



CONVERSATIONAL DISCOURSE ANALYSIS AS A METHOD FOR EVALUATING PROGRESS IN APHASIA: A CASE REPORT

LARRY BOLES

Department of Speech Pathology and Audiology, University of Hawai'i, Honolulu, Hawai'i

The gains made by a woman with Broca's aphasia as documented by traditional measures were paralleled by changes in conversation, including increased verbal output and efficiency, and changes in conversation repair patterns. Her conversational partner decreased her verbal output, as predicted. The progress documented with conversational discourse analysis was not observable from other test measures. Clinical and theoretical implications are discussed. © 1998 by Elsevier Science Inc.

Educational Objectives: The reader will learn the method of conversational discourse analysis (CDA), an application of the method in evaluating therapeutic change, advantages and disadvantages of using CDA, and implications for further clinical applications.

KEY WORDS: Aphasia; Conversation discourse analysis

INTRODUCTION

Aphasiologists document the progress of their patients with standardized measures. However families are more interested in the ability to converse than they are with aphasia quotients or z-scores. This study describes the progress made by an individual with Broca's aphasia with several inferential measures, including a conversational discourse analysis. A therapy program was implemented using a conversational partner of the patient. This involvement comprised direct training by the speech-language pathologist to the conversational partner such that the partner became the direct therapy provider.

Non-Standardized Measures in Aphasia Treatment

It is not uncommon for speech-language pathologists to note gains in their patients that are not observable from standardized test results. This is not sur-

Address correspondence to Larry Boles, Ph.D., Assistant Professor, University of Hawai'i, Department of Speech Pathology and Audiology, 1410 Lower Campus Rd., Honolulu, HI 96822. Telephone: (808) 956-5490; fax: (808) 956-5482; e-mail: <boles@hawaii.edu>.

prising, as most standard measures focus on patients' verbal responses to specific questions, elicited in didactic style. That is to say, standardized tests sample language performance, whereas many of the gains realized in therapy may be in communication in a broader sense.

In a recent study using 10 individuals with aphasia and community volunteer communication partners, Lyon et al. (1997) reported statistically significant gains in well-being, communication, and other informal measures, despite a lack of improvement on standardized measures. The therapy methods employed by Lyon and colleagues involved two phases. First, successful communication strategies were designed and implemented for use by both the aphasic individual and the communication partner in the clinic. The second phase comprised the implementation of those strategies in pre-planned activities in the community and at the subjects' homes. Lyon et al. argued that standardized measures of language lacked the sensitivity and specificity to capture the treatment gains sought in their study. The measures used in that study went beyond communication impairment however, extending to the subjects' sense of self and their overall handicap resulting from the stroke.

The study by Lyon et al. (1997) raises the issue of how best to characterize the improvement made by patients when the therapy goals have less to do with linguistic performance and more to do with communicative competence. The measures used by these authors sampled self-perception of well-being and communication readiness and use. Other methods for assessing therapeutic gains include "functional" communication tests, such as the *Communicative Abilities in Daily Living* (Holland, 1980) and the *Functional Communication Profile* (Sarno, 1969), which are intended to sample more life-like communication situations. However, none of these measures directly addresses the issue of how performance in conversational interaction changes during therapeutic intervention. One method for capturing these effects would be a conversational discourse analysis.

Conversational Discourse Analysis

Conversational discourse analysis (CDA) is a more direct way to make inferences about conversational performance, and recent reports have made use of that level of analysis (Besnier, 1989; Boles, 1996, 1997a; Ferguson, 1994; Fujiki, Brinton, & Sonnenberg, 1990; Holland et al., 1985; Milroy & Perkins, 1992; Orange, Lubinski, & Higginbotham, 1996; Perkins, 1995; Schegloff & Sacks, 1973; Tomasello, Conti-Ramsden, & Ewert, 1990; Weingarten, 1992). However few reports have included aphasic individuals (Boles, 1996, 1997a; Ferguson, 1994; Holland et al., 1985; Milroy & Perkins, 1992; Perkins, 1995), and only three reports have examined change over time (Boles, 1996, 1997a; Holland et al., 1985).

