

CHAPTER

11

**Effect of Shared
and Unshared
Listener
Knowledge on
Narratives of
Normal and
Aphasic Adults**

Donna Bottenberg
Margaret L. Lemme

Studies of narrative discourse of aphasic adults provide an avenue to explore this population's ability to produce connected language in relatively controlled situations. The narrative discourse tasks reported in the literature have typically involved picture description elicited in a condition in which both the subject and the experimenter view the stimuli. Thus, during these experimental tasks, a condition of shared knowledge between the speaker and the listener exists (Bottenberg, Lemme, and Hedberg, 1985; Lemme, Hedberg, and Bottenberg, 1984; Ulatowska, North, and Macaluso-Haynes, 1981, 1983). A shared knowledge context is not, however, how most information is exchanged in day-to-day life. Additionally, the shared-knowledge environment ignores the perspective of Davis and Wilcox (1981) relative to the importance of sharing new information in order to create a genuine communication exchange for aphasic adults. The shared context used in many research activities may have resulted in discourse that is not representative of the language produced during unshared or more "real life" communicative contexts.

A review of the literature revealed that normal speakers demonstrate sensitivity to the amount of information shared by their listener and themselves and that normal speakers change, alter, or modify many aspects of their discourse accordingly. For example, Chafe (1974) observed that noun phrases are replaced with pronouns when normal speakers are certain that the pronoun referent can be identified by their listeners. Additionally, children and adults adjust the length of utterances and the length of discourse units based on judgments of their listeners' familiarity with the topic (Clark and Haviland, 1977; Haviland and Clark, 1974; Liles, 1985). Aphasic speakers have demonstrated sensitivity to listener knowledge relative to pronoun usage in a study completed by Kimbarrow in 1982. By contrast, Boyle, Kimbarrow, and Coelho (1987) observed no differences in cohesion in stories produced during shared and unshared story conditions. Many questions remain unanswered relative to the effects, if any, of shared and unshared listener knowledge on narratives of aphasic adults. Thus this study was designed to assess what effects, if any, shared and unshared listener knowledge has on narrative discourse produced by normal and mildly to moderately impaired aphasic adults.

METHODOLOGY

SUBJECTS

Fourteen normal and 14 aphasic adults served as subjects. The aphasic subjects had a mean age of 50.36 years (range 38–65 years); a mean ed-

TABLE 11-1. SUBJECT CHARACTERISTICS-APHASIC GROUP

<i>Subject number</i>	<i>Gender</i>	<i>Age (years)</i>	<i>Education (years)</i>	<i>Months post</i>	<i>PICA-OA</i>	<i>PICA percentile</i>
#1	M	50	22	7	13.87	88
#2	M	60	11	43	11.33	55
#3	M	65	16	153	13.01	76
#4	M	41	14	60	12.88	74
#5	M	54	11	67	13.88	88
#6	M	41	20	71	13.94	88
#7	F	41	14	25	13.46	82
#8	F	55	14	282	11.54	58
#9	F	50	12	3	12.89	75
#10	M	45	10	73	13.59	84
#11	M	38	20	33	11.84	61
#12	F	60	12	41	12.95	80
#13	M	48	13	204	13.50	83
#14	F	57	13	12	12.84	74
Mean		50.36	14.43	76.71	12.97	76.14
SD		8.45	3.73	81.36	.85	11.07
Range		38-65	10-22	3-282	11.33-13.94	55-88

educational level of 14.43 years (range 10–22 years), and an average time after onset of 76.71 months (range 3–282 months). Table 11-1 contains a summary of aphasic subject characteristics. All aphasic subjects had a single left cerebral vascular accident and Porch Index of Communicative Ability (PICA) (Porch, 1967) overall scores ranging from 11.33 to 13.94, with percentile scores ranging from the 55th to 88th percentile. These PICA scores placed aphasic subjects in the mildly to moderately impaired range. The normal subjects were selected because they represented a group similar to the aphasic subjects relative to gender, age, and years of education.

EXPERIMENTAL TASK

Two sets of six colored sequence pictures were used to elicit the narrative discourse. One series of pictures involved a fire scenario, and the other set involved the moon landing. The two sets of pictures depicted essential narrative events including setting, an initiating event, action, and consequence. Two sets of stimuli were used to obtain a relatively large narrative sample.

