Analysis of First-Encounter Conversations of Right-Hemisphere-Damaged Adults

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The study of discourse has a long history in the field of speech-language pathology (Ervin-Tripp, 1979; Prutting & Kirchner, 1987; Sarno, 1969; Taylor, 1965; Ulatowska, North, & Macaluso-Haynes, 1981; Yorkston & Beukelman, 1980). Research in narrative and procedural discourse focuses on the examination of coherence and content in monologues, whereas conversational discourse emphasizes the dyadic interaction in turns (Duncan & Fiske, 1985; Searle, 1976). Conversational analysis provides an important vehicle through which to examine functional communication. Unfortunately, although narrative and procedural discourse have received much attention, there is little applied research on conversation (Stover & Haynes, 1989).

A limited number of studies have employed conversational analysis methods with brain-injured populations. Wambaugh, Thompson, Doyle, and Camarata (1991) compared conversations of six aphasic individuals to those of a control group (60 adults) and found that aphasic individuals displayed a variety of conversational skills, many of which differed considerably from the control groups. Conversational studies of cognitively impaired adult populations have employed a variety of elicitation procedures, measurements, and both familiar and unfamiliar partners, making comparisons of results difficult (Coelho, Liles, & Duffy, 1991; Mentis & Prutting, 1991; Penn & Cleary, 1988; Ripich & Terrell, 1988). However, the results of these studies generally seem to indicate that individuals with traumatic brain injury (TBI) and dementia produce more turns and words in their conversations. TBI individuals appear to be more passive participants, allowing the partners to direct the conversation, whereas individuals with dementia are frequently judged as being incoherent (Coelho et al., 1991; Ripich & Terrell, 1988).

Research on conversational characteristics of individuals with right hemisphere damage (RHD) is extremely limited. Descriptions of conversational management skills of the RHD group have been anectodal and include poor topic maintenance and termination, cohesion deficits, tangentiality, verbosity, poor eye contact, and inadequate prosody (Gianotti, Caltagirone, Miceli, & Masullo, 1981; Myers, 1986; Ross, 1981). Although these descriptive terms are useful clinically, they do not lend themselves to quantitative investigation. No studies have quantified the topic skills and turn-taking skills observed in this population's dyadic interactions.

PURPOSE

The purposes of this study were: (1) to identify and compare the dyadic interaction in turns between RHD and non-brain-damaged (NBD) groups; (2) to investigate the degree to which RHD and NBD individuals' conversation exhibits specific topic manipulation and turn-taking skills during first encounters; and (3) to examine the individual RHD subjects' patterns of performance in conversation.

METHOD

Subjects

Twelve RHD adults and 11 NBD adults served as the experimental and control groups. The RHD subjects were acute rehabilitation inpatients whose speech intelligibility was adequate for conversational discourse. Many of the RHD subjects demonstrated mild to moderate speech deficits, such as inadequate prosody and reduced vocal quality. All RHD subjects had been screened by a speech-language pathologist and had been referred for a complete communication evaluation and treatment program. Their mean time post onset was 3 months, and all had experienced a single cerebrovascular accident (CVA) in the right hemisphere resulting in a left-sided hemiparesis or hemiplegia. Subjects who had experienced hemorraghic and subcortical CVAs were included in the study, because the behavioral information from the communication screening did not indicate that their deficits were uniquely different from those who had experienced cortical thromboembolic CVAs. At the time of data collection, none of the RHD subjects had received discourse therapy. The NBD group matched the RHD group in age and years of education. No

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Table 1. Characteristics of (RHD) Subjects