Schegloff, Jefferson, and Sacks (1977) asserted that speakers tend to prefer self-correction over other correction during conversations. These authors did not offer data to support this assertion however. In a recent study, Orange et al. (1996) examined conversation repairs in individuals with Alzheimer's dementia (AD). Conversations involving individuals with AD had more trouble in source-repair sequences than conversations not involving AD subjects, and there was an increase in trouble source-repair sequences with disease progression. Ferguson (1994) determined that normal individuals used more trouble-indicating behaviors and conversation repairs during conversations with individuals with aphasia than they did when conversing with other normal individuals. Further, Ferguson documented a shift by normal speakers toward other-repair when speaking with aphasic partners, compared with their conversations with other normal individuals, although the latter was not an unequivocal finding. Ferguson did not document change over time. Holland et al. (1985) noted increases in verbal output and decreases in perseveration and spoken failures over time in a rapidly recovering globally aphasic patient.

The purpose of the present article is to document the change in conversational features that paralleled the improvement shown on standardized and other formal testing on an individual with aphasia through a 7-week course of therapy. Because the therapy was conversation-based, certain conversational features were of interest. For example, the speech-language pathologist provided direct feedback to the conversational partners in the study at the utterance level. Measurements of utterance length and efficiency were thus coded for measurement. A modification of Ferguson's repair categories was included in the current study. Specific predictions in the CDA appear in the Methods section.

It should be noted that this was not a study of the efficacy of the therapy technique. Although such a study is currently being conducted by the author, the design of the current study was not ideally suited for testing treatment efficacy.

METHODS

Subjects

LNC, a 47-year-old right-handed woman, suffered a single left basal ganglia hemorrhagic infarct 7 months prior to the study. She was described in her hospital discharge summary as having moderate-severe Broca's aphasia, with moderate apraxia of speech. LNC was a kindergarten teacher prior to the study, had no history of seizure disorder, psychiatric illness, previous brain damage, or hearing loss. She had been living alone prior to the study, but after a 6-week hospital stay moved in with her mother, brother, and sister-in-law. She had received 4 weeks of speech-language therapy as an inpatient and 8 weeks of therapy as an outpatient prior to the initiation of this study. This ther-

apy was described by her previous clinician as traditional didactic “stimulation approach” therapy. Family members were not directly involved in this previous treatment. LNC’s communication partner (hereafter “Partner”) was her 45-year-old right-handed sister-in-law, living with LNC. Partner had no neurologic or psychiatric history. She was an elementary school teacher. English was the primary language spoken in the home.

Procedures

An ABA design was used. Three baseline sessions were held, after which a 7-week therapy program (two 1-hour sessions weekly) was implemented. A follow-up conversation was recorded 1 week after therapy was terminated. Prior to the first session each week, a 20–40-minute conversation between LNC and Partner was videotaped for off-line analysis. The subjects were instructed to discuss anything they wished. Based on the relative stability of the data collected during the three baseline conversations, it was believed that the lack of imposed topic constraints would carry the advantage of increased content validity without risking data instability. It was observed however, that nearly all sessions included all three of the following topics: issues about teaching elementary school-aged children; what family members had been doing in the last two to five days; and LNC’s trip to the Galapagos Islands several years prior to her stroke.

Baseline. Conversations on three consecutive days between LNC and Partner were obtained, as described below. The *Western Aphasia Battery* (WAB) (Kertesz, 1982) and the *Communicative Activities of Daily Living* (Holland, 1980) were administered to establish baseline linguistic and functional communication abilities, respectively. The Communication Readiness and Use Index (CRUI) (Lyon, 1994) and the Psychosocial Well-Being Index (PWI) (Lyon, 1994) were administered as well, to document self-perceived changes in communication and well-being. All tests were administered by a qualified individual unfamiliar with the purposes of the study.

Treatment. Fourteen 1-hour sessions were conducted over a 7-week period. The particular therapeutic techniques were specified elsewhere (Boles, 1997a). Of interest in the current study was the documentation of change throughout therapy rather than the therapy itself.

