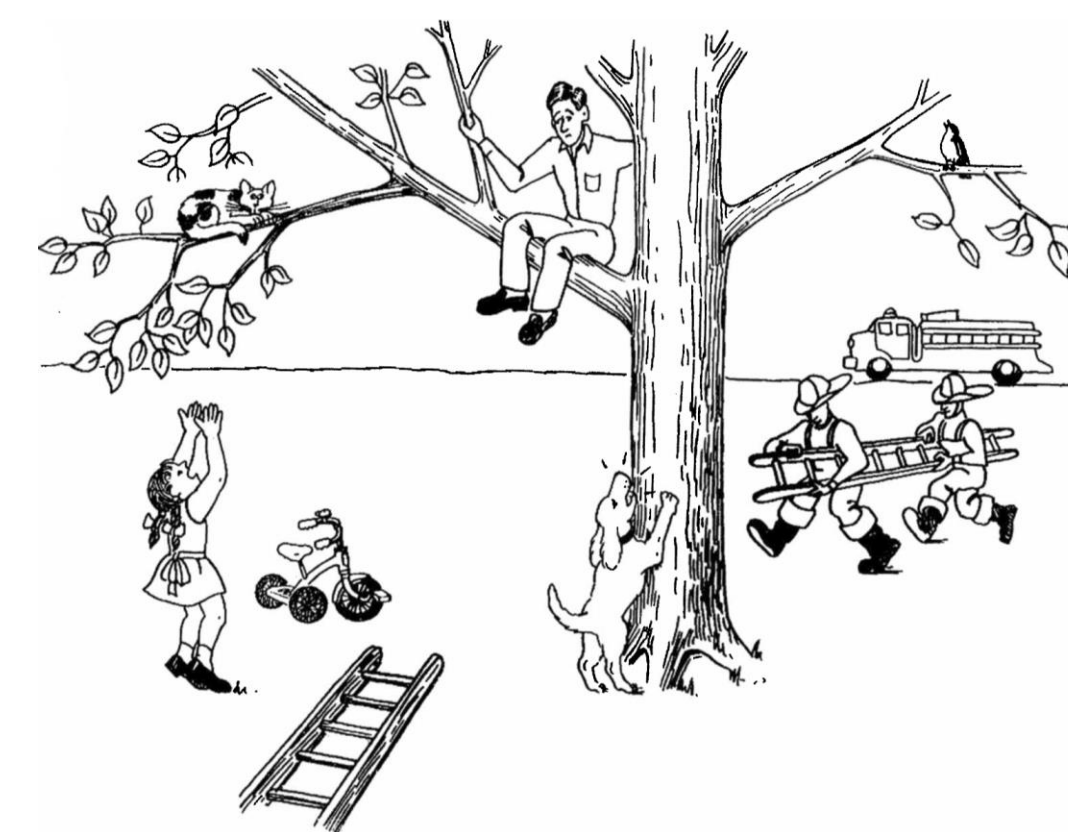
People with Aphasia

- n=19; Broca=9; Anomic=10
- Korean-Western Aphasia Battery (K-WAB) (Kim & Na, 2001)
 - Broca’s AQ: 28.6-61.4
 - Anomic’s AQ: 75.8-94.3

| | Aphasia Quotient | Fluency | Repetition | Naming | Comprehension |
|--------|------------------|----------------|----------------|---------------|----------------|
| Broca | 47.78 (10.87) | 3.67 (0.71) | 4.79 (2.06) | 4.8 (2.42) | 6.21 (2.16) |
| Anomic | 85.5 (5.9) | 7.1 (1.5) | 8.9 (0.9) | 9.0 (0.7) | 9.4 (1.0) |

Experimental Material

Instructions: “Here is another picture. Look at everything that’s happening and then tell me a story about what you see. Tell me the story with a beginning, a middle, and an end.”



