Analysis of Conversational Features Related to Transactional Success of Persons with Aphasia Using Transcription-less Coding Method

Introduction

In recent years there has been an increasing interest in the language of persons with aphasia in conversation. Improving communicative success in conversation is an important goal of rehabilitation because it the ability to engage in conversation has been shown to impact quality of life. However, objective measurement and analysis of conversation is a cumbersome process that is generally not possible in clinical situations. This study sought to identify behaviors within conversation that are related to conversation success using a more efficient method of coding.

Methods

Participants. A total of 18 individuals with aphasia (10 female and 8 male) and 72 non-brain-damaged individuals (66 female and 6 male) with typical communication participated in this study. All participants were native English speakers and non-brain-damaged individuals had no experience interacting with someone with aphasia.

Aphasia severity, as measured by the *Aphasia Diagnostic Profile* (*ADP*; Helm-Estabrooks, 1992), ranged from a standard score of 80 to 119 (M = 100, SD = 10.33). These participants presented with a variety of aphasia types; Broca's (n=4), conduction (n=4), borderline fluent (n=3), mixed nonfluent (n=3), anomic (n=2), and transcortical motor (n=1). Ages ranged from 26 to 78 years (M = 56.89; SD = 14.36), and time post onset ranged from 6 to 178 months (M = 63.38; SD = 54.92). Sixteen participants incurred their aphasia as a result of a cerebral vascular accident, and the remaining two participants acquired their aphasia as a result of traumatic brain injury.

Procedures Used for Gathering Conversation Data. Data used in the current investigation was originally gathered by Ramsberger and Rende (2002). Each participant with aphasia viewed four randomly-ordered episodes of *I Love Lucy* series*: Lucy is Pregnant* (Oppenheimer, Pugh, & Carroll, 1989a), *Bonus Bucks* (Oppenheimer, Pugh, & Carroll, 1991), *Pioneer Women* (Oppenheimer, Pugh, & Carroll, 1990), and *Job Switching* (Oppenheimer, Pugh, & Carroll, 1989b) and engaged in four conversations with four different conversation partners. Conversation partners participated in only one conversation over the course of the study and were unfamiliar to the individual with aphasia.

Participants with aphasia were introduced to a conversation partner immediately after watching an *I Love Lucy* episode. The non-aphasic partner was informed that the person with whom they would be conversing had a communication disorder and that they would be conversing about an episode of *I Love Lucy*. Each conversational dyad was also told that they were to work together to discuss the episode of *I Love Lucy* and that the objective of their conversation was for the communicative partner to retell the story at the conclusion of the conversation. Participants were allowed to use all means of communication (verbal and non-verbal) and no time limits were set.

Transactional success was determined at the end of the interaction when the conversational partner was asked to retell the *I Love Lucy* episode. Story retellings were compared to a predetermined list of story units. The transactional success score for each participant with aphasia was determined by the total number of correct story units included in the retellings of the four *I Love Lucy* episodes.

Transcription-less Coding Procedures. Conversational data from Ramsberger and Rende (2002) were preserved on VHS videotapes. These videotapes were digitized and converted to a Quick Time Pro movie format. Coders were asked to code the conversation while directly watching video clips rather than from written transcriptions. To increase coding reliability, the first author watched all of the conversations and identified time frames that contained behaviors to be coded. Coding forms were created using File Maker Pro software and were individualized to include the specific time frames of interest in each of the 72 conversations.

Six features of the conversations (in six major categories) were identified as being of potential interest through a review of the literature and in a preliminary investigation (Marie & Ramsberger, 2007):

1) Use of personal and demonstrative referent markers by person with aphasia
    a. % correct personal referents
    b. % correct demonstrative referents
    c. % correct all referents
2) Repair
    a. Repair initiated by person with aphasia
    b. Repair initiated by conversation partner
    c. Requests for clarification by conversation partner
    d. Rephrases by conversation partner
    e. % Correct answers by person with aphasia to Yes/No questions
    f. % Correct answers by person with aphasia to WH-questions
3) Introduction of story characters, time and settings
4) Changes in story characters, time and settings
5) Introducing major story elements in correct chronological order, and
6) Mentioning correct main ideas within major story elements

Coders watched each conversation two times; first coding for feature categories 1-4 and then for categories 5 & 6. Using the looping feature of QuickTime Pro software, the coder pinpointed each time frame of interest within the conversation and repeated this segment as many times as needed before making a coding decision. Coders were free to refer to the original *I Love Lucy* episodes to confirm the accuracy of information conveyed in conversations. Definitions of the conversation features and coding instructions were readily available to coders via links on coding forms. Coders independently coded an equal number of conversations for each aphasic participant and each episode. Inter-rater reliability for all six features was conducted after every fifth conversation (14 or 20% of the conversations) over the course of the coding period.