Subj.	Age (years)	Education (years)	Months post onset	Gender	Left neglect	Initial communication screening language/ cognition deficits
1	50	12	3	M	mild	mild/mod.–mild
2	45	14	1	F	min/mild	mod.–mild/mod.–mild
3	51	08	2	F	moderate	mild/mod.–mild
4	42	13	1	F	none	mod.–mild/mod
5	52	12	2	M	mod./sev.	mod/severe
6	33	14	2	M	moderate	mod.–mild/mod
7	61	12	3	F	severe	mod.–mild/mod
8	46	12	3	M	none	mod.–mild/ mod. sev.–mod
9	57	10	1	F	moderate	mod.–mild/mod.–sev.
10	39	14	12	M	mild	minimal/mild
11	38	14	2	M	moderate	mild/mod.–sev.
12	48	12	2	M	moderate	mild/mod.
Mean	46.8	12.25	3			
SD	7.9	1.7				

subjects in the study had a history of drug or alcohol abuse, seizures, or periods of unconsciousness. All subjects' primary language was English, and all had visual and hearing acuity adequate for speech communication purposes. Descriptive data are presented in Tables 1 and 2.

Procedure

The experimental protocol consisted of a first-encounter conversation between each subject and one of four certified speech-language pathologists or one trained graduate student in speech pathology who served as conversational patterns. Standardized instructions were given to the subjects and guidelines given to the therapists prior to their meeting:

Instructions to subjects: I would like you to meet someone that you have not met before. She's a therapist here and I would like you to get to know her. This is not an interview, so she doesn't have a list of questions to ask you. She'll just talk with you to try to get to know you, too. A tape recorder will be used.
Guidelines to therapists:
1. This is not an interview. Converse as you would with anyone you have met for the first time. Allow the partner to initiate topics.

Table 2. Characteristics of Non-Brain-Damaged (NBD) Subjects: Age in Years, Years of Education, and Gender

Subject	Age	Education	Gender
1	30	14	F
2	38	14	F
3	48	13	F
4	31	12	F
5	47	12	F
6	25	14	F
7	41	14	M
8	36	14	M
9	39	12	F
10	60	14	M
11	49	11	M
Mean	40.3	13.0	
SD	9.9	1.0	

2. Converse freely, giving your opinion and personal experiences so that the subject can get to know you.
3. Do not take notes during the conversation, but be a full participant.

Each subject was taken into a quiet room that contained a sofa, coffee table, and chair and was introduced to the clinician, whom the subject had not met before. The two were left alone to converse. A tape recorder was placed in an inconspicuous location. The clinician introduced a familiar topic typical of first encounters, such as "Do you live around here?" or "What do you do for a living?" (Kellermann, Broetzmann, Tae-Seop, & Kenji, 1989). After 12–15 minutes of audiotaped conversation, the clinician brought the conversation to a close.

Method of Analysis

Conversational parameters selected as dependent variables were organized into two broad categories: topic skills and conversational turn-taking skills. These dependent variables are part of a larger analysis called the *Adult Conversational Analysis Tool* (ACAT) and are summarized here (Kennedy, Burton, & Peterson, 1990):

Topic skills
Introduce: to bring up a topic in the conversation for the first time
Maintain: to continue with the same topic identified in the previous utterance without adding any additional information; to restate

Expand: to maintain the topic while incorporating additional information or details

Shade: to subtly shift the topic by adding new or detailed information

Reintroduce: to bring up a topic that has already been introduced

Terminate: to end a topic in conversation by explicitly bringing it to a close

Turn-taking skills

Represent: to make a statement as an assertion or conclusion of fact or opinion

Direct: to express an indirect or direct request for information or for action

Express: to make a statement that communicates a psychological state or emotion

Acknowledge: to produce an utterance that communicates that the listener heard or understood the speaker

Commit: to make a statement that indicates that the speaker will do something in the future

Each subject's conversation was transcribed using a turn-by-turn approach. The following characteristics were used to identify turns and are based on sequential-production (Sacks, Schegloff, & Jefferson, 1974) and signaling models (Duncan & Fiske, 1985). Turns were identified by

1. a period of silence by the speaker signaling the relinquishment of the turn;

2. an intonational change by the speaker signaling the relinquishment of the turn;

3. the taking of a turn, or interruption, in the absence of a signal by the speaker;

4. the grammatical completion of an ideational unit or strings of ideational units; or

5. one-word utterances such as "yes," "oh," "uh-huh," if occurring with characteristics 1 or 2 (see Stover and Haynes, 1989, for rationale).