The participants were seated in a quiet room, free of distractions. A video camera was mounted in the upper corner of the room. The examiner sat briefly with the two participants before leaving them alone during the actual taping. He explained that they could converse on any topic they liked, and he would return in a few minutes. Subsequent research has determined that, for the variables of interest here, a 10-minute conversational sample would adequately represent a larger conversation (Boles, 1997b). However, those data were not available for the current study. Therefore conversations ranged from 20–40 minutes. After

the initial three baseline (i.e., “pre-therapy”) conversations, obtained on consecutive days, subsequent conversations were obtained prior to the first of two therapy sessions each week. This pattern was followed in order to avoid the “immediacy effect,” whereby the skills learned following a treatment session would be demonstrated immediately (i.e., during the videotaping) but not later.

Analysis

Conversations were transcribed orthographically, according to conventions established for the Child Language Data Exchange System (CHILDES) (MacWhinney, 1991). The CHILDES system enables the user to identify and code the variables of interest. This software program calculated total words and utterances. This writer also created a “conversation repair tier,” which calculated the frequency of the coded conversational repairs. Conversation repair has been used in descriptive studies (Ahlsen, 1993; Ferguson, 1994; Fujiki et al., 1990; Milroy & Perkins, 1992); however its use as a dependent measure over time has not been attempted to date with individuals with aphasia. A conversation repair was defined as an attempt to modify one’s own or the other person’s utterance. This included any self-correction or request for information from the other speaker regarding a previous statement. It could also simply clarify one’s own previous statement. Repair categories (Table 1) were derived and operationalized through observation of videotaped interaction between aphasic individuals and clinicians in the Speech Pathology & Audiology Clinic at the University of Hawaii. Gestures, drawings, and written responses were considered “utterances,” and/or conversation repairs. However they were not considered “words” in the word and utterance production measures.

It was predicted that, with improvement, the changes in conversational features by subject LNC in this study would be as follows:

Speaking rate (in words per minute):	Increase
Relative contribution of words to conversation:	Increase
Speaking efficiency (words per utterance):	Increase
Self-repairs:	Increase

Normative data are lacking for the above categories, thus the predictions were based on clinical judgment. However it is generally agreed that recovering patients with Broca’s aphasia increase their verbal output and efficiency. The predicted conversational feature changes by Partner follow.

Speaking rate (in words per minute):	Decrease
Relative contribution of words to conversation:	Decrease
Speaking efficiency (words per utterance):	Decrease
Self-repairs:	Decrease
Other-repairs:	Decrease

Again, although normative data are lacking, some clinical judgments can be made. Decreases in speaking rate and in words per utterance are commonly followed guidelines when speaking with aphasic individuals (Rosenbek, LaPointe, & Wertz, 1989). Presumably both the need to clarify oneself (i.e., self-repair) and to request clarification (i.e., other-repair) would decrease as one's aphasic conversational partner improved.

Reliability

A second judge transcribed and coded 27% of all conversational interaction (i.e., three of the eleven conversations selected at random). Interjudge and intrajudge reliability were established for transcription of conversations and for coding conversation repairs. Point-by-point interjudge agreement was .89 for coding of conversation repairs and .96 for videotape transcription. Values were derived by dividing agreements by opportunities for agreement. Disagreements were resolved by consensus. The investigator re-transcribed and re-scored a randomly selected 18% of conversational interaction (i.e., two of

Table 1. Conversation Repair Categories Coded in Conversations

Repair Category	Example
Self repair	WAN: okay yeah well why?
Self-clarification (Qualification or second attempt at utterance [includes rephrasing].)	RIC: well coffee has a nice scent if you wrap something up and it will smell like coffee. RIC: <i>it's a fairly air tight package too.</i>
Other-repair	JEA: I wore my oh you know what I mean.
Cue (A facilitating remark; maybe similar to the cue a therapist might give.)	AUD: <i>yeah, that was your new...</i>
Model (When a "cue-like" hint is simply "given away.")	DAU: what did you eat? LSO: well I had my toast coffee. DAU: <i>no Dad you had pancakes.</i>
Reflection (Reflecting what other speaker has said.)	JAN: I went to a lot of places. BOB: <i>you visited a lot of places?</i> LNC: the main thing and um people have nothing. Partner: <i>the people have nothing, yeah.</i>
Request for clarification	JAN: I went away. BOB: <i>How far did you go?</i>
Undifferentiated request for clarification (This is distinguished from more precise repair attempts. A simple, "what?" utterance.)	Partner: oh it was before or after? LNC: <i>huh?</i>