Training of Coders. Two graduate students in the Speech, Language, and Hearing Sciences Department served as paid coders for this investigation. Coders watched the four episodes of *I Love Lucy* prior to beginning training to become familiar with the stories. Training began by describing the verbal and nonverbal communicative features under investigation and explaining the coding rules of each feature. Examples and coding practice were provided. Coders and the first author then independently coded training videotapes and discussed coding disagreements. Training on the coding procedures continued until the two coders reached an inter-rater reliability level of at least 85% on a novel conversation. Training and determination of inter-rater reliability were carried out on conversations that were not used for analysis purposes in this study.

Results

Inter-rater/intra-rater reliability. Intra-rater reliability of time frames identified for coding was measured on five randomly chosen conversations and point-to-point agreement for each conversation varied between 88% and 96%. During the coding procedure, point-to-point inter-rater reliability measures were gathered after each five conversations were coded (fourteen conversations). Inter-rater reliability varied between 85% and 94% for all of the indices for the six features and no additional training or recoding was deemed necessary.

Descriptive statistics. See Table 1.

Correlation Analyses. Pearson's correlations were first carried out between measures of conversation features and transactional success. Correlations above r = 0.85 were considered "strong". Correlations between r = 0.60 and 0.85 were considered "moderate", and correlations below r = 0.60 were considered "weak". See Table 2.

Discussion

Results will be discussed in terms of possible explanations of the observed correlations, the benefits of transcription-less coding for analysis of conversational discourse, and future research directions suggested by the findings of this investigation.

References

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Table 1. Descriptive Statistics of Conversation Features

				Skewness		Kurtosis	
Conversation Feature	N	Mean	SD	Statistic	Std. Error	Statistic	Std. Error
Transactional Success	18	20.50	14.45	.26	.536	-1.01	1.04
% correct personal referents	18	48.89	29.98	-.77	.536	-.72	1.04
% correct demonstrative referents	18	55.02	39.45	-.65	.536	-1.55	1.04
% correct all referents	18	52.02	31.07	-.92	.536	-.58	1.04
Repair initiated by person with aphasia	18	4.44	5.55	2.81	.536	9.45	1.04
Repair initiated by conversation partner	18	193.61	85.84	-.23	.536	-.86	1.04
Request for clarification by conversation partner	18	2.39	4.31	3.71	.536	14.87	1.04
Rephrase by conversation partner	18	38.89	37.37	2.02	.536	4.95	1.04
% correct answers by person with aphasia to Yes/No questions	18	79.39	12.32	-.789	.536	-.586	1.04
% correct answers by person with aphasia to WH-questions	18	38.61	30.04	.519	.536	-.638	1.04
Introductions of story characters, time and settings	18	6.11	3.14	.371	.536	1.58	1.04
Changes of story characters, time and settings	18	13.22	11.94	.585	.536	-.366	1.04
Introducing major story elements in correct chronological order	18	8.72	6.05	-.114	.536	-1.526	1.04
Mentioning correct main ideas within major story elements	18	20.22	14.40	1.65	.536	-1.278	1.04

Table 2. Correlations Between Conversation Features and Transactional Success

Conversation Feature	Correlation with Transactional Success	Significance (Two-tailed)	Strength of Correlation
% correct personal referents	r = .701	p = .001	Moderate
% correct demonstrative referents	r = .504	p = .033	Weak
% correct all referents	r = .665	p = .003	Moderate
Repair initiated by person with aphasia	r = .224	p = .371	Weak
Repair initiated by conversation partner	r = -.071	p = .779	Weak
Request for clarification by conversation partner	r = -.044	p = .863	Weak
Rephrase by conversation partner	r = .415	p = .087	Weak
% correct answers by person with aphasia to Yes/No questions	r = .657	p = .003	Moderate
% correct answers by person with aphasia to WH-questions	r = .708	p = .001	Moderate
Introductions of story characters, time and settings	r = .340	p = .168	Weak
Changes of story characters, time and settings	r = .713	p = .001	Moderate
Introducing major story elements in correct chronological order	r = .951	p = .000	Strong
Mentioning correct main ideas within major story elements	r = .932	p = .000	Strong