Linguistic Analyses

Tokens & Types of Predicates

- (1) Verb only (2) Verb + Aux (3) Verb + Aux + Be copula adjective

Token of Case Markers

- Nominative, Accusative, Others (locative, dative, goal, and sources)

Normalized variables by utterance

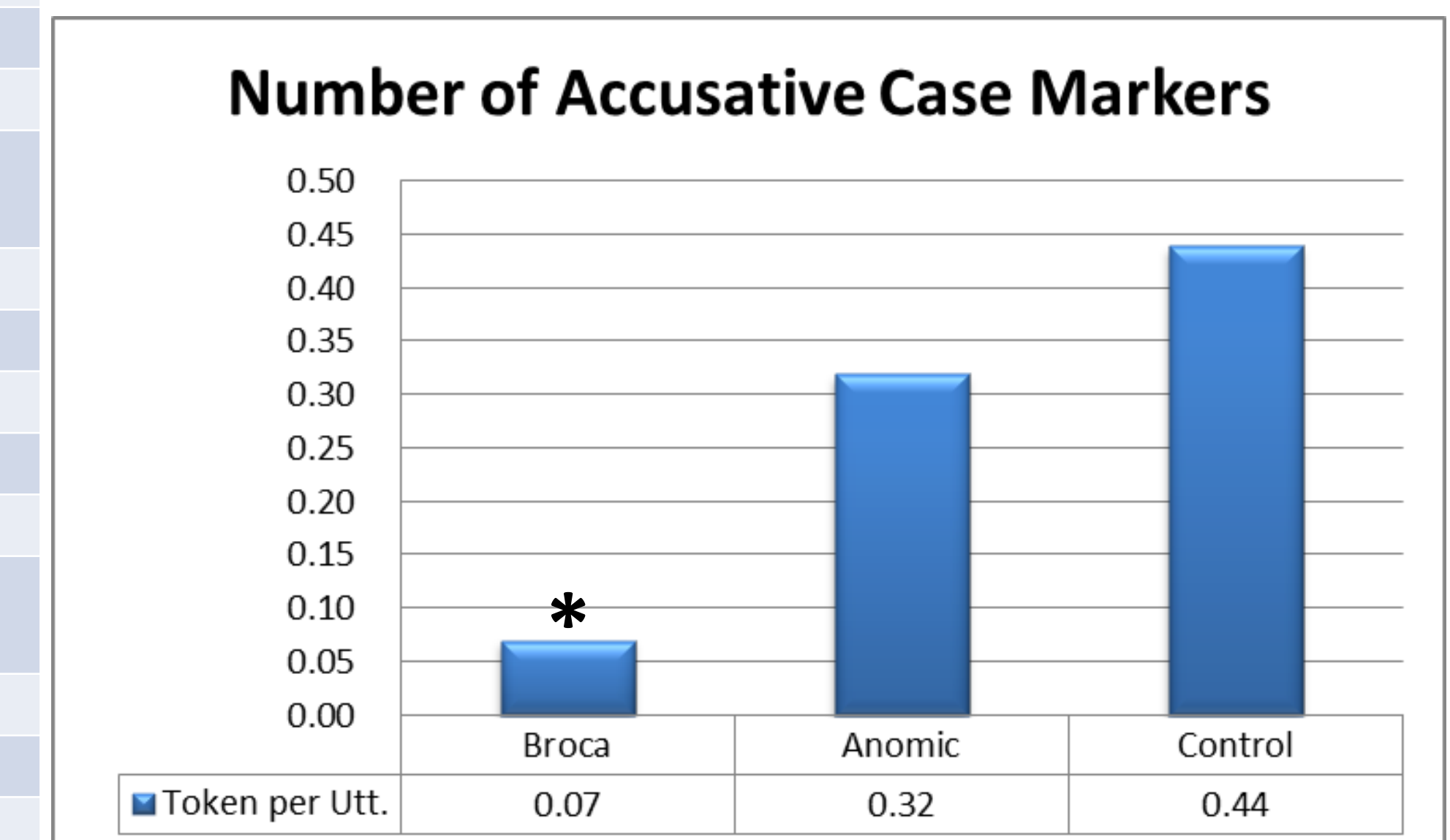
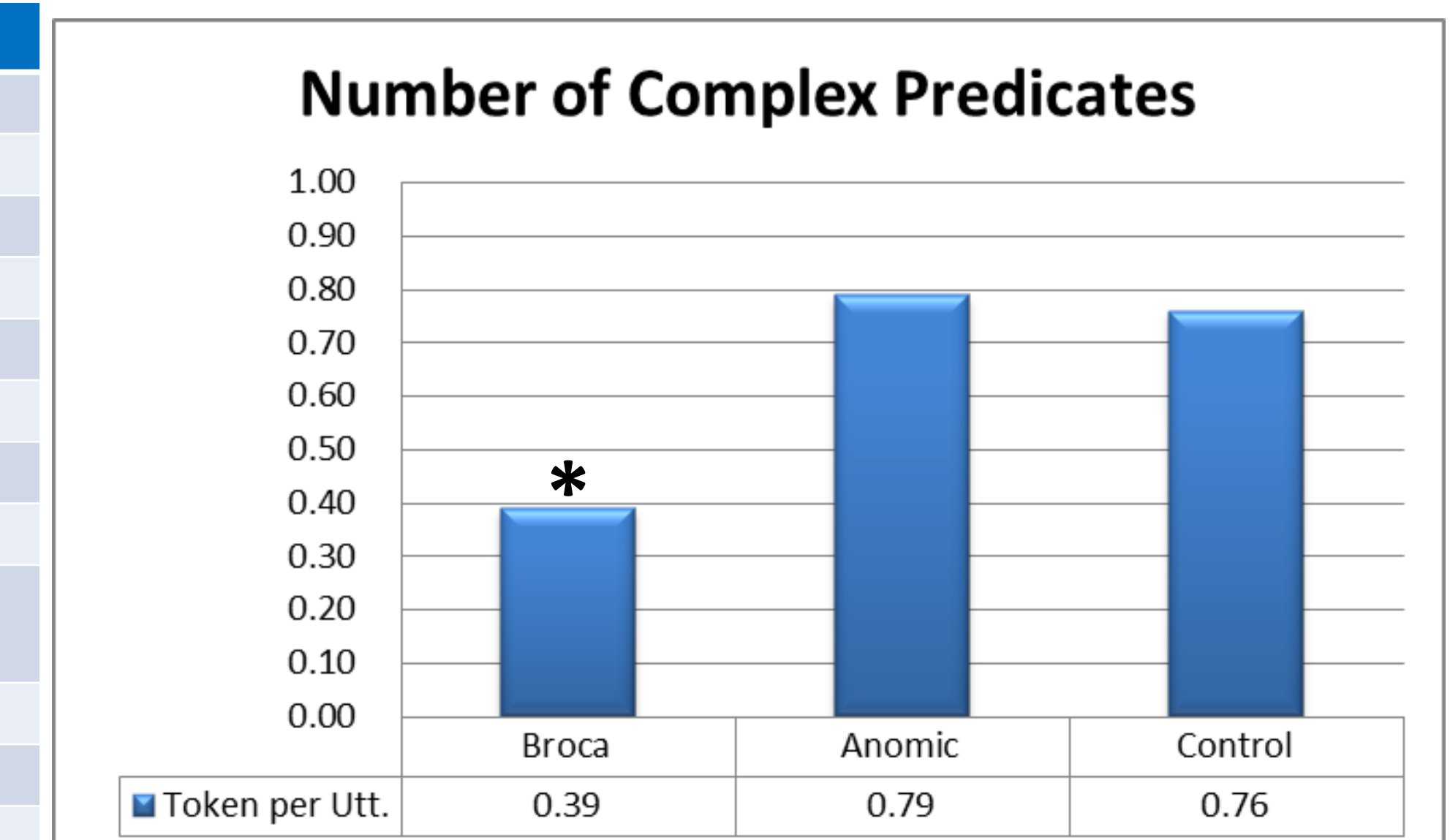
Results