The middle eight minutes of the conversation were extracted from the tape recording to avoid the highly ruled-governed introductory and closing phases of the first encounter. This portion of the recording was transcribed by three of the four authors. Individual turns were counted, and each turn was coded by type of topic skill (introduce, maintain, expand, etc.) and type of turn-taking skill (represent, direct, express, etc.). Results were then converted to percentages of total turns, to eliminate the variability of the number of turns in each conversation.

Reliability

To ensure interjudge coding agreement, 21% of the original transcripts were selected randomly. Two investigators, other than the original coder, coded the transcript, resulting in three analyses per transcript. Using turn-by-turn agreement in coding, judges reached 88% agreement for topic skills and 95% agreement for turn-taking skills.

RESULTS

The results of between-group comparisons are reported first, followed by individual profile data for the RHD group. To compare group data, a Mann-Whitney U test (Bruning & Kintz, 1977) was used to determine the presence of statistical differences. Table 3 provides the group mean percentages for the total number of turns and for each topic and turn-taking skill, as well as standard deviations and the U values for each.

The RHD group's conversations contained significantly more turns than the conversations of the NBD group. To determine whether an inverse

Table 3. Parameter Occurrence as Percentage of Total Turns

| Parameters	NBD[a]		RHD[a]		
	mean	sd	mean	sd	U value*
Topic skills					
Introduce	.8	.4	.81	.7	59.5
Maintain	35	9.5	41	10.8	45
Expand	51	7.8	46	10	46.5
Shade	13	5.7	10.6	7.6	40
Reintroduce	0	0	1.7	2.6	48
Terminate	0	0	0	0	0
Turn-taking skills					
Represent**	81	5.3	86	10.5	32
Direct**	9	4.7	3.5	.8	21
Express	2.7	2.8	4.6	5.1	55
Acknowledge	7	3.9	5.5	.4	48.5
Commit	.27	.8	.5	1.4	49
Total turns**	31	6.2	45	8.9	12

[a]NBD = non-brain-damaged; RHD = right hemisphere damaged.
*Using a two-tailed test, the critical value of U at alpha > .05 was 33 or less for the difference to be significant (N_1 = 12; N_2 = 11).
**Significant differences present between groups on Mann-Whitney U test ($p < .05$).

relation existed between the number of turns in the conversation and the number of words per turn, a post-hoc analysis was performed. The number of words per turn was counted, averages were obtained for each subject, and using a Mann-Whitney U test, the number of words per turn for the two groups was found to be significantly different (U value = 23). In the RHD conversations, the subjects' mean words per turn was 15.8, whereas the therapists' mean words per turn was 9.9. However, in the NBD conversations, turns were longer, as is demonstrated by the subjects' mean words per turn of 25.8 and the therapists' mean words per turn of 13.7.

None of the topic skill parameters statistically differentiated the groups. In turn-taking skills the RHD group produced significantly more representative statements than the NBD group. The parameter of direct statements (requests for information) also statistically differentiated the two groups. The RHD group made significantly fewer requests for information (direct statements) than did the NBD group (see Table 3).

