Language-Specific Effects on Story and Procedural Narrative tasks between Korean-speaking and English-speaking Individuals with Aphasia

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Introduction

It is important to understand crosslinguistic differences in language impairment in aphasia, given that aphasia symptoms may vary depending on the linguistic characteristics of the language that individuals with aphasia used premorbidly (Bates & Wulfeck, 1989). Language-specific symptoms need to be considered for evaluating language impairment in aphasia. Korean, as a verb-final language, follows a canonical word order of Subject-Object-Verb (SOV), whereas a canonical word order for English is Subject-Verb-Object (SVO). Relative to English, Korean is a verb-salient language, given that verbs constitute a sentence as a core linguistic unit often with subject-deletion phenomenon (Sohn, 1999). The current study investigated crosslinguistic differences in story narrative and procedural discourse tasks between Korean speakers and English speakers with aphasia to examine crosslinguistic differences in aphasic symptoms.

Methods

A total number of 30 individuals with aphasia (15 Korean- and 15 English-speaking individuals) participated in the study. They had a single, left-hemisphere stroke. Korean participants were diagnosed as aphasia based on the Korean version of Western Aphasia Battery (K-WAB) (Kim & Na, 2001). Data of English-speaking participants were obtained from "Aphasia Bank Project" (MacWhinney, Fromm, Forbes, & Holland, 2011). Two groups were matched by type and severity of aphasia. Tasks were employed from Aphasia Bank Protocol. Tasks for English speakers included 'Cinderella' as a story narrative and 'peanut butter and jelly sandwich' as a procedural discourse task. Due to the cultural differences between the two languages, we used a Korean traditional folk tale called 'Hungpu wa Nolpu (Hungpu and Nolpu)' as a story narrative and 'making Ramen (noodle soup)' as a procedural discourse task. Linguistic outcome measures included number of tokens for nouns and verbs, number of different types for nouns and verbs, number of nouns per utterance, number of verbs per utterance, verb-to-noun ratio for token (VNRs).

Results

Two-way mixed ANOVAs (language group x task type) revealed significant main effects of the language group for number of verbs type [$F(1,28)=4.971$, $p<.05$], number of verbs per utterance [$F(1,28)=23.795$, $p<.001$] and VNRs [$F(1,28)=50.072$, $p<.001$]. The results suggested that Korean speakers produced more verbs and higher. Main effects for the task type were significant for all the linguistic measures except for VNRs, indicating participants generally produced more words in the story narrative. There was a significant interaction for the types of verbs [$F(1,28)=4.451$, $p=.05$]. A two-way interaction was significant for nouns per utterance [$F(1,28)=14.740$, $p=.01$]. The interaction was due to the pattern that English speakers produced

more nouns per utterance in a procedural task, whereas Korean speakers showed the opposite pattern with more nouns in a story narrative.

Discussion

Results suggested that Korean-speaking individuals with aphasia produced more numbers of different verbs, number of verbs per utterance and higher VNRs than English speakers. Both groups generated more words in story. The significant two-way interactions between the language group and task type suggested that there are task-specific effects on linguistic measures across the groups. The study implied that the linguistic characteristics differentially affected language symptoms of aphasia across the different languages and task types.

Figure 1

Language Group	#Verb type (story)	#Verb type (procedural)	Noun/Utt. (story)	Noun/Utt. (procedural)	Verb/Utt. (story)	Verb/Utt. (procedural)	VNR (story)	VNR (procedural)
English-speakers average	7.80	4.13	1.52	1.99	0.73	0.59	0.46	0.26
SD	4.89	5.25	0.48	0.81	0.40	0.41	0.17	0.11
Korean-speakers average	14.07	5.60	1.69	1.28	1.38	1.53	0.87	0.93
SD	8.49	2.35	0.62	0.48	0.58	0.53	0.40	0.47

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