

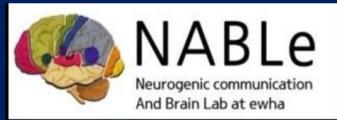


Task-Specific Effects on Crosslinguistic Differences in Nouns and Verbs For Korean and English Speaking Individuals with Aphasia

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

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

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



Introduction

- Linguistic symptoms may differ by language, and aphasic symptoms are likely to be affected by unique linguistic features of the language that individuals with aphasia used premorbidly.
- Language-specific features could influence individual symptoms of aphasia.
- Crosslinguistic comparisons on Korean and English
 - Two languages have contrasting syntactic structures
 - Korean is a verb-final language
 - Following the word order of Subject-Object-Verb (SOV).
 - Predicate is retained at the end
 - other linguistic constituents can be scrambled freely within a sentence (Sohn, 2013)
 - English follows a word order of Subject-Verb-Object (SVO)
 - Relies heavily on word order

- Sung and Colleagues (2015)
 - Korean produced more verb types and more verbs per utterances in a picture description task.
 - However, linguistic symptoms may vary as a function of task types
 - people with aphasia (PWA) showed differential performance as a type of language elicitation tasks (e.g., Deloche, Jean-Louis, & Seron, 1979)

- Types of language elicitation tasks
 - Personal narrative tasks: Carried out with open questions and they can utilize various themes such as talking about the patient's job, interests, or stroke story in a free speech situation (Deloche et al., 1979)
 - Picture description tasks: can be more difficult than delivering personal narratives, given that the picture description carries a more constrained situation (Deloche et al., 1979)

Purpose of the Study

To examine crosslinguistic differences in personal narratives and picture description tasks between Korean and English-speaking individuals with aphasia.

Participants

- A total of 29 aphasic individuals
 - Korean Speakers (n=14; Anomic=5, Broca=3; Conduction=5, Transmotor=1)
 - Korean-Western Aphasia Battery (K-WAB) (Kim & Na, 2001)
 - A single, left hemisphere stroke
 - English Speakers (n=15; Anomic=6, Broca=3; Conduction=5, Transmotor=1)
 - Data from Aphasia Bank (MacWhinney et al., 2011)
 - Matched to Korean speakers by Aphasia Type and Severity (WAB AQ)

	Aphasia Quotient		Fluency		Repetition		Naming		Comprehension	
	Eng	Kor	Eng	Kor	Eng	Kor	Eng	Kor	Eng	Kor
Anomic	88.4 (3.8)	88.1 (5.0)	7.7 (1.4)	7.4 (1.8)	9.3 (0.6)	9.2 (0.7)	8.9 (0.4)	9.0 (0.5)	9.7 (0.5)	9.7 (0.2)
Broca	54.5 (13.7)	53.7 (14.3)	2.7 (1.2)	2.7 (1.2)	5.2 (1.2)	5.3 (2.2)	6.5 (2.2)	5.3 (3.0)	6.6 (2.8)	7.3 (0.3)
Conduction	71.2 (5.0)	71.1 (5.0)	6.4 (1.1)	6.4 (1.1)	5.5 (1.1)	4.8 (2.1)	7.1 (1.7)	8.0 (1.2)	8.5 (1.3)	8.2 (0.6)
TCMA	59.8	53.6	2	3	8.2	5.6	4.8	7	6.9	8.85
Average	74.0 (15.0)	72.2 (15.8)	5.9 (2.4)	5.7 (2.4)	7.1 (2.1)	6.6 (2.6)	7.5 (1.8)	7.7 (2.0)	8.5 (1.8)	8.6 (1.0)

Stimuli: Personal narratives vs. Picture description

- Selected from the Aphasia Bank protocol (MacWhinney et al., 2011)
- Personal narratives task: Participants were asked current status of their speech, stroke and recovery story
- Sequential picture description: 6-cut forgotten umbrella story (Wright & Capilouto, 2009)