Group (Control, Broca, Anomic) MANOVA

- No Sig. differences in the overall number of utterances
- Sig. effect of group in the number of **complex predicates** (Verb + Aux + Be copula) per utterance, $F(2, 26)=6.021, p=.007$
 - Broca’s aphasia produced fewer than Anomic’s aphasia
 - No sig. differences b/w Anomic and Control
- Sig. effect of group in the number **accusative case markers** per utterance, $F(2, 26)=5.888, p=.008$
 - Bonferroni post-hoc comparisons
 - Broca’s aphasia produced fewer accusative case markers than controls, $p=.007$ and marginally than Anomic group, $p=.091$
 - No Sig. differences b/w Anomic and Control, $p=.820$

| | | Control | Broca | Anomic |
|----------------|------------------|------------|------------|------------|
| Token | Verb only | 5.00(3.12) | 3.56(1.42) | 4.40(2.84) |
| | Vb+Aux | 4.70(2.91) | 2.56(2.40) | 5.20(3.52) |
| | Vb+Aux+Be | 2.40(1.17) | 2.22(2.11) | 2.90(4.01) |
| | Nom. CM | 4.10(1.66) | 4.22(3.60) | 5.50(3.54) |
| | Acc. CM | 2.70(1.95) | 0.56(0.88) | 1.90(1.45) |
| | Other. CM | 3.00(2.49) | 2.00(2.60) | 3.60(2.17) |
| Type | Verb only | 3.80(2.90) | 2.67(0.87) | 3.60(2.46) |
| | Vb+Aux | 3.30(1.77) | 2.33(2.24) | 4.40(3.47) |
| | Vb+Aux+Be copula | 2.40(1.07) | 2.22(0.67) | 2.30(1.34) |
| | Nom. CM | 2.50(0.53) | 2.22(0.67) | 2.60(0.52) |
| | Acc. CM | 1.00(0.00) | 0.33(0.50) | 0.90(0.32) |
| | Other. CM | 2.00(1.56) | 1.11(1.05) | 2.20(0.79) |
| Token per Utt. | Verb only | 0.78(0.42) | 0.49(0.19) | 0.68(0.48) |
| | Vb+Aux | 0.76(0.43) | 0.39(0.41) | 0.79(0.51) |
| | Vb+Aux+Be copula | 0.40(0.23) | 0.27(0.20) | 0.33(0.28) |
| | Nom. CM | 0.67(0.23) | 0.58(0.55) | 0.84(0.44) |
| | Acc. CM | 0.44(0.31) | 0.07(0.12) | 0.32(0.23) |
| | Other. CM | 0.47(0.35) | 0.30(0.43) | 0.60(0.43) |
| Type per Utt. | Verb only | 0.60(0.40) | 0.37(0.18) | 0.55(0.43) |
| | Vb+Aux | 0.55(0.29) | 0.36(0.39) | 0.65(0.49) |
| | Vb+Aux+Be copula | 0.42(0.23) | 0.29(0.09) | 0.38(0.23) |
| | Nom. CM | 0.42(0.15) | 0.31(0.15) | 0.46(0.22) |
| | Acc. CM | 0.17(0.04) | 0.04(0.07) | 0.16(0.09) |
| | Other. CM | 0.31(0.21) | 0.16(0.16) | 0.37(0.20) |

- Vb + Aux: Verb + Auxiliary Verb
- Vb + Aux + Be copula: Verb + Auxiliary Verb + Be copula Adjectives
- Nom. CM: Nominative Case Markers
- Acc. CM: Accusative Case Markers
- Other. CM: Other Case Markers



Discussion

The groups can be differentiated based on the number of words they produce and the complexity of their utterances.

- Broca’s aphasia produced significantly fewer complex predicates per utterance than the anomic group.
- This is consistent with work showing that English speakers with agrammatic Broca’s aphasia produce relatively simple syntactic forms (Bastiaanse & Thompson, 2003).
- Broca’s aphasia produced fewer verbs than controls or individuals with anomic aphasia.
- Controls and individuals with anomic aphasia produced more accusative case markers than individuals with Broca’s aphasia.
- It did not suggest that individuals with Broca’s aphasia omitted obligatory case markers.
- Broca’s aphasia seem to have used fewer accusative nouns.
- Broca’s aphasia produced less complex utterances than those with anomic aphasia.

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Correspondence to:
 Jee Eun Sung, Ph.D. Email: jeesung@ewha.ac.kr
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