Figure 1 displays a comparison of the topic skills of the two groups using group mean percentages. Overall, the patterns of topic skills were
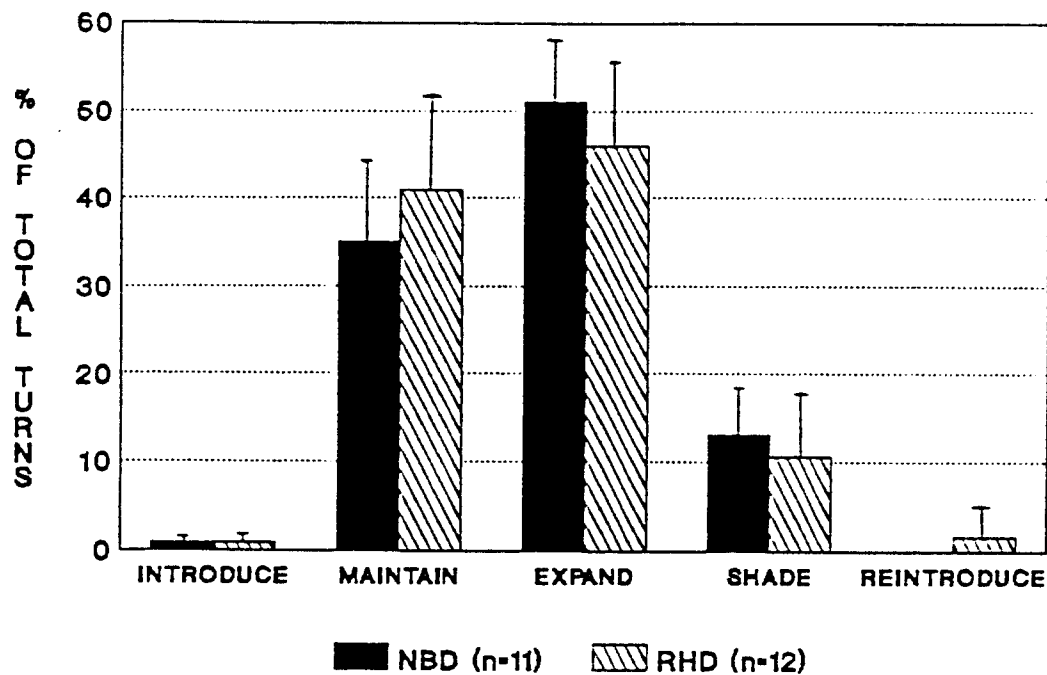
Figure 1. Group mean percentages of the total number of turns for each topic skill parameter for the non-brain-damaged (NBD) and right-hemisphere-damaged groups. (The bars indicate standard deviations. Terminating the topic was not displayed as neither group used this strategy.)

similar, although the standard deviations of the RHD group were larger than those of the NBD group (Table 3). It is interesting to note the frequency with which particular parameters occurred in both groups. Topics were expanded most frequently by both groups, although the NBD group used this strategy more than the RHD group did. Maintaining topics, which is a simpler strategy, was used more frequently by the RHD group than by the NBD group. Topics were changed in these first encounters by shading, which the RHD group used less than the NBD group. Topics were never reintroduced by the NBD group, whereas a third of the RHD group (4 out of 12) used this strategy.

Figure 2 displays a comparison of the turn-taking skills of the groups using group mean percentages. Representative statements (facts, opinions, etc.) dominated this category as subjects shared information about themselves. However, the RHD group produced significantly more representative statements than did their NBD counterparts. In requesting information demonstrated by direct statements, the RHD group used this strategy significantly less than the NBD group did. The other statement categories occurred infrequently and did not statistically differentiate the groups.
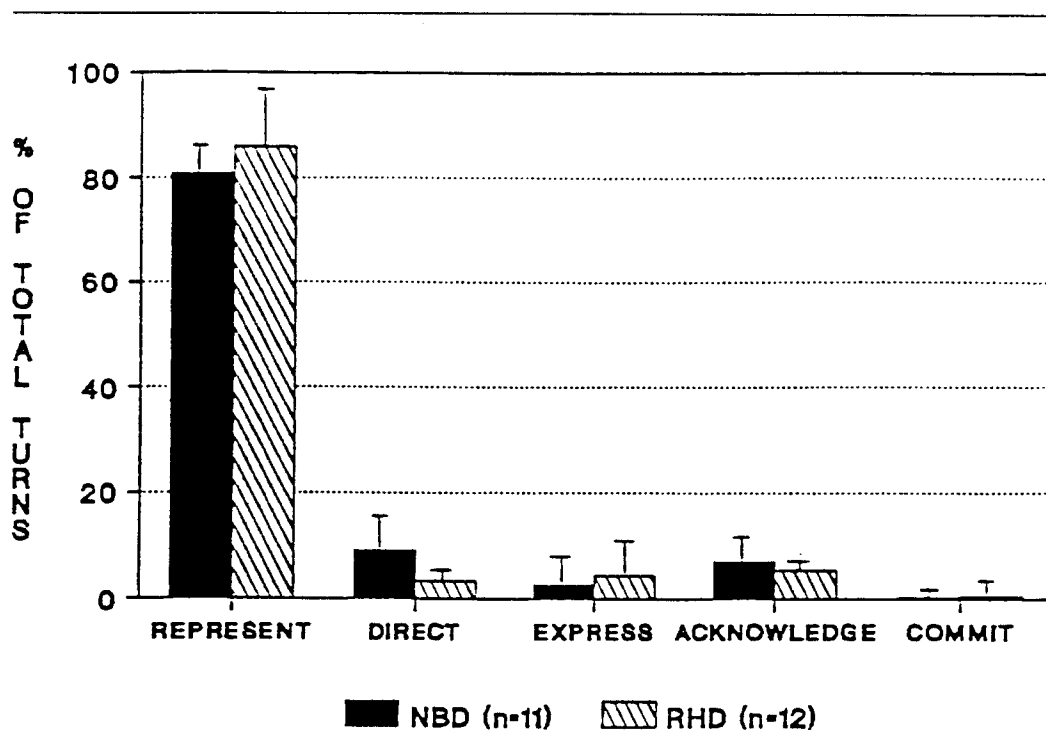