the eleven conversations). Point-by-point intrajudge agreement thus obtained was .97 for conversation repairs and .99 for videotape transcription.

RESULTS

Results for Client LNC

Changes on standardized and satisfaction measures were in the positive direction (Table 2). The increase in the Aphasia Quotient on the WAB from 66.3 to 72.3 was judged to be beyond the standard error of the mean (SEM) (P. Beeson, personal communication, 1997). A decrease in the severity of aphasia was accompanied by positive changes in self-reported psychosocial well-being, functional communication, and self-reported communication readiness and use.

Because the duration of conversations was variable (21–40 minutes), values for the conversation analyses were divided by the number of minutes for the conversation, except as noted. Increases were noted by the client LNC in words per minute (Figure 1), from 5.2 words (average of three baseline sessions) to 9.8 words at follow-up. The estimate of speaking efficiency revealed a pattern of gradual but modest increase. LNC average 1.1 words per utterance at baseline, and 1.6 words at follow-up, representing a 31% increase in utterance length. Her rate of self-repair tripled, from .40 occurrences per minute at baseline to 1.3 per minute at follow-up. LNC doubled her contribution of words to conversations (Figure 2), from 9% at baseline (thus, 91% for Partner) to 18% at follow-up.

Results for Conversation Partner

A modest decrease in speaking rate was noted for Partner (Figure 3), from 53 words per minute at baseline to 46 at follow-up (a 13% decrease). Partner used fewer words per utterance at follow-up (6.1 words) compared to her baseline sessions (7 words), a decrease of 13%. Rate of conversation repair

Table 2. Results on Standardized, Nonstandardized, and Satisfaction Measures

Measure	June 1995	August 1995
Western Aphasia Battery (AQ)	66.3	72.3
Communicative Abilities in Daily Living	92	117
Psychosocial Well-Being Index ^a	32	53
Communication Readiness and Use Index ^b	35	54

^aThis is an 11-item questionnaire scored on a 7-point Likert scale, such that a higher score indicates more "well-being." The highest possible rating is 77.

^bThis is a 12-item questionnaire scored on a 7-point Likert scale, such that a higher score indicates more "communicative readiness and use." The highest possible rating is 84.

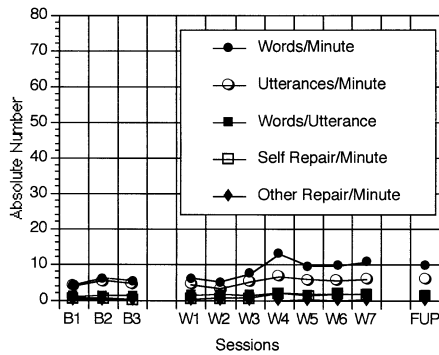


Figure 1. Word, repair, and utterance production for LNC. (B = Baseline; W = Week; FUP = 1-week follow-up; Words/Minute = Words per minute; Utterances/Minute = Utterances per minute; Words/Utterance = Words per utterance; Self Repair/Minute = Self repair per minute; Other Repair/Minute = Other repair per minute.)

did not change appreciably over time. Partner’s contribution of words to total words in the conversation (Figure 4) decreased slightly, from 91% to 82%.