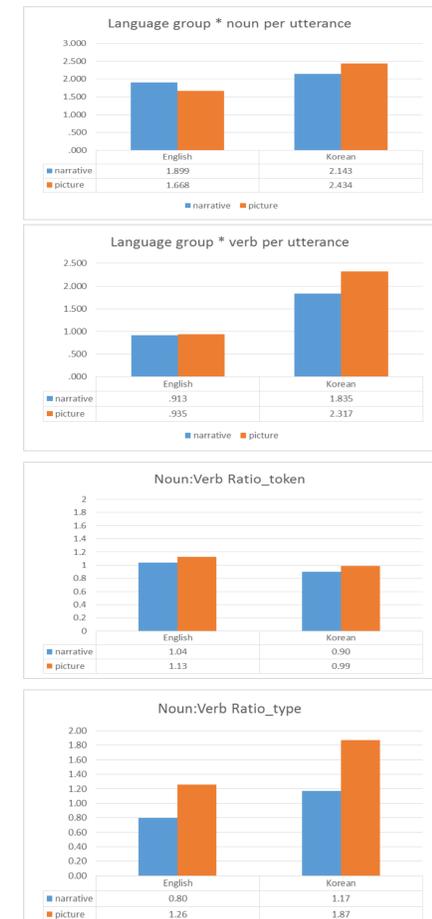


Results

- Two-way Mixed ANOVA
 - Language group x task type
 - Significant main effects of the language group
 - Number of verb type [F(1,27)=7.601, p<.05] (Korean > English), number of nouns per utterance [F(1,27)=5.006, p<.05], number of verbs per utterance [F(1,27)=28.563, p<.0001], tokens for noun-to-verb ratios (NVR) [F(1,27)=130.253, p<.0001] and types for NVR [F(1,27)=123.013, p<.0001]
 - Korean-speaking individuals with aphasia produced greater range of verbs than the English-speaking individuals with aphasia
 - Significant main effects of the task type
 - All the linguistic outcome measures except for number of nouns per utterances and types for NVR.
 - Participants mostly produced more words in the personal narrative task than a sequential picture description task.
 - Significant two-way interaction
 - Number of nouns per utterance [F(1,27)=4.428, p<.05] and number of verbs per utterance [F(1,27)=12.573, p<.005]
 - Showed that the Korean individuals with aphasia produced more words per utterances in sequential picture description than personal narrative tasks

Results

Linguistic Variables	English Speakers		Korean Speakers	
	Mean	Standard deviation	Mean	Standard deviation
# Utterances (narratives)	34.67	27.41	24.29	13.53
# Utterances (picture)	13.33	8.36	9.21	3.89
# noun-token (narratives)	27.47	25.66	39.43	25.61
# noun-token (picture)	10.53	7.32	20.00	9.77
# noun-type (narratives)	19.00	14.87	26.07	15.72
# noun-type (picture)	6.33	3.39	7.93	4.03
# verb-token(narratives)	37.27	42.42	48.43	37.21
# verb-token (picture)	13.47	11.19	22.64	15.27
# verb-type (narratives)	15.53	12.86	30.57	19.69
# verb-type (picture)	8.00	5.78	14.00	7.38
# noun per utterance (narratives)	0.78	0.30	1.58	0.65
# noun per utterance (picture)	0.79	0.26	2.18	0.67
# verb per utterance (narratives)	0.91	0.46	1.84	0.77
# verb per utterance (picture)	0.94	0.39	2.32	0.74
NVR-token (narratives)	1.04	0.70	0.90	0.24
NVR-token (picture)	1.13	1.03	0.99	0.27
NVR-type (narratives)	0.80	0.34	1.17	0.26
NVR-type (picture)	1.26	0.53	1.87	0.86



Discussion

- Difference between language group
 - Korean-speaking individuals with aphasia produced a greater range of verbs than the English-speaking individuals with aphasia Consistent with control data: Korean controls generated more verbs per utterances than English speakers
 - consistent with previous findings from Sung et al. (2015)
- Difference between task type
 - Both language groups produced more numbers of utterances, nouns and verbs in the personal narratives than in the sequential picture description tasks
 - The sequential picture description task is a more constrained way of eliciting connected speech samples, resulting in increasing cognitive demands
- Two-way interaction
 - Number of nouns per utterance; Korean PWA produced greater number of total utterances in the personal narrative tasks than in the sequential picture description tasks
 - Number of verbs per utterance; due to a general pattern of more utterances in personal narrative task than the sequential description tasks
- Study implied that evaluating spontaneous speech using different tasks could reflect an aphasic individual's across the different languages

References

Bates, E., & MacWhinney, B. (1989). Functionalism and the competition model. In MacWhinney, B. & Bates, E. (Eds.). *The crosslinguistic study of sentence processing*, Cambridge Press, 3, 73.

Deloche, G., Jean-Louis, J., & Seron, X. (1979). Study of the temporal variables in the spontaneous speech of five aphasic patients in two situations, interview and description. *Brain and language*, 8(2), 241-250.

Lee, Y. M., & Kim, H. H. (2001). An Utterance Analysis of Conversations and Picture Description Tasks on Korean Adults. *Communication Sciences & Disorders*, 6(1), 40-52.

Sohn, H. M. (2013). *The Korean Language*. Korea University Press.

Sung, J. E., Lee, S. E., & DeDe, G. (2015). Crosslinguistic Differences in a Picture Description Task between Korean and English Speaking Individuals with Aphasia. *Clinical Aphasiology Conference*, Monterey, CA.

MacWhinney, B., Fromm, D., Forbes, M., & Holland, A. (2011). Aphasia Bank: Methods for studying discourse. *Aphasiology*, 25, 1286-1307.

Kim, H. & Na D. (2001). Korean version-The Western Aphasia Battery, K-WAB. Seoul: Paradise Welfare Foundation.

Nicholas, L. E. & Brookshire, R. H. (1993). A System for Quantifying the Informativeness and Efficiency of the Connected Speech of Adults with Aphasia. *Journal of speech and hearing research*, 36(2), 338

Wright, H. H., & Capilouto, G. J. (2009). Manipulating task instructions to change narrative discourse performance. *Aphasiology*, 23(10), 1295-1308.

Correspondence to:
 Jee Eun Sung, Ph.D. Email: jeesung@ewha.ac.kr
 Acknowledgment: Supported by BK-plus