Figure 2. Group mean percentages of the total number of turns for each turn-taking skill parameter for the non-brain-damaged (NBD) and right-hemisphere-damaged groups. (The line bars indicate standard deviations.)

Table 4. Total Turns and Percentage of Total Turns for Each Topic and Turn-Taking Skill Parameter for Every RHD Subject

Parameters	Subjects											
	1	2	3	4	5	6	7	8	9	10	11	12
Topic skills												
Introduce	0	0	0	0	0	2[a]	2[a]	6[a]	0	0	0	0
Maintain	56[a]	32	57[a]	60[a]	37	40	30	45	44	24	33	37
Expand	36[a]	39	35[a]	40	58	50	50	40	45	65[a]	37[a]	5
Shade	8	22	6	0[a]	5	8	18	7	11	11	27[a]	5
Reintroduce	0	7[a]	2[a]	0	0	0	0	2[a]	0	0	3[a]	0
Terminate	0	0	0	0	0	0	0	0	0	0	0	0
Turn-taking skills												
Represent	88	92[a]	66[a]	96[a]	98[a]	75	91[a]	62	91[a]	91[a]	88	93[a]
Direct	0[a]	0[a]	6	2	2	9	5	6	2	4	6	0[a]
Express	5	4	14[a]	2	0	2	2	16[a]	5	0	6	0
Acknowledge	7	4	14	0[a]	0[a]	10	2	16[a]	0[a]	5	0[a]	7
Commit	0	0	0	0	0	4[a]	0	0	2[a]	0	0	0
Total turns	59[a]	28	49[a]	42[a]	40	52[a]	44[a]	55[a]	45[a]	55[a]	33	43[a]

[a]Values ≥ 2 standard deviations above or below the non-brain-damaged group's mean.

Because of the variable performance across parameters in the RHD group, it is perhaps more useful clinically to examine individual profile data demonstrating strengths and weaknesses in conversational skills. Tables 4 and 5 provide individual data in percentages of the total turns for each of the topic skills and turn-taking skills. Each RHD subject's profile is different from the others'. Figure 3 exemplifies this by comparing profiles of three RHD subjects. The NBD group mean is shown as 0 on the y-axis. The standard deviation from the normal group mean is represented by the bars. Each subject will be described individually.

CR (Subject 11) manipulated topics by shading while not expanding enough. He switched topics frequently without elaborating on them. The acknowledgments category was the only potentially problematic area in turn-taking skills. EC (Subject 4), however, used a more limited repertoire of parameters. Topic manipulation was characterized by redundant and repetitive maintenance and little topic shading. Turn-taking skills were limited to an overabundance of representative statements and infrequent acknowledgments. Likewise, there were many turns in her conversation as she relied on the partner to carry the conversation while she remained a passive participant. RG (Subject 3) excessively maintained topics while not expanding on them. In her turn-taking skills, she made emotional statements in the form of expressives, which inversely affected the frequency of representative statements. RG's conversation contained many turns.

