

Analysis of Breakdowns and Repairs in
Aphasic Adult Communication

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BACKGROUND

Recent investigations in discourse analyses offer us techniques for analyzing interactions with aphasic persons (Gleason, J., Goodglass, H., Obler, L., Green, E., Hyde, M. and Weintraub, S., 1980; Sachs, H., Scheg-laff, E. and Jefferson, G., 1974). In particular, the literature on conversational breakdowns and repairs allows us to understand the nature of the problems caused by such factors as word retrieval breakdowns and paraphasias (Jefferson, G., 1975; Sabsay, S. and Bennett, T., 1977; Shimanoff, S. and Brunak, J., 1977). In this literature natural conversations are transcribed and taken as the data base, and breakdowns in conversations identified and analyzed. These transcripts have also been analyzed for how the interactants patch up or repair their conversational breakdowns.

While aphasia by its very nature involves a unique communication situation in which breakdowns are frequent, little work has been done on the conversational analyses of interactions between aphasic individuals and their conversational partners. Traditional analyses have focused on the identification of errors in the linguistic system at the phonemic, syntactic or semantic levels (see Goodglass, H. and Blumstein, S., 1973). They have not, however, looked at how these errors affect the interaction nor have they examined the other effects of pragmatics, such as the contextual influence of listener background, topic and speaker intent. This study analyzes the conversational breakdowns and repairs done by an aphasic individual in two interactions, one with her husband and one with her speech pathologist.

Subject. Our subject was a 41 year old right handed woman. She was a housewife who completed high school. In July of 1979 she suffered a subarachnoid hemorrhage secondary to a ruptured intercranial aneurysm of the right middle cerebral artery. Subsequent to the hemorrhage, a right frontal temporal craniotomy was performed to clip the aneurysm. Following surgery, the physician reported that "she underwent significant arterial vasospasm resulting in organic brain syndrome." Two months later she began receiving speech therapy and attended 26 therapy sessions. Results of the Minnesota Test for the Differential Diagnosis of Aphasia indicated a mild to moderate language impairment with disturbances in all modalities.

Methodology. Our subject was videotaped at the university clinic in interaction first with her husband and then with her speech pathologist. Her interaction with her husband lasted about six minutes, and focused on what they would be doing that day. Her interaction with the speech pathologist was in two parts; the first was an eight minute conversation, and the second a ten minute segment of a treatment session.

Digital timing in minutes and seconds was superimposed on the videotape. The tape was then transcribed in traditional orthography. The transcripts were analyzed for conversational breakdowns, patterns of conversational

repairs, and resolution strategies. Once the breakdowns, repairs, and resolutions were identified, they were categorized into types. The comparison of the types was then made across interactants as well as for the different types of situations--for example, conversation versus structured treatment.

RESULTS

Breakdowns. Conversational breakdowns were operationally defined as trouble in the conversation; that is, instances where the ongoing topic was broken or where the flow of conversation was interrupted. There were 23 breakdowns in the interaction between the subject and her conversational partners. Inspection of the data revealed that ten of the 23 breakdowns occurred while the subject conversed with her husband in the six minute conversation. Two breakdowns occurred while talking with the clinician in the eight minute conversation. However, the majority, eleven, occurred during the structured therapy session, which lasted ten minutes.

A taxonomy of the breakdowns according to the subject's difficulties revealed four general types: (1) Lexical breakdowns were those in which the subject was having difficulty retrieving a particular lexical item and her difficulty interrupted the flow of conversation. (2) Mispronunciation breakdowns occurred when the subject mispronounced a word and her interactant corrected her. (3) Semantic domain breakdowns occurred when the subject substituted a semantically related word for the target word; for example, "son" for "grandson." (4) Topic shift breakdowns occurred when the subject was unable to follow the interactant's change in topic and the flow of conversation was broken. As Table 1 shows, lexical breakdowns comprised the majority (19 of 23) of the breakdowns. The remaining four breakdowns fell into the other three categories; two were semantic, one topic shift, and one mispronunciation.

Table 1. Summary of breakdown, repair and resolution types in three contexts.

Category	Conversation Subject and Husband 6 minutes	Conversation Subject and Clinician 8 minutes	Therapy Subject and Clinician 10 minutes
<u>Breakdowns</u>			
Lexical	7	1	11
Mispronunciation	1	0	0
Semantic	2	0	0
Topic Shift	0	1	0
<u>Repairs</u>			
Hints	9	0	88
Guesses	9	0	2
Wh Questions	11	2	31
Corrections	9	0	1
Repetitions	6	2	22
Social Tangential	2	1	22
Phonological Approximations	0	3	14
Agreements/Positive Reinforce.	0	0	16
<u>Resolutions</u>			
Word Found	5	0	10
Correction	2	0	0
Topic Coordinated	1	1	0
Unresolved	2	1	1

Repairs. Following the breakdowns, the efforts made by either conversational partner to repair the breakdown and return to the topic were analyzed. Two hundred fifty repairs were used in response to the 23 breakdowns. A type-token analysis revealed eight general types of repairs. Table 1 shows the frequency of each repair type in the three contexts. The most prevalent repair consisted of hints. We found 97 hints during the three situations. They were classified into three subtypes: verbal hints, consisting of sound cues, statements and sentence completion tactics; gestural hints, involving pointing to items; and modality shift hints, where cues were transformed from the oral-verbal mode to writing or spelling. Within each of these subtypes of hints, information related to the target word was given but not the answer itself.

In contrast, a second type of repair, guesses, involved the presentation of a restricted set of responses from which the repair could be formulated. Opportunities for guessing were provided by either partner, though they were usually provided by our subject's husband, and were offers of potential resolution. Guesses were often in the form "Is it X?" "Is it Y?" where X or Y is the sought after form. Table 1 shows that 11 guesses were used in three contexts.

A third type of repair was the Wh question. This facilitating device included such wh forms as "What is, where is, who, and why?" and was used 44 times in our corpus. Both guesses and questions have the syntactic form of the interrogative, but guesses differ in that the specific target lexical item is in the guess.

Correction or rejections of previous search or production attempts formed the fourth repair device. For example, when our subject mispronounced her physician's name, her husband corrected her production by immediately providing her with the correct model and repeated this model until she said it appropriately. We found ten examples of correction repairs.

A fifth type of repair we identified was the repetition. A repetition repair consisted of one of the interactants repeating or imitating a previously given hint, a correction or the original problem. For example, when our subject was given the phonemic hint /s/ to facilitate the word sour, she said /s, s/. At another time when asked why a statement was ridiculous, she repeated the query "Why was it so ridiculous?" There were 30 repetition repairs in the corpus.

Our sixth category of repairs was the group formed by social-tangential statements. These were comments about the task. For example, our subject said "I can say it the first time, you know, and then I get it if I keep saying it over and over, then I get it all." At another time, when the topic of hockey was introduced, the subject, rather than search for the word "player," which would have fulfilled the task, talked about her impression of the particular player named. There were 25 repairs of this type.

As part of the repair sequence our subject produced a strategy we called phonological approximations. This was a strategy in which the subject searched for the target word phonemically without having been given a model. These are different from hints, in that the subject was phonemically and lexically close to the target word. For example, when searching for the word sour, she first said /s/ and then /saler?. We found 17 of these repairs, most of which occurred during the therapy session.

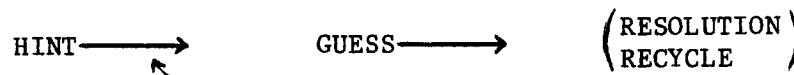
Finally, our eighth category was formed by comments which were agreements or positive reinforcements. These included such statements as "yes," "that's right," "that's close," "you almost have it," and "oh, good." These statements only occurred during the treatment session and never in the conversational

context with either her husband or therapist. There were 16 agreement/positive reinforcers found.

In sum, the taxonomy of repairs consisted of eight categories, and the number of repairs in each category varied. By far the most frequent type of repair used was the hint, which accounted for 36% of the repairs. The other most frequent repair devices used were direct questions and repetitions, 19% and 12% respectively.

Interaction Cycles in the Repairs

There were several patterns which revealed themselves when the sequence of utterances in repairs was examined. In her interaction with her husband, the subject in eight instances presented him with a hint which was followed by his attempt to guess the lexical item which they were searching for. When successful, the sequence terminated and the breakdown was resolved. When unsuccessful, the subject typically presented another hint which was followed by a second guess by her husband. The sequence can be depicted as



Such sequences were sometimes begun by a question from the husband. We call this the hint and guess sequence.

A second commonly occurring pattern between our subject and her husband was the correction sequence, where the husband corrected either a mispronunciation or a semantically similar lexical item, and our subject imitated his correction. There were four such patterns.

A third repair pattern was a self-cueing and reinforcement one. This consisted of an attempt by the aphasic subject to retrieve a lexical item either by hinting to herself, by providing a phonological approximation of the item, or by asking herself direct questions. This pattern revealed itself when we looked across repairs and combined those in which the subject was giving herself cues or hints. The cues were typically followed by an evaluative statement by the clinician, who knew the word the subject was trying to think of. This pattern comprised 56% of the statements involved in the subject's repair work within the therapy interaction, but did not occur in either of the conversations.

A fourth pattern occurred twice, when the clinician suggested spelling or writing the target word. This modality shift cue was followed by a question or repetition by the subject, a hint at how to spell the word by the clinician, and a repetition of the hint or the successful finding of the word by the subject.

Resolutions. In most cases the repair was successful, in that one or the other of the interactants resolved the trouble. This was done by either interactant finding the sought after word or topic or by the subject correcting her error. In some cases there was no resolution and the partners simply moved on to another topic.

Table 1 summarizes our description of breakdowns, repairs and resolutions for the three types of interactions. There are 15 examples of resolutions of word finding, two where topics became coordinated, two where the subject corrected her error and in four instances there was no resolution of the breakdown. In these cases the interactants continued on with the conversation.

Factors Affecting Breakdowns and Repairs. Until now we have ascribed the breakdowns to our subject's language problems. That is, we have classified breakdowns as related to her difficulties with lexical retrieval,

mispronunciation, semantic problems, and following topic shifts. What is apparent from our data is that the relative effort given to repairing varies, depending upon whether the situation is a structured one, as in therapy, and upon our subject's conversational partner. This leaves us with the dilemma of (1) why there was so much struggle in the therapy situation and (2) why there were so few breakdowns and repairs in the client clinician conversation. We attempted to answer these questions by examining the data in light of the pragmatic constructs of agenda, topic and listener background.

Agenda. When comparing the two conversations, it became apparent that our subject experienced the same types of language difficulties in both situations. It appeared, however, that the clinician did not respond to those difficulties by doing repair work. Thus, what would have been a breakdown was glossed over by the clinician. There were six of these non-actualized breakdowns in their interaction along with the two actualized breakdowns.

Further scrutiny of the tape indicated that while the clinician was conversing she was also setting up materials for the treatment session. Thus, she appeared to have in mind two goals or agendas; (1) talking with the client and (2) getting ready to work. The effect of this on the interaction was that difficulties on the part of the client which would have produced breakdowns were disregarded.

This construct of agenda also became important in accounting for the difference between the therapy session and the conversation. That is, when the agenda was to teach the subject something, the number and types of repairs differed. In the treatment sessions the clinician's agenda was to aid the client in figuring out the lexical target by promoting and reinforcing self cueing. This produced the self cueing-positive reinforcement sequence. Contrastively, the husband's agenda with the client was to converse about their plans for the day. In this case, he worked with her to determine the lexical target rather than requiring her to do all the repair work. As a result, we found hint-guess sequences in which the subject actively provided a hint and her husband worked with her to resolve the breakdowns. Their working together had the further advantage of shortening the repair time and effort.

Topic. The topic of each interaction was allied with the prevailing agenda. That is to say, the agenda represents the goal, and the topic the means to the goal. For example, the "planning the day" agenda involved topics of going shopping and visiting the doctor and friends. The topic also played a role in the determination of breakdowns and repairs. With the exception of one mispronunciation and one topic shift breakdown, the remaining 21 breakdowns found were due to our subject's lexical retrieval problems. Upon further examination of the lexical breakdowns, we found that they occurred when the target item had not been talked about before. These are referred to as comments upon topics in the pragmatic literature. For example, when the topic was shopping, the comments were whip cream or basket ball. Our subject did not have difficulty retrieving nouns with the topic as referent but did with the nouns which served as comments on the topic.

Background Information. A third contextual influence on breakdown occurrences was the amount of background information which the interactant had about the topic. In conversations when the listener was able to figure out the item by virtue of background information, the breakdowns did not occur or occurred with minimal repair, as characterized by the repair cycle

"hint and guess." Parenthetically, there were those cases in the therapy session where the clinician knew the target item and in spite of this, breakdowns occurred. This was because the agenda of those therapy sessions was to get the subject to do her own repairs.

In sum, we have attempted to classify breakdowns, repairs and resolutions which occur in interaction with an aphasic person. In addition, we looked at the contextual factors which influenced the occurrence of those breakdowns. We derived three pragmatic constructs to account for the occurrence of breakdowns and repairs; agenda, topic, and background knowledge.

Clinical Relevance. We see the relevance of this study going beyond the research findings for this particular subject and suggest that the techniques we used as an assessment procedure may be used to diagnose conversational competence. When we began our study, we felt that we could use the number of breakdowns as an index of conversational competence. We now feel that we must consider other factors, such as the number of nonactualized breakdowns, the length of and efficiency of the repair, the cooperation between the partners for sharing repair work, and the role of agenda, topic, and background knowledge. Once these factors are understood, clinicians may point toward naturalistic therapy techniques in keeping with the new clinical focus of pragmatically-based therapy.

After having gone through this analysis, we see the pragmatics goal with the aphasic person as creating smooth conversational flow. Our analysis suggests that the way to do this would be to teach listeners and ourselves as clinicians to assume more responsibility for conversational interaction by gaining background knowledge, working with the client's topics and agendas, and becoming more efficient in our use of repair strategies such as "hint and guess" sequences. We feel we have just begun to scratch the surface of discovering what goes on in conversational interaction with aphasic individuals and invite you to further explore this as a fruitful area.

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