DISCUSSION

The gains made by this patient as documented by traditional measures were paralleled by changes in conversation. There was some indication that she was “taking charge” of her communication. For example, she produced a higher

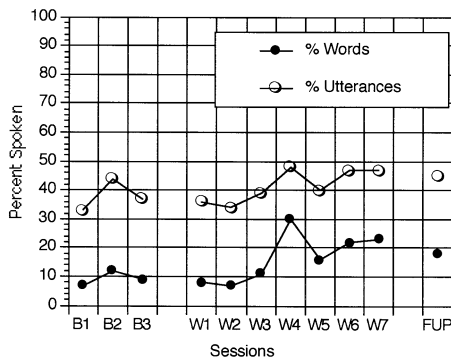


Figure 2. Relative frequencies for LNC. (B = Baseline; W = Week; FUP = 1-week follow-up; % Words = Frequency of words spoken by LNC divided by total words in conversation; % Utterances = Frequency of utterances spoken by LNC divided by total utterances in conversation.)

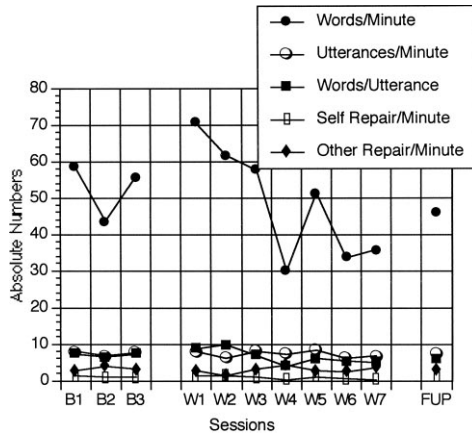


Figure 3. Word, repair, and utterance production for Partner. (B = Baseline; W = Week; FUP = 1-week follow-up; Words/Minute = Words per minute; Utterances/Minute = Utterances per minute; Words/Utterance = Words per utterance; Self Repair/Minute = Self repair per minute; Other Repair/Minute = Other repair per minute.)

rate of conversation repair, and doubled her contribution of words to conversations by the end of therapy. Further, she was more satisfied with her communication, as evidenced by her responses on the CRUI and PWI.

Clinical training of aphasiologists includes some common admonishments, such as decreasing speaking rate, and allowing the patient more turns in talk-

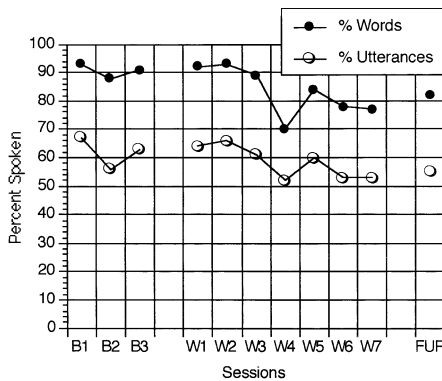


Figure 4. Relative frequencies for Partner. (B = Baseline; W = Week; FUP = 1-week follow-up; % Words = Frequency of words spoken by Partner divided by total words in conversation; % Utterances = Frequency of utterances spoken by Partner divided by total utterances in conversation.)

ing. Partner, who served as “therapist,” did decrease her speaking rate, and appeared to be allowing a more balanced turn-taking throughout LNC’s therapy (Figure 4). These changes in Partner’s interaction could have resulted from the coaching by the speech pathologist or as a response to the increased participation by her partner, LNC. Whichever was the case, the response was in the desired direction.

Conversational Discourse Analysis

Aphasiologists ask their clients to do some unusual things in documenting progress. Tapping shoulders with eyes closed, repeating sentences, and naming pictures are all common practice. Holding conversations is not as frequently employed. Perhaps this is because of the variable nature of conversation. Controlling for all variables involved in this task is a difficult undertaking. Although all variables were not controlled in the current study, the stability of the baseline measures (Figures 1–4) suggests that adequate control was achieved. In any case, clients do not return home from the clinic each session to repeat sentences and name pictures. Rather, they converse with their spouses, friends, mothers, and children.

The information about LNC’s conversational skills was simply not available from other test data, either directly or by inference. Further, more traditional therapy would not be conducive to the collection of these data. The CHILDES analysis package (MacWhinney, 1991) was useful in quantifying how often LNC made attempts to repair conversational trouble, and speaking rate and efficiency.