Table 5. Total Turns and Percentage of Total Turns for Each Topic and Turn-Taking Skill Parameter for Every NBD Subject

Parameters	Subjects										
	1	2	3	4	5	6	7	8	9	10	11
Topic skills											
Introduce	0	0	0	0	0	0	0	4	3	0	0
Maintain	36	27	32	28	18	44	52	46	27	39	36
Expand	50	55	49	63	55	44	35[a]	43	62	53	52
Shade	14	18	19	9	27[a]	10	10	7	8	8	12
Reintroduce	0	0	0	0	0	0	0	0	0	0	0
Terminate	0	0	0	0	0	0	0	0	0	0	0
Turn-taking skills											
Represent	79	82	83	72	82	73	78	86	81	83	88
Direct	18	9	11	9	9	15	13	4	8	6	0[a]
Express	3	0	3	6	0	0	0	7	3	0	8
Acknowledge	0[a]	9	3	13	9	12	6	3	8	11	4
Commit	0	0	0	0	0	0	3[a]	0	0	0	0
Total turns	28	22	37	32	22	41	31	28	37	36	25

[a]Values ≥ 2 standard deviations above or below the non-brain-damaged group's mean.

DISCUSSION

The finding that the RHD subjects took significantly more turns than the NBD group is consistent with the findings of other conversational studies on individuals with TBI and dementia (Coehlo et al., 1991; Ripich & Terrell, 1989). One explanation for this finding is the inverse relationship between the number of words per turn and the total number of turns in the conversation. The RHD subjects produced far fewer words per turn than the NBD subjects. The therapists allowed the subjects in both groups to set the pace, as indicated by the relative adjustment in the length of their turns (shorter turns with the RHD subjects and longer turns with the NBD subjects). Therefore, it appears that although some RHD subjects' conversations contained proportions of topic skills and turn-taking skills similar to the NBD subjects', this was accomplished with less elaboration.

During these first-encounter conversations, some RHD individuals were likely to ask fewer questions of their partners and talk more about themselves than their NBD counterparts. For these individuals, the more they talked about themselves, the less they requested information from their partners. Additionally, some of the RHD subjects used the simpler topic skills of maintaining and reintroducing the topic. Instead of asking a
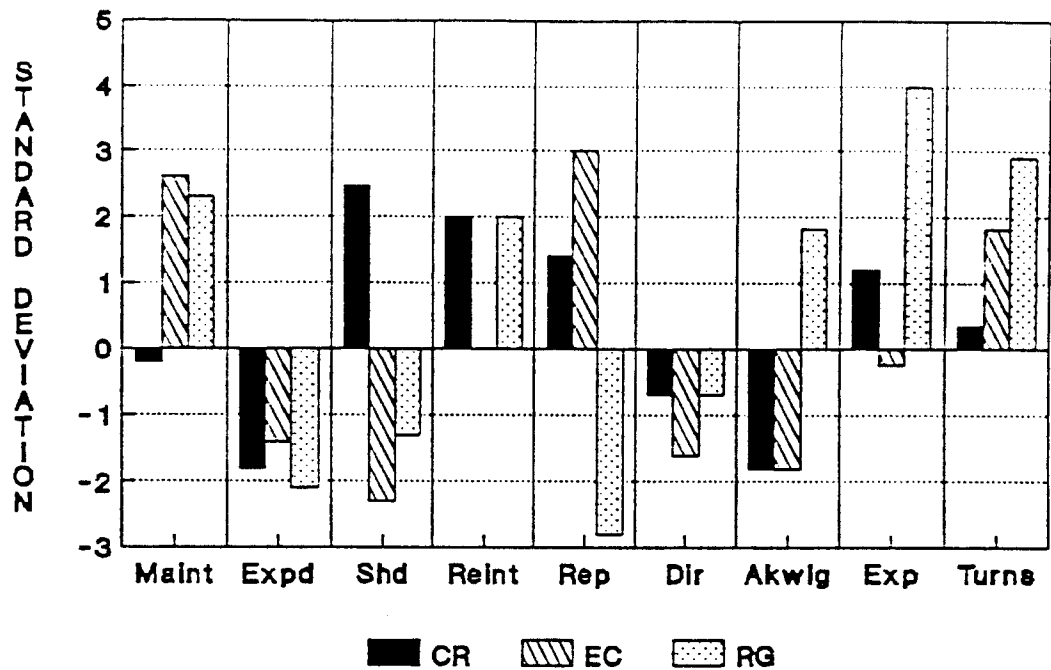
Figure 3. Conversational profiles for three right-hemisphere-damaged subjects. (CR = Subject 11; EC = Subject 4; RG = Subject 3. The non-brain-damaged [NBD] group mean is shown as 0 on the y-axis. The standard deviation from the NBD group mean is represented by the shaded bars. Bars with values below 0 indicate the number of standard deviations below the NBD group mean. Bars with values above 0 indicate the number of standard deviations above the NBD group mean.)