Narratives were elicited from each subject under two conditions: (1) a shared knowledge of the story stimuli with the listener, in which both the subject and an experimenter viewed the pictures, and (2) an unshared knowledge of the story stimuli, in which only the subject viewed the pictures during the discourse task. The order of presentation of the shared and unshared conditions of the narrative stimuli was counter-balanced so that half the subjects told a narrative in the shared condition first and half in the unshared condition first. Additionally, half the subjects told the fire story first and half told the moon-landing story first. There were two experimenters. Each experimenter served as a listener during shared and unshared story conditions an equal number of times.

All subjects were given identical instructions: "Look at the pictures and tell the best story possible." While the subjects told each story, the examiner provided minimal feedback with an occasional "hmm" or head nod. When the subject indicated verbally or nonverbally that the narrative was completed, the task was discontinued. If a pause greater than 20 seconds occurred, the subjects were prompted with "Can you tell me more?" or "Is that all?" All narratives were audiotaped.

DATA PREPARATION

The 28 subjects (14 normal and 14 aphasic) produced 112 narratives. All the tape-recorded narratives were initially transcribed for all words, in-

cluding asides, revisions, and unintelligible utterances. Unintelligible words were written phonetically, if possible, or recorded as an "unintelligible" word. The stories were divided into T-units (Hunt, 1970). All revisions or self-corrections, false starts, perseverations, and asides were bracketed and not considered in the analyses (Hedberg and Stoel-Gammon, 1985). Ten percent (11 of 112 narratives) were randomly selected for interscorer agreement measures. A point-to-point percentage of words in agreement for the two scorers was obtained for each variable. The point-to-point percentage of agreement ranged from 80 to 100 percent.

DATA ANALYSIS

The dependent variables included (1) total words, (2) unweighted cohesion, (3) weighted cohesion, (4) story grammar, (5) percentage of words in reference cohesive ties, (6) percentage of words in lexical cohesive ties, (7) percentage of words in conjunctive cohesive ties, (8) percentage of words in substitution cohesive ties, (9) percentage of words in ellipsis cohesive ties, and (10) percentage of words involved in attempts at cohesion.

A multivariate analysis of variance (MANOVA) (Gabriel and Hopkins, 1974) and a series of analyses of variance (ANOVA) (Winer, 1971) were completed for the independent variables.

RESULTS

The results of the multivariate analysis of variance showed no statistically significant differences ($p \leq .32$) for any of the dependent variables—productivity, several measures of cohesion, or story grammar for narratives produced during the shared and unshared story condition for either group.

PRODUCTIVITY

Relative to productivity, no difference was found in length of narratives produced during shared and unshared stimuli conditions for either group. Further, no difference was found in narrative length related to

the fire story and moon-landing story and no difference related to group.

COHESION

An extensive analysis of cohesion was completed in this study. First, an overall measure of unweighted cohesion was computed. This is a simple count of the frequency of occurrence of cohesion. A measure of weighted cohesion also was computed, with cohesive ties being weighted relative to frequency of occurrence and linguistic difficulty (Hedberg and Stoel-Gammon, 1985). The listener condition had no effect on unweighted or weighted cohesion for either group. Further, analysis of variance with repeated measures revealed no effect related to listener knowledge for reference, conjunctive, substitution, and elliptical cohesive ties.

Significant differences were found for unweighted [$F(1,104) = 8.72, p < .01$] and weighted cohesion [$F(1,104) = 5.34, p < .05$] for story—fire and moon landing. Additionally, group differences related to lexical tie types and to attempts at cohesion or “errors of cohesion” were found. The aphasic adults had more lexical cohesive tie types (AA $\bar{X} = 11.22, NA \bar{X} = 8.89$) [$F(1,104) = 5.99, p < .05$] and made significantly more attempts or errors of cohesion than the normal individuals (AA $\bar{X} = 4.5, NA \bar{X} = 2.18$) [$F(1,104) = 14.48, p < .01$].

STORY GRAMMAR

Overall narrative organization was examined using a story grammar analysis developed by Stein and Glenn (1979). It was not affected by the listener condition. Story organization differences were found, however, for the two groups, with narratives generated by the normal individuals being more complete than those generated by the aphasic subjects (AA $\bar{X} = 4.54, NA \bar{X} = 5.34$) [$F(1,104) = 19.26, p < .01$].

SUMMARY AND DISCUSSION

This study examined the modifications made to discourse by normal and aphasic adults in conditions of shared and unshared listener knowledge. The procedures used in this study were selected because they are

like the assessment and intervention activities frequently used in aphasia treatment and because they are a practical way for a clinician to create an unshared context. Our format was similar in many ways to that which Davis and Wilcox (1981) use in PACE therapy. They suggest that structured interaction (discourse) for the exchange of new or unshared information between a speaker and listener is important.

The impact of the unshared listener knowledge condition in this study revealed interesting results. We found that aphasic and normal speakers did not demonstrate, on the variables examined, significant differences for narratives told during conditions of shared and unshared listener knowledge. Careful examination of our procedures revealed a question about the "robustness" of our unshared knowledge context. None of the normal subjects, but several of the aphasic subjects commented, "You know what these pictures are, don't you?" Thus the inference of unshared knowledge given by not jointly viewing the picture stimuli during the discourse task may not have been strong enough to elicit the expected or hypothesized effect.

The literature concerning normal individuals and their discourse modifications related to the listener, as well as our logic, suggests that aphasic and normal adults may well have demonstrated modifications in discourse related to what they believed the listener knew during our tasks. If unshared knowledge conditions like those we can readily create in diagnostic and treatment sessions do not have a real effect on discourse, then clinicians may not need to be concerned with the development of such activities to ensure that "new information" is exchanged during treatment activities.

REFERENCES

- Bottenberg, D., Lemme, M., and Hedberg, N. (1985). Analysis of oral narratives of normal and aphasic adults. In R. H. Brookshire (Ed.), *Clinical aphasiology*, 15 (pp. 241-247). Minneapolis, MN: BRK Publishers.
- Boyle, M., Kimbarrow, M., and Coelho, C. (1987). Shared information and narrative discourse in aphasia. Presented at the New York State Speech-Language-Hearing Association Meeting.
- Chafe, W. L. (1974). Language and consciousness. *Language*, 50, 111-133.
- Clark, H., and Haviland, S. (1977). Comprehension and the given-new contract. In R. O. Freedle (Ed.), *Discourse production and comprehension*. Norwood, NJ: Ablex.
- Davis, G., and Wilcox, M. (1981). Incorporating parameters of natural conversation in aphasia treatment. In R. Chapey (Ed.), *Language intervention strategies in adult aphasia*. Baltimore, MD: Williams & Wilkins.

- Gabriel, R., and Hopkins, K. (1974). Relative merits of MANOVA, repeated measures ANOVA, and univariate ANOVAs for research utilizing multiple criterion measures. *Journal of Special Education, 4*, 377-389.
- Haviland, S., and Clark, H. (1974). What's new? Acquiring new information as a process in comprehension. *Journal of Verbal Learning and Verbal Behavior, 13*, 512-521.
- Hedberg, N., and Stoel-Gammon, C. (1985). Cohesive tie analysis manual, revised. Unpublished manuscript.
- Hunt, K. (1970). Syntactic maturity in school children and adults. *Monographs of the Society for Research in Child Development, 35*, 1.
- Kimbarrow, M. (1982). The influences of communicative context on aphasic speakers demonstration of rules of referent activation and pronominalization. Doctoral dissertation, University of Minnesota.
- Lemme, M., Hedberg, N., and Bottenberg, D. (1984). Cohesion in narratives of aphasic adults. In R. Brookshire (Ed.), *Clinical aphasiology*, Vol. 14 (pp. 215-222). Minneapolis, MN: BRK Publishers.
- Liles, B. (1985). Cohesion in the narratives of normal and language disordered children. *Journal of Speech and Hearing Research, 28*, 123-133.
- Porch, B. (1967). *Porch Index of Communicative Ability*. Palo Alto, CA: Consulting Psychologists Press.
- Stein, N., and Glenn, C. (1979). An analysis of story comprehension in elementary school children. In R. O. Freedle (Ed.), *New directions in discourse processing*, Vol. 2. Norwood, NJ: Ablex.
- Ulatowska, H. K., North, A. J., and Macaluso-Haynes, S. (1983). Production of narrative discourse in aphasia. *Brain and Language, 19*, 317-334.
- Ulatowska, H. K., North, A. J., and Macaluso-Haynes, S. (1981). Production of discourse and communicative competence in aphasia. In R. H. Brookshire (Ed.), *Clinical aphasiology*, Vol. 11 (pp. 75-82). Minneapolis, MN: BRK Publishers.
- Winer, B. (1971). *Statistical principles in experimental design*. New York: McGraw-Hill.