It cannot be denied that practical limitations of using conversational discourse analysis exist. The transcription and analysis of conversations took the author of this article 6–10 minutes for every 1 minute of live interaction. However, the author of this article is currently studying the very issue of conversation sample size to determine the feasibility of using shorter conversations to estimate the information obtained from larger samples. Other useful research in this area would examine CDA in “real time.”

Discourse Theory

This study has important implications for the study of discourse generally, and for the study of conversation in particular. Kintsch & van Dijk (1978) describe a model of discourse that includes the assumptions that text is represented at a surface, a text base, and a situational level (see Mross, 1990, for a review of the model). Although the model was designed for written text, the theory is generalizable in many respects to spoken discourse. In the current study, Partner responded occasionally to the surface level of conversation—that is, to the verbatim responses of LNC. These spoken utterances by LNC were replete with

(surface) errors and false starts, even though it was apparent that LNC was responding in such a way that the meaning was clear. For example:

1. LNC: I went to um s-s-top of it (gestures uphill with left hand/arm).
2. Partner: You went to the stop?
3. LNC: No no the uh (gestures up again) up up.
4. Partner: Up?
5. LNC: Yeah yeah.
6. Partner: Oh the top you mean?
7. LNC: Yeah yeah.

In the above example, Partner could have economized the effort by reflecting the gesture. For example:

1. LNC: I went to um s-s-top of it (gestures uphill with left hand/arm).
2. Partner: Okay, you're moving your hand up.
3. LNC: Yeah, up up (gestures again).
4. Partner: Oh to the top of it (repeats gesture)?
5. LNC: Yeah yeah.

Partner was encouraged to reflect utterances, gestures, and written/drawn responses throughout therapy. With Partner attending to the intent of the message (i.e., the text base microstructure) rather than the verbatim utterance, the focus of therapy became the success of conveying the message rather than the difference between target and actual responses.

Conversation Partners Therapy (CPT)

Aphasiologists typically hold a special conference with the family, reporting what must seem very abstract information regarding therapeutic progress. Others permit family members to observe therapy, in hopes that they will indirectly gain skills consistent with those of the aphasiologist. The family is involved from the beginning in CPT (Kagan & Gailey, 1993), which appeared to be an effective therapy for the subject of this study. Although success has traditionally been judged by standardized test scores, other methods exist which may yield valuable information otherwise lost in a myriad of numeric data.

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REFERENCES

- Ahlsen, E. (1993). Conversational principles and aphasic communication. *Journal of Pragmatics, 19*, 57-70.

- Besnier, N. (1989). Information withholding as a manipulative and collusive strategy in Nukulaelae gossip. *Language in Society*, 18, 315–341.
- Boles, L. (1996). *When therapy works: Conversation analysis on an individual who showed improvement in therapy*. Paper presented at the 26th Annual Clinical Aphasiology Conference, Newport, Rhode Island.
- Boles, L. (1997a). Conversation analysis as a dependent measure in communication therapy with four individuals with aphasia. *Asia Pacific Journal of Speech, Language and Hearing*, 2, 43–61.
- Boles, L. (1997b). Conversation analysis: Appropriate and useful sample sizes. Paper presented at the 27th Annual Clinical Aphasiology Conference. Bigfork, Montana.
- Ferguson, A. (1994). The influence of aphasia, familiarity and activity on conversational repair. *Aphasiology*, 8, 143–157.
- Fujiki, M., Brinton, B., & Sonnenberg, E.A. (1990). Repair of overlapping speech in conversations of specifically language-impaired and normally developing children. *Applied Psycholinguistics*, 11, 201–215.
- Holland, A.L. (1980). *Communicative abilities in daily living*. Baltimore, MD: University Park Press.
- Holland, A.L., Miller, J., Reimkuth, O.M., Bartlett, C., Fromm, D., Pashek, G., Stein, D., & Swindell, C. (1985). Rapid recovery from aphasia: A detailed language analysis. *Brain and Language*, 24, 156–173.
- Kagan, A., & Gailey, G.F. (1993). Functional is not enough: Training conversation partners for aphasic adults. In A.L. Holland & M.M. Forbes (Eds.), *Aphasia treatment: World perspectives* (pp. 199–226). San Diego, CA: Singular.
- Kertesz, A. (1982). *Western aphasia battery*. New York, NY: Grune & Stratton.
- Kintsch, W., & van Dijk, T.A. (1978). Toward a model of text comprehension and production. *Psychological Review*, 85, 363–394.
- Lyon, J.G. (1994). *Communication partners: Integrating adults with aphasia back into society*. Mini-seminar presented at the American Speech-Language-Hearing Association Convention, New Orleans, LA.
- Lyon, J.G., Cariski, D., Keisler, L., Rosenbek, J., Levine, R., Kumpula, J., Ryff, C., Coyne, S., & Levin, J. (1997). Communication partners: Enhancing participation in life and communication for adults with aphasia in natural settings. *Aphasiology*, 12, 693–708.

- MacWhinney, B. (1991). *The CHILDES project: Tools for analyzing talk*. Hillsdale, NJ: Lawrence Erlbaum.
- Milroy, L., & Perkins, L. (1992). Repair strategies in aphasic discourse; towards a collaborative model. *Clinical Linguistics and Phonetics*, 6, 27–40.
- Mross, E.J. (1990). (pp. 50–68) In Y. Joannette & H.H. Brownell (Eds.), *Discourse ability and brain damage: Theoretical and empirical perspectives*. New York, NY: Springer-Verlag.
- Orange, J.B., Lubinski, R.B., & Higginbotham, J. (1996). Conversational repair by individuals with dementia of the Alzheimer's type. *Journal of Speech and Hearing Research*, 39, 881–895.
- Perkins, L. (1995). Applying conversation analysis to aphasia: Clinical implications and analytic issues. *European Journal of Disorders of Communication*, 30, 372–383.
- Rosenbek, J.C., LaPointe, L.L., & Wertz, R.T. (1989). *Aphasia: A clinical approach*. Boston, MA: College-Hill Press.
- Sarno, M.T. (1969). *Functional communication profile manual of directions (Rehabilitation monograph 42)*. New York, NY: University Medical Center.
- Schegloff, E.A., Jefferson, G., & Sacks, H. (1977). The preference for self-correction in the organization of repair in conversation. *Language*, 53, 361–382.
- Schegloff, E.A., & Sacks, H. (1973). Opening up closings. *Semiotica*, 8, 289–327.
- Tomasello, M., Conti-Ramsden, G., & Ewert, B. (1990). Young children's conversations with their mothers and fathers: Differences in breakdown and repair. *Journal of Child Language*, 17, 115–130.
- Weingarten, K. (1992). A consideration of intimate and non-intimate interactions in therapy. *Family Process*, 31, 45–59.

CONTINUING EDUCATION

Conversational Discourse Analysis as a Method for Evaluating Progress in Aphasia: A Case Report

QUESTIONS

1. Many of the standardized tests used with the aphasic population sample:
 - a. Language use
 - b. Language performance
 - c. Grammatical complexity

- d. Language formulation
 - e. Natural language
2. Many of the gains realized in communication therapy are in:
 - a. Communication
 - b. Language performance
 - c. Grammatical complexity
 - d. Language formulation
 - e. Natural language
 3. The author of this article operationally defined conversation repair as:
 - a. Any question to the other participant
 - b. An attempt to modify one's own or the other person's utterance
 - c. An attempt to correct inappropriate behavior
 - d. Statements of confusion or lack of comprehension
 - e. Lack of clarity
 4. Which of the following results were reported:
 - a. The client with aphasia increased her speaking rate
 - b. The communication partner decreased her speaking rate
 - c. The client with aphasia increased the number of words per utterance
 - d. The communication partner decreased the number of words per utterance
 - e. All the above results were reported
 5. Clinical training of aphasiologists often includes some changes in the clinician's speaking patterns, such as:
 - a. Increases in vocal pitch and volume
 - b. Slow monotone speech
 - c. Speaking as much like the aphasic speaker as possible
 - d. Decreasing speaking rate, allowing the patient more talking turns
 - e. Less frequent feedback