question of their partner, they relied on these two simpler strategies. For these subjects, perhaps there were more turns because their strategies had become simplified and thus required fewer words.

The fact that the various topic skill parameters did not differentiate the NBD and RHD groups is intriguing, given the anecdotal descriptions of topic skills in the literature. One explanation may be related to the use of the turn as the unit of analysis regardless of its length. The turn is sensitive to various turn-taking skills, but topic manipulation may require a smaller unit of analysis, such as the propositional unit recommended by narrative researchers (Joanette & Goulet, 1990). Conversely, however, the coherence skills of cognitively impaired individuals may provide more information regarding overall topic organization than a finer level of analysis would allow (Glosser & Deser, 1990). These two types of analyses warrant further investigation.

The group data from this study should be interpreted with caution. First, as indicated by the large standard deviations within the RHD group,

some RHD individuals are severely limited in their conversational skills, whereas others are close to the norm. Second, the small size of both groups in this study makes it difficult to draw conclusions about the populations in general. Third, the groups may have differed in their perceived social relationship to the communication partner. Although both subject groups were aware that the partners were speech-language pathologists, the RHD subjects may have assumed a more passive role in the conversation because they might not have perceived the partner as being on equal ground. Nevertheless, though this perceived inequity might have been a factor, it should have applied across the board. The NBD subjects were all individuals who were employed at the hospital in clerical, maintenance, or therapy assistant positions. Thus, there was also an unequal social relationship between the NBD subjects and the speech pathologist partners. An additional control group of non-brain-damaged patients would be needed to resolve this issue. Finally, the gender proportion in the RHD and NBD groups was slightly unequal. Tannen (1990) indicates that men and women differ in their conversational styles, particularly in the use and comprehension of indirect requests. To determine whether there were conversational differences between men and women in this study, a post hoc analysis was performed on all the dependent measures using the Mann-Whitney U test ($p > .05$). No significant differences were found.

The above discussion highlights the point that studies using small groups to investigate conversational skills are difficult to interpret. Future research should focus on large group studies of normal and neurologically impaired populations to document various conversational patterns. Longitudinal studies should also be implemented to investigate communicative skill in conversation. Examination of dyadic discourse during disease progression (e.g., for Alzheimer's patients) and during periods of spontaneous recovery of cognitively impaired patients will lead to a better understanding of how these conversational deficits affect communication efficiency and the ability to complete communicative intent.

This study illustrates the clinical importance of examining individual profile data in planning treatment. Although these profiles identify specific communication patterns, they do not indicate *how* conversational skills have changed as a result of a CVA. Interviews with family members and the use of a communication inventory to determine the individual's premorbid conversational style could provide clinicians with useful information from which to make comparisons. Perhaps instead of identifying a conversational impairment based on group normative data, it would be more clinically useful to identify a conversational impairment based on premorbid conversational style.

Continued research in dyadic conversational discourse in neurologically impaired individuals is clearly warranted. Through such work, clinical researchers will be better able to identify communicative impair-

ment and plan appropriate treatment. Further, this research will facilitate continued refinement of models of pragmatic/language performance.

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