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COMMUNICATION IN THE BACK-CHANNEL: SOCIAL STRUCTURAL ANALYSES OF NONSPEECH/SPEECH CONVERSATIONS

by

ANDREA F. BLAU

A dissertation submitted to the Graduate Faculty
in Speech and Hearing Sciences
in partial fulfillment of the requirements for
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ABSTRACT

COMMUNICATION IN THE BACK-CHANNEL: SOCIAL STRUCTURAL ANALYSES OF NONSPEECH/SPEECH CONVERSATIONS

by

Andrea F. Blau

Adviser: Professor John Dore

Six nonspeaking individuals, who augmented their residual vocal skills with alphabet/word boards, were videorecorded during conversations with six familiar speaking partners. It was hypothesized that the interactional dynamics which shaped these encounters were heavily influenced by explicit feedback activity. A descriptive methodology was developed to identify back-channel communications across these dyads. Five listener feedback signals (Restatement Back-Channels, Expansion Back-Channels, Query Back-Channels, Correction Back-Channels and Acknowledgment Back-Channels) and one speaker feedback signal (Back-Back-Channels) were identified as discrete back-channel types.

Back-channel communication was found to play a primary role within these conversations. All of the nonspeakers' complex conversational contributions were co-produced with their speaking partners. Main-channel/back-channel contingency was the principal mechanism for conversational act co-construction. The nonspeakers' "ownership" of the conversational floor during message co-construction was

never challenged. All of the speaking partners' contributions, during co-constructed act contexts, were feedback forms which they produced in their roles as active listeners. Retaining the conversational floor, however, was much more difficult for the nonspeakers following complex message transmission. Structural features of the conversational mechanism appeared to influence early turn transfer at context transitional junctures.

Speaker main-channel contribution, auditor back-channel response, explicit or implicit speaker back-back-channel signal and speaker main-channel continuation was confirmed as the basic interactional unit organizing the participants' contributions. These highly cohesive sequences were part of the basic organizational structure of these conversations. Their explicit use within these nonspeech/speech interactions, shaped the participants' social encounter. The quality of the interactional sequence, when initiated by the nonspeakers, appeared to be much sturdier during co-constructed contexts than across whole act exchanges.

Interactional style influenced dyadic performance within this organizational structure. Style was manifested as active negotiation by the participants. Social roles provided participants with a framework for acceptable interaction styles. A continuum of interaction styles ranging from casual to constrained was identified across these six dyad pairs.

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CHAPTER I

INTRODUCTION

1	Speaker A:	Myself, I prefer a communication board as to a machine.
2	Speaker B:	Uh huh.
3	Speaker B:	Why?
4	Speaker A:	I feel it takes away my personality, if you know what I mean.
5	Speaker B:	((Nods head))

The above excerpt was taken from a face to face conversational exchange. In reading it, one would be hard pressed to find anything atypical about it. There is smooth interplay between Speaker A and Speaker B. Statements are acknowledged and questions are answered. The participants take turns, respond to each other's messages, and signal interest and attentiveness to one another.

These five message units can be described as two sets of adjacency sequences. Message units 1 and 2 are pair parts of a statement/acknowledgment sequence. Message units 3, 4, and 5 reflect a question/answer/acknowledgment sequence. The production and chaining of these sequences illustrates a successful and, indeed, highly coherent exchange.

The conversation from which this excerpt was taken, however, was actually highly distinguishable from typical vocal face to face exchange. One of the participants (Speaker B) communicated through natural vocal speech. The other (Speaker A), augmented his vocal speech by pointing to letters on a communication board. The actual conversation (message units #1-5) went like this:

	SPEAKER A	/ʔ--maɪɛ̀/ ((POINTS TO SELF))	
	SPEAKER B	yourself	
	SPEAKER A	/aɪ/	
	SPEAKER B	((HEAD-NOD))	
	SPEAKER A	(P-R-E-F-E-R)	
	SPEAKER B	prefer↗	
	SPEAKER A	((HEAD-NOD))	
	SPEAKER A	/ɛɪ/	
	SPEAKER B	((HEAD-NOD))	
	SPEAKER A	/ʌmuɪɛ̀bɪbʔ/	
	SPEAKER B	((HEAD-SHAKE))	
	SPEAKER A	(C-O-M-M-U-)	
	SPEAKER B	communication board	
	SPEAKER A	/mm/	
	SPEAKER A	(A-S)	
	SPEAKER B	as	
	SPEAKER A	(T-O)	
	SPEAKER B	to	
	SPEAKER A	(A) /ɛɪ/	
	SPEAKER B	((HEAD-NOD))	
	SPEAKER B	Mhm	
	SPEAKER A	(M-A-C-H-)	
	SPEAKER B	machine	
	SPEAKER A	/ɛ/ ((HEAD-NOD))	
1	SPEAKER A*	(MYSELF, I PREFER A COMMUNICATION BOARD AS TO A MACHINE)	message unit
2	SPEAKER B	Uh huh ((HEAD-NOD))	message unit
3	SPEAKER B	Why?	message unit
	SPEAKER A	(I) /ʌ/	
	SPEAKER B	((HEAD-NOD))	
	SPEAKER A	(F-E-E-)	
	SPEAKER B	feel	
	SPEAKER A	(I-T)	
	SPEAKER B	((HEAD-NOD))	
	SPEAKER A	(T-A-K-E-S)	
	SPEAKER B	takes	
	SPEAKER A	/ʌweɪ/	
	SPEAKER B	away	

	SPEAKER A	(M-Y)	
	SPEAKER B	your	
	SPEAKER A	(P-E-R-S-O-N-)	
	SPEAKER B	personality↗	
	SPEAKER A	/ɛ/ ((HEAD-NOD))	
	SPEAKER B	Mhm ((HEAD-NOD))	
	SPEAKER A	(I-F-Y-O-U) /I ju/	
	SPEAKER B	((HEAD-NOD))	
	SPEAKER A	(K-N-O-W)	
	SPEAKER B	know	
	SPEAKER A	/wʌʌ mĩ/	
	SPEAKER B	What you mean	
	SPEAKER A	/jɛ/ ((HEAD-NOD))	
4	SPEAKER A*	(I FEEL IT TAKES AWAY MY PERSONALITY IF YOU KNOW WHAT I MEAN)	message unit
5	SPEAKER B	((HEAD-NOD))	message unit

It took <u>fifty individual acts</u> to complete the five message units. The transmission of Speaker A's initial statement and subsequent response involved intensive <u>co-construction</u> by both participants. Main-channel pieces of information produced by Speaker A were fedback in the back-channel by Speaker B. The high level of cooperation required by these interactants was occasioned by the nonvocal modality in which the majority of Speaker A's messages were produced.

Individuals whose vocal productions do not meet their communication needs (and for whom hearing impairment is not the primary cause), often augment their residual speech with nonspeech communication systems. These systems provide the "nonspeaker" with a reliable means of self expression. Augmentative communication aids range from simple alphabet boards (as used by Speaker A) to highly sophisticated technology with synthetic speech output. The particular aid used by an individual reflects a range of cognitive, linguistic, motor, perceptual, social and economic variables. These selections are highly individualized in nature and vary both across and within individuals over time. Whether a simple or sophisticated aid is selected, the individual's verbal expression will not match the speed and flexibility of natural vocal speech.

Speaker A, in the above example, is the nonspeaking partner (NSP) and Speaker B, the speaking partner (SP), within a five-message exchange. On the surface, the principles which serve to organize conversation across vocal interactants appear to operate across the nonspeech/speech domain. The participants exchange turns, produce adjacent messages, and provide ongoing feedback. A look at the deeper texture of the conversation, however, reveals a distinctly different organizational structure. In vocal conversation, multiple message units can be shared within a single turn at talk. For the nonspeaking/speaking partners, mutltiple turns are exchanged before the nonspeaker's single message unit is shared. The massive use of explicit feedback signaling (i.e., back-channel communication) organizes the participants' contributions. A basic interactional unit, depicting the relationship of main-channel and back-channel information, was therefore developed as the unit for examining these conversations.

Conversational organization shapes social encounter. The interaction of nonspeakers and speakers is therefore shaped by the interplay of main-channel and back-channel information which organizes their conversational contributions.

