

Reapportionment of Communicative Burden in Aphasia:
A Study of Narrative Interactions

Craig W. Linebaugh
The George Washington University and Medical Center, Washington, DC

Katherine M. Kryzer
Washington Hearing and Speech Society, Washington, DC

Sandra E. Oden
The George Washington University Medical Center, Washington, DC

Penelope S. Myers
The George Washington University, Washington, DC

Communicative burden may be defined as the share of responsibility each participant in a conversation must bear to insure the adequate transfer of information. It is a concept referred to frequently in discussing the effects of aphasia on communication. Goodglass and Kaplan (1972) have incorporated it into the Aphasia Severity Rating Scale of the Boston Diagnostic Aphasia Examination. We use it often as a means of helping families understand the need to modify the way in which they communicate with an aphasic relative. Nevertheless, communicative burden remains essentially a subjective notion. It varies among the participants in a conversation according to their commonality of background, familiarity with a particular topic, motivation, and many other factors. In particular it varies according to the participants' respective levels of communicative ability. It also varies across different types of communicative interaction (e.g. narrative, interview, give-and-take conversation).

One indicator of communicative burden is the percentage of exchanges within an interaction initiated by each of the participants. As communicative burden varies across types of interaction, so will the percentage of exchanges initiated by each participant. For example, in a "give-and-take" conversation where the communicative burden is essentially equally distributed, each participant will initiate a nearly equal number of exchanges. On the other hand, in a narrative form of interaction, the narrator carries the bulk of the burden and thus initiates a majority of the exchanges.

The presence of aphasia in a participant in a communicative interaction has a dramatic impact on the apportionment of communicative burden. The aphasic individual finds himself no longer able to bear as great a share of the burden as he once did. As a result, if communication is to succeed, those with whom the aphasic person is interacting must assume that portion of the communicative burden that the aphasic person can no longer bear. This will be reflected in the listener's initiating an increased percentage of communicative exchanges as he seeks to ascertain what the aphasic speaker is trying to convey.

This study is the first in a series of studies designed to investigate the reapportionment of communicative burden in aphasia. Specifically, its purpose was to assess the relationship between communicative burden, as indicated by the percentage of exchanges initiated by an aphasic speaker in a particular type of interaction, and his or her level of functional

communication. We also examined the relationship between the percentage of exchanges initiated by aphasic speakers and the subjective impressions of communicative burden of those with whom they communicated frequently. In so doing, we sought to lay the foundation for a more objective assessment of communicative burden.

METHODOLOGY

Subjects

The subjects for this study were 12 aphasic adults. Their mean age was 56 years with a range of 30 - 72 years. The mean time post onset was 5 years with a range of 1 - 8 years. CADL (Holland, 1980) scores for the 12 subjects ranged from 55 - 128 (see Table 1).

Table 1. Individual subjects' performance on measures to be correlated.

Subject	# of exchanges ^a	% of exchanges initiated by S	CADL	CBD ^b
1	89	76.9	117	30
2	109	48.6	109	65
3	86	81.1	110	35
4	79	85.2	128	5
5	64	56.6	84	75
6	120	81.1	125	15
7	108	42.5	55	75
8	87	78.0	91	30
9	68	91.4	114	25
10	83	79.6	119	40
11	88	74.5	113	20
12	88	61.0	123	25
\bar{X}	89.1	71.38	107.3	36.7

^aMean of 3 judges rounded to nearest whole number.

^bCommunicative Burden Differential

Procedures

Each of the 12 subjects engaged in a communicative interaction with a familiar listener (the first author). The interaction was essentially of the narrative form. Narrative was chosen because of its high frequency of occurrence in our routine communicative interactions and the high degree of consistency with which it could be elicited in the experimental protocol. Each interaction included 5 topics: (1) What the subject had done the previous weekend. (2) A description of his or her home or apartment. (3-5) Telling a story about the events depicted in a picture. The first two topics dealt with information with which the listener was totally unfamiliar. The three picture-based narratives were included to obtain samples with common content across aphasic subjects. In all, 60 sequences of communicative exchanges were elicited from the 12 subjects discussing

each of the 5 topics. All of the interactions were videotaped for later analysis.

The 12 communicative interactions were scored independently by 3 Speech and Language Pathologists who determined the initiator of each communicative exchange. For this purpose a communicative exchange was defined as an "utterance" (in any modality or combination of modalities) produced by one participant and the other's response to it.

Each of the 12 subjects was also administered the CADL as a measure of functional communicative ability. In addition, the subject's primary communicative partner (e.g. spouse, close friend) was asked to rate the share of the "work load" he or she had to bear during conversations in which the subject was relating an incident or describing something. They were also asked to make a similar rating with reference to a non-brain-injured adult family member or friend. These ratings were done on a 0-100 percent scale. The difference between these two ratings, termed the Communicative Burden Differential (CBD), was taken as a subjective indicator of the additional burden a familiar listener would need to assume in communicating with the aphasic individual.

RESULTS

A total of 1054 communicative exchanges were recorded. Individual interactions contained between 64 and 120 exchanges with a mean of 89.1 exchanges for the 12 interactions. The percentage of exchanges initiated by each subject was calculated separately for each of the three scorers. Pairwise comparisons among the three scorers all yielded Pearson product-moment correlation coefficients greater than .98 ($p < .001$). These values were acceptably high to permit the use of the mean percentage across the 3 scorers for each interaction in all subsequent analyses. The mean percentage of exchanges initiated by the aphasic speakers was 71.38 with a range of 42 - 91%. This is in contrast with a mean of 84.8% of exchanges initiated by a group of 3 non-brain-injured speakers tested earlier. The mean CBD for the 12 aphasic subjects was 36.7% with a range of 5 - 75%. Table 1 summarizes the descriptive data for the 12 aphasic subjects.

Pearson product-moment correlation coefficients were derived in order to determine the relationships among the measures employed (see Table 2). Correlation of the percentages of exchanges initiated by the aphasic subjects with their CADL scores yielded a Pearson r of .74 ($p = .004$). This indicates a strong positive relationship between the percentage of exchanges initiated by an aphasic individual and his or her level of functional communicative ability.

Table 2. Pearson product moment correlation coefficients among measures used.

	% of exchanges initiated by S	CADL	CBD ^a
CADL	.74 p = .004	—	—
CBD	-.88 p < .001	-.76 p < .003	—

^aCommunicative Burden Differential

Comparison of the percentages of exchanges initiated by the aphasic subjects with the CBDs yielded a correlation coefficient of $-.88$ ($p < .001$). This value indicates a strong relationship between percentage of exchanges initiated by aphasic subjects and the CBD, with the percentage of exchanges initiated by the aphasic subjects decreasing as the additional share of communicative burden their primary communicative partners felt they needed to assume increased.

Comparison of the CBDs with the CADL scores yielded a Pearson r of $-.76$ ($p < .003$). This finding indicates that the primary communicative partners of those aphasic individuals with poorer functional communicative abilities felt that they needed to assume a greater additional share of the burden.

DISCUSSION

Any discussion of the results of this study must begin by reiterating that it represents the first in a planned series of studies of the reapportionment of communicative burden in aphasia. Viewing the study in this perspective, we sought to control certain variables which limit the generalizability of the results to all forms of natural communicative interaction. First, the nonaphasic listener was in all cases highly aware of the specific nature of the aphasic subject's communicative impairment and was experienced in communicating with aphasic individuals. Maintaining a high degree of consistency of listener behavior was considered desirable at this stage of our investigation to permit differences among the subjects to emerge more clearly. Use of a common listener, however, limits our ability to draw inferences regarding the behavior of interactants who are more or less familiar with the subject's personal history and communicative abilities.

Second, the discussion of the subject's weekend activities and home or apartment as compared to the three picture-based narratives represent poles on a continuum of listener familiarity with the subject matter under discussion. Listener familiarity with the subject matter is an acknowledged factor contributing to communicative efficiency. Clinical as well as personal experience suggests, however, that a high degree of familiarity is not uniformly facilitatory, particularly when the discussants hold differing impressions of a common experience. This factor is currently under further study as part of our investigation.

Third, only the narrative form of interaction was assessed. As stated above, the rationale for using only this form of interaction lay in the consistency with which it could be elicited. Recall, however, the contrast cited in the introductory section of this paper between the percentage of exchanges likely to be initiated by the various interactants in a narrative as opposed to a "give-and-take" conversation. Other forms of communicative interaction must therefore be examined to determine the generalizability of our findings across types of interaction.

While the findings of this study should be viewed as only a first step in assessing the reapportionment of communicative burden, they nevertheless suggest some implications for our clinical practice. First, the percentage of exchanges initiated by an aphasic speaker in a narrative interaction is a convenient and clinically useful indicator of communicative burden. It was found to correlate significantly with both an objective

measure of functional communicative ability, the CADL, and the subjective impressions of those with whom our aphasic subjects frequently interacted. Specifically, the percentage of exchanges initiated by aphasic speakers was found to decrease as their functional communicative abilities decreased and the perceived share of the burden carried by others increased.

Second, the manner and ease with which those communicating with an aphasic individual assume their increased share of communicative burden will greatly affect communicative success and efficiency and, in turn, the motivation of all involved to engage in further interactions. Failure or awkwardness on the part of the aphasic individual's listeners in assuming the necessary additional share of the burden will result in reduced efficiency. Assumption of too great a share of the burden may likewise result in reduced efficiency, and, in addition, in feelings of resentment on the part of the aphasic individual. In either case, the aphasic individual may become frustrated and depressed and tend to withdraw from communicative interactions.

Adjusting to the need to assume an increased share of communicative burden and discovering the most effective means of doing so is a time-consuming and difficult process. One may speculate that the oft repeated saga of friends withdrawing from an aphasic individual may at least in part have its roots in this problem. All who would be interacting regularly with an aphasic person could benefit from counseling and training in ways to most effectively assume an appropriate additional portion of communicative burden. Likewise, the aphasic individual may be trained in ways both to maximize his own share of the burden and to transfer to his communication partners that portion which he cannot bear. This last approach would appear to hold special promise for enhancing the efficiency with which an aphasic individual can communicate with nearly all potential interactants in nearly all situations.

REFERENCES

- Goodglass, H. and Kaplan, E. The Assessment of Aphasia and Related Disorders. Philadelphia: Lea and Febiger, 1972.
- Holland, A. Communicative Abilities in Daily Living. Baltimore: University Park Press, 1980.

DISCUSSION

- Q: Do you think if the patients' language just got better they would initiate more? If we just keep working on the things we've been working on, would they initiate more or do we need to do something extra special?
- A: I think in many cases they probably would initiate more. I don't think there's any doubt about that, and I think our data suggests that, given the relationship between initiation and the patient's functional abilities. As far as doing something special, we may be talking about the patient who has more or less plateaued in that regard or those, who as their language improves, don't use it as effectively as they might. What we're suggesting is that the aphasic patient be taught ways of maximizing his share of the communicative burden and shifting that portion he can't bear.

Q: Did you say your analysis was on narrative only, just on the stories?

A: Yes, we looked only at narrative, but our analysis included all 5 topics, not just the stories.

Q: I don't understand how you looked at initiation in the stories. Did you count the number of sentences they initiated or something?

A: No, we asked them to tell a story about a picture. Once the initial question was asked, anything could go so far as getting the information across.

Q: Did you talk during this process?

A: Yes, I talked throughout the process. That's why we used a common content base. We tried to elicit within the narrative some common content elements.

Q: So the picture was just your vehicle for getting them talking?

A: Yes, it was just a vehicle to establish a topic. I knew what the picture was. But rather than use naive listeners, we used a common listener so we could focus more on the patient's behavior. As we said, though, this limits the generalizability of the findings.

Q: Do you have any concerns about using this measure with those real fluent patients who all they do is initiate, initiate, and initiate?

A: Yes I do. Two of our subjects were like that (Subjects No. 4 and 9), and I think what we need to do with those patients is get them to initiate less.

Q: One of your strategies involved coverbal behaviors. What do you do with coverbal behaviors?

A: We've looked at Rich's (Katz) work very closely, and as I'm sure you recall, his work suggested that aphasic speakers maintain eye contact as a means of maintaining their conversational turn. We've begun to try to employ this as well as coverbal, manual gestures for the aphasic individual to use to indicate that he's not finished speaking.

Q: In all 5 of your topics, it was the aphasic subject doing the describing. I'm wondering if there would be any difference if it was the interactant who was describing his home or his picture to the aphasic?

A: There definitely would be. To begin with, the interactant's assuming the role of narrator would greatly increase his percentage of exchanges initiated. What remains to be determined is what, if any, alterations in the interactant's behavior would be observed under this condition.

Comment: I think the distribution of burden is related to severity also.

In Audrey's (Holland) study of acute aphasia, we're finding that as our patients improve, the proportion of burden shifts, in that we as interviewers at bedside tend to do a lot more talking, prompting, with the patients who are more severely involved. Just looking at the number of lines of our transcripts that belong to us versus our patients, you can see it changing as the patients improve.