CHAPTER II

LITERATURE REVIEW

Back-Channel Communication Research

The phenomenon described as "back-channel communication" is not new to researchers of conversation. Fries in 1952 referred to communication in the back-channel as "conventional signals of attention to continuous discourse which are elicited by statements" (p.50). Fries audiorecorded fifty hours of "natural, practical conversations" across participants unaware of the recording process. Statements followed by attentional signals comprised 60% of the corpus he analyzed. The forms of these "attentional signals" were yes, unh hunh, yeah, I see, good, oh, that's right, yes I know, fine, and oh dear, and their function seemed to include both attentional and acknowledgement/agreement types of convarsational acts. These two functions of what Duncan was to later call short or "mhm" back-channels have been discussed over the past thirty years in terms of their verbal and non-verbal forms of expression and their powerful regulatory role in maintaining the back and forth flow of conversational interaction (see Table BL1).

The term "back-channel" communication was invented by Yngve (1970) in his description of the distinction between having the speaking turn and speaking out of turn. "One

TABLE BL1

Research Interest In Back-Channel Communication

AUTHOR(S)	DATE	TERMINOLOGY USED
Fries	1951	"attentional signals"
Goffman	1955	"face saving moves"
Trager	1958	"vocal segregates"
Kendon	1967	"accompaniment signals"
Schegloff	1968	"assent terms"
Ekman & Friesen	1969	"regulators"
Yngve	1970	"back-channel", "back-back-channel"
Dittmann	1972	"listener responses"
Duncan	1975	"auditor/speaker back-channels"
Wiemann & Knapp	1975	"reinforcers"
Baker	1976	"back-channels as variations in Signer's facial musculature"
Weiner & Goodenough	1977	"passing moves"
Labov & Fanshel	1977	"reinforcers re: rules of confirmation"
Berko-Gleason	1977	"feedback signals"
Knapp	1978	"signals of pseudoagreement"
Krauss	1979	"back-channel as evidence of meaning apprehension"
Erickson	1979	"listener responses & hyperexplanation"
Blau	1982	"vocal emblems", back-channel as evidence of "active listening"
Blau	1983	"back-channels as signals of solidarity"

should hasten to point out" he writes "that the distinction between having the turn or not is not the same as the traditional distinction between speaker and listener, for it is possible to speak out of turn and it is even reasonably frequent that a conversationalist speaks out of turn. This is because of the existence of what I call the back-channel, over which the person who has the turn receives short messages such as "yes" and "uh huh" without relinquishing the turn. The partner, of course, is not only listening, but speaking occasionally as he sends the short messages in the back-channel. The back-channel appears to be very important in providing for monitoring of the quality of communication" (p.568). Whether Yngve's <u>turn/out of turn</u> distinction may be better described in terms of participants <u>holding/not holding</u> the <u>conversational floor</u> (Rees, personal communication) is a complex issue which is as yet unresolved. The fact that communication in the back-channel can frequently occur simultaneously with messages in the main-channel without conversationally interrupting the main message, however, gives support to the notion that information exchanged in the back-channel serves a qualitatively different function than main-channel communication.

One unique feature, of certain frequently used back-channel utterances, is their ambiguous classification as a linguistic phenomenon. Utterances such as <u>uh huh</u>, <u>mhm</u> etc. cannot be called words. Trager (1958) in his description of paralanguage included these utterances as part of his vocal segregate classification and described them in terms of place and organ of articulation, manner and voicing. Blau (1982) has defined them as vocal emblems i.e., vocal utterances which possess verbal translations recognized as such by members of a social community. Blau describes vocal emblems as a meshing of paralinguistic and linguistic phenomena similar to that found on the non-verbal/verbal domain in Ekman and Friesen's (1969) definition of emblems.

In their classification system of nonverbal behavior, Ekman and Friesen (1969) describe a distinct class of behaviors as regulators i.e., "acts which maintain and regulate the back-and-forth nature of speaking and listening between two or more interactants" (p.82). These nonverbal acts tell the speaker to continue, repeat, elaborate, hurry up, become more interesting, give the listener a chance to talk, etc. They are related to the conversational flow in the pacing of the exchange. "The most common regulator," they write "is the head nod, the equivalent of the verbal mm-hmm; other regulators include eye contacts, slight movements forward, small postural shifts, eyebrow raises, and a whole host of other nonverbal acts (p.82). We suspect that the frequency and type of regulators vary considerably with role, setting, and demographic characteristics of the person. Their misuse or misinterpretation is one of the more perplexing sources of misunderstanding between members of different groups" (p.83).

Kendon (1967) describes this same phenomenon as "accompaniment signals". "The auditor can exert a fairly detailed control over the speaker's behavior by the kind of head nods he produces and how he places them in relation to certain aspects of the structure of his interlocuter's speech. The same is no doubt equally true of verbalized accompaniment signals" (p.43). He further subdivided these nonverbal signals into two main classes.

1) Attentional signal proper, in which the listener is merely signaling his attention to the speaker (similar to the vocal mhm, yes, etc.), and

2) Point granting/assenting signal, in which the listener is agreeing with the content of the speaker's message (similar to the vocal yes quite, surely, etc.)

Goffman (1955) in his discussion concerning "face saving" moves, describes this phenomenon in light of the ritual order of conversation. "The recipients convey to the speaker, by appropriate gestures, that they are according him their attention...when one person volunteers a message, thereby contributing what might easily be a threat to the ritual equilibrium, someone else present is obliged to show that the message has been received and its content is acceptable to all or can be acceptably countered" (pp.226-228).

In his discussion of sequencing in conversational openings, Schegloff (1968) describes "assent terms" of the society, such as "mmhmm", "yes", "yeah" and "uh huh" when serving as the initial response to a summons, as establishing the answerer's availability and committing him to listen. This commitment is renewable. Each subsequent "uh huh" or "yes" then indicates "the continuing availability of its speaker and recommits him to hear the utterance that may follow. It is by way of the status of items such as "uh huh" and "mmhmm" as demonstrations of continued coordinated hearership that we may appreciate the fact that they are among the few items that can be spoken while another is speaking without being heard as an interruption" (p.1093).

Dittmann (1972) considers "listener responses" as a borderline group of behaviors between the verbal and nonverbal i.e., some consisting of linguistic forms while others not. "While they are all discrete events, they are not all symbolic in the sense of having reference. Thus, they do not qualify as a "language" but are perhaps best described as specific signals that the listener is paying attention to the speaker, is keeping up with him, or that he has understood what was just said" (p.405).

Perhaps the most carefully laid out description of auditor back-channel communication is found in Duncan's work (1975). Basing his own analyses on the earlier work of Yngve he writes "Speaker-auditor interaction may also be encountered during the course of a speaking turn. In dyadic face to face conversations as the speaker continues his turn, the auditor does not typically remain mute and motionless. Rather, he may frequently nod or shake his head and utter a variety of vocalizations, such as "mhm" and "yeah" (p.162). Duncan found that relationships existed between auditor back-channel behaviors and certain speaker behaviors in language and body motion, variously occurring before or after the back-channels. While he felt that auditor back-channels were not listener claims for the speaking turn they were, however, a powerful method for listeners to provide speakers with useful information as the turn progressed. He distinguished between five classifications of back-channel behavior:

1. Mhm (yeah, right, true) Signals (used singly or repeatedly)

2. Sentence Completions (brief completions of the speaker's message by the auditor with no continuation on the part of the auditor)

3. Requests for Clarification (a few words or phrase)

4. Brief Restatements (restates in a few words an immediately preceding thought expressed by the speaker)

5. Head Nods and Shakes (alone or accompanying verbal signals)

Classifications 1 and 5 were considered "short back-channels" as described in the discussion above. Classifications 2, 3 and 4 were labelled "long back-channels". This latter classification while still referring to back-channel activity is comprised of conversationally (as well as propositionally) more complex utterances in that they frequently require a response (either a clarification or acknowledgement) on the part of the speaker, prior to the continuation of his conversational turn.

While Duncan's description of back-channel activity did not include a complete analysis of its non-verbal components nor did he analyze the various conversational functions of short back-channels (whether signals of attention, comprehension or agreement) his analysis did suggest the existence of an <u>interactional unit</u> in conversation. Auditor back-channels did not appear at random points within conversation. They occurred predominantly following a speaker "within turn signal" i.e., the completion of a grammatical clause and the turning of the speaker's head toward the auditor. He concluded that both the display of an auditor back-channel and its location may play a part in speaker auditor interaction.

Weiner and Goodenough (1977) have described back-channel responses as a type of "housekeeping move" in that they appear to add nothing new to the subject matter of conversation but serve semantic content connecting functions. They define the "passing move" (a term originally used by Schegloff and Sacks) as a turn or part of a turn in which the utterer relinquishes the option to make a substantive contribution to the momentary topic of talk. Its back-channel function is in informing the speaker to continue his speaking turn. These authors additionally distinguished between short and long back-channels by their distinctions between "OK passes" and "repetition passes", respectively.

Wiemann and Knapp (1975) referred to both short and long back-channels as "reinforcers" i.e., words that provide a feedback to the speaker but do not necessarily attempt to gain the speaking role for the interactant emitting them. While the view offered by Rogerian and behavioral therapists of the reinforcement value of responses such as "mhm" and "good" in therapeutic interactions was not expanded upon by Weimann and Knapp, the notion of back-channel cues functioning as turn denying or turn avoidance signals was addressed. They felt that in relation to speakers' <u>turn yielding cues</u> back-channels serve to signal the speaker that the auditor does not wish to take the speaking role. Additionally they found that while "reinforcers" have usually been considered a form of encouragement for the speaker to continue talking, in their data, the subjects appeared to use "reinforcers" in order to request the floor as often as to encourage speaker talking. While this finding appears contradictory, the authors suggest that the behavior of the auditor accompanying the utterance of a reinforcer or the behavior of the speaker to which the reinforcer is a response probably determines how the speaker interprets the reinforcer. If the utterance of a reinforcer is accompanied by a postural shift (from reclining to upright), prolonged eye contact or rapidly repeated head nods, the reinforcer is more likely interpreted as a request for the floor. Additionally, if these reinforcers are uttered while the speaker is talking, or when the speaker is looking away from the auditor the reinforcer is most likely a request. On the other hand, if the speaker has requested feedback from the auditor and the reinforcement is delivered in a slow thoughtful manner the speaker interprets it as encouragement to continue. It should be noted, that Wiemann and Knapp's analysis focused on listener responses at turn-yielding opportunity spaces rather than responses following speaker within-turn signals (as examined by Duncan, 1975). While their work can not be directly compared with that of Duncan, it clearly illustrates the range of regulatory functions which have been attributed to back-channel communication.

While Labov and Fanshel (1977) refer to items such as "mhm", "uh huh", etc., as reinforcers produced to encourage the speaker to continue speaking, their analysis of <u>rules of confirmation</u> can be described in light of the attentional/agreement variation of these typically short back-channels. "Responses to assertions" they write, "are heavily determined by the relation of the position being asserted to knowledge shared by the participants" (pp.100-102). If the speaker (A) asserts an A-event (an event known only by A) he normally requires only an <u>acknowledgment of a minimal kind</u> from B (the listener). B must simply show that he is prepared to pay attention during the extended turn at talk. In the case that A makes an assertion about a B-event (an event known only by B) his utterance is heard as a request for confirmation. Assertions about AB or O-events (events known by both A and B or by everyone) come closest to the concept of remarks - utterances making minimal demands for responses. The clearest interactional consequences follow when A makes an assertion about D-events (events known to be disputable). This is heard as a request for B to give an evaluation of that assertion. It appears then, that in attempting to distinguish between attentional and assenting back-channels, in addition to examining the nonverbal behaviors which accompany the signal's expression, it is important to look at the preceding utterances and the relation of that utterance to the back-channel emitted, as well as which propositions are shared, not shared, or in dispute among the participants.

The amount of propositional information shared between partners in dialog is not the only determinant of the form and function of the back-channel emitted. The immediate context, including the relationship between the participants and what they are doing together with their talk, will additionally influence the back-channeling exchanged. Frake (1977) focused on the shape of contextual frames within which people organize their conceptions of what is happening at any given time. For example, an informal talk between two students in which one student describes an argument he had with his mother, provides a very different "occasion" for interpreting the event than when the student describes the argument to his psychotherapist. Both the friend and the therapist may have shared a similar amount of prior knowledge regarding the propositional content of the talk. The frames, however, which define how one behaves when talking with a friend and when one is talking with one's therapist provide very different interpretive contexts for these participants. Blau (1983a) suggests that these contextual frames might influence the frequency of back-channel signaling produced. The friend may provide a large number of back-channels to signal her attention and solidarity with her peer. The therapist, however, might withhold her back-channels to encourage her client to "hyperexplain" (see Erickson, 1979 for definition) or further elaborate on the details of the argument, in the hope of having him reveal through his talk a deeper understanding of himself. Blau further suggests that the degree of familiarity or intimacy between participants will further affect both the function and form of communication in the back-channel. Blau defines the term "solidarity" as used within the conversational domain, as a communion of sorts between partners in dialog. "Frequently, the use of explicit signals of agreement function <u>interactionally</u> to convey solidarity or comradery between participants in dialog...Conversational partners who are intimately acquainted, often complete each others messages through back-channel expansions" (p.7).

The use of verbal and nonverbal back-channels to convey pseudoagreement with the speaker as described by Knapp (1978) or to convey pseudoattention as discussed by Schegloff (1968) further demonstrates the regulatory conversational function of back-channels. Schegloff describes an anecdote in which a tired husband returns from his office, sinks into his chair and opens the evening paper to the sports page. His wife, wishing to unburden herself of the accumulated troubles of the day begins an extended monologue. Routinely, she leaves a slot of silence in which the husband dutifully inserts "yes, dear" until suddenly aware that all is not as it seems the wife says, "are you ignoring me?" to which he replies "yes, dear." While this anecdote is amusing it underlines an important component of back-channel communication i.e., it functions more as a means of regulating the conversational flow than conveying linguistic information. While back-channels can be performed by a listener quite purposely, they are usually performed on the periphery of awareness, almost like an involuntary overlearned habit (Ekman and Friesen, 1969). "While a person can perform a regulative act without knowing it, if asked can easily recall or repeat it. Similarly, the other interactant seems quite sensitive to regulators if they are removed, but barely aware of them when they are present" (p.82). There is evidence, however, that speakers can perceive audience feedback and that it does affect their behavior i.e, while they might not be cognizant of each and every back-channel response which they are given, they usually are aware of the positive or negative feedback they are receiving and may adjust their own behavior accordingly (Knapp, 1978). Certainly individual predispositions, such as a high need for approval, may heighten the sensitivity of a speaker to perceived feedback and the amount of behavioral change adopted as a result. Knapp has reported that speaker fluency, utterance rate, length of speaking, vocal loudness, heart rate, eye gaze and movement may all be affected by perceived positive or negative audience feedback.

Krauss (1979) suggests that back-channel responses play an important role in the process by which a speaker's intended meaning is apprehended. He describes conversational meaning (what we understand another person to mean by what he says) as a hypothesis we form to make discourse coherent. Data used to form these hypotheses "include the verbal content of speech, the paralinguistic variations to which we attribute significance, and such visible behaviors as gesture, facial expression, posture, etc. ... It includes knowledge about the world and the person who is speaking, what he knows we know, and what we know about conversation as a form of social interaction."

Krauss further suggests that "there is an important way in which a meaning hypothesis differs from a scientific or perceptual hypothesis: in the case of the latter the data flow is unidirectional. The data points are there to be observed and, if possible, to be understood. But they do not tell us whether our hypothesis is right or wrong. When the signal source is a person and the goal is to understand and be understood, each party has a vested interest in ensuring that the hypotheses formulated by the other with respect to his utterances are consistent with the meaning he intended to convey. One device used by interactants to accomplish this is "back-channel responding". It is through the medium of the back-channel response that the listener displays evidence of the nature of his understanding, and it is this evidence, in large part, that the speaker employs to determine whether he has been correctly understood" (pp.68-69).

In summary, back-channel signals have been of interest to researchers of face to face conversational interaction for years. In their simplest forms, their status as discrete linguistic phenomenon has been questioned, yet there has been no question as to their important regulatory function within conversational interaction. Despite their borderline linguistic status, back-channel signals clearly possess conversational status. The definition of a conversational act (Dore, 1978) as a unit which has a form (i.e., word, phrase, sentence) and a function in a conversational sequence, can in some sense encompass back-channel signals. Yet back-channels do not serve typical C-act functions. <u>They do not add new information to the topic of the talk but serve an important feedback function reflecting the listener's disposition to the propositional content of the speaker's talk</u>. This "co-illocutionary" feedback function is a complex phenomenon and can be examined from a variety of perspectives (as the above literature review suggests). What appears clear, however, is that there are strong relationships between these feedback signals and verbal, nonverbal and paralinguistic cues signaled by the speaker at particular points within his conversational turn. Duncan's discription of auditor back-channels following speaker within-turn signals provides us with the initial evidence for an interactional unit within conversation - a unit which is across persons in dialog.

A variety of issues serve to distinguish the viewpoints of the scholars whose research has been summarized above. The first involves the linguistic status of back-channel signals (including their verbal and nonverbal components). The second pertains to the conversational status of these signals and whether they do or do not have turn status. A third issue reflects the distinctions between long and short back-channels, their functions and their frequency of use within face to face conversations. A fourth issue reflects the location of auditor back-channels and how their location in respect to the speaker's utterance, influences their production as well as the function attributed to them. Given the information gleaned from the collaborated efforts of the above scholars, the distinctions between auditor back-channels at turn transitional spaces and auditor back-channels at within-turn junctures merits disentangling, as the specific regulatory functions attributed to these signals appear to vary greatly.

Prior to looking at these issues within the present study, a brief literature review describing less typical formats for examining communication in the back-channel will be presented. The above scholars discussed these discrete signals within homogeneous communities. "Conventional" back-channel responses i.e., signals used and responded to by members of a social community, may vary from one community to another. The form of back-channel activity for users of American Sign Language has been described by Baker (1976 and 1977). "There are some lexical items in ASL which are made soley by variations in the signers facial musculature" writes Baker. "These tend to be of two types: those which refer to more private activities and those which normally occur as addressee back-channel responses, such as the affirmative uh huh (nose twitching), oh why not? (head to side, puff cheek and release), <u>oh definitely yes</u> (head to side, close eyes, mouth in 'C'), and <u>that's really interesting</u> (open mouth, then tight closed lips, half closed eyelids, slowly nodding head)" (1976, p.25). Baker stresses that for native signers the eyes, face and hands serve strong regulatory functions in conversation. She uses Weiner and Devoe's (1974) classification of back-channels as continuation regulators. "After speaker initiation, the addressee continues to signal attentiveness and decoding by maintaining gaze and by making intermittent back-channel responses such as head nodding and facial variations indicating the addressee's reaction to each speaker's proposition. Such back-channel responses <u>seem</u> to occur more frequently in signed discourse than in oral conversation" (1977, p.227). Addressees occasionally mark their understanding of the speaker's utterance by indexing the speaker after each signed proposition has been transmitted. Concommitant with facial activity, indexing serves the function of the verbal "mhm" back-channel response. Similar to its function in oral conversation, an increase in the size and frequency of head nodding (as described by Wiemann and Knapp, 1975) can signal the addressee's desire to claim the speaking turn. Baker reports that most signers will relinquish their turn when confronted with this intense turn-claiming signal. Additionally, Baker found that short repetitions by an addressee, of the speaker's signs, was a predominant form of back-channel activity. These acknowledgment repetitions accounted for nearly half of the sign overlap found in her data. Similar to oral conversation, the overlap produced by back-channel activity did not interfere with the ongoing interaction.

<u>Within a social community</u>, however, <u>back-channel signaling varies from a developmental perspective</u>. Acknowledging repetitions, as described above, are not functionally equivalent to adult repetitions which occur following a child's nonresponsiveness. Berko-Gleason (1977) has remarked that "non-responsiveness whether linguistic or physical leads to repetition. It is probable that adult repetitions are triggered by some immediate behavior by the child. One obvious factor may be that the child has not yet learned to give the adult the appropriate feedback, the little nods, grunts, and other signals that indicate that the message has been received and that it is all right to continue" (p.201). Berko-Gleason suggests that mothers' abilities to "tune-in" to their children's smallest changes in cognitive and linguistic development may be cued by the children's back-channeling. Her examination of eighteen month olds revealed that at this early age, children did not nod their heads or produce any of the "standard" feedback signals. By contrast she found that children in day care facilities and grade school provided "eye-contact" at important points in the

conversation. While the form of their feedback was not as rich as adult feedback these children provided enough signals to allow teachers to continue their discourse.

Dittmann (1972) in his observations of children in kindergarten, first and second grades found that while "listening" facial expressions changed during the course of conversation, conventional listener responses were absent. Dittmann hypothesized that this absence may have given the adults the impression that the children were not listening to their conversational partners. His observations of grades one, three and five further revealed the absence of listener responses except in situations with the highest amount of social "pull". Knapp (1978) has reported that by eighth grade a dramatic increase in these listener responses is found. "Now the early adolescent's peers are beginning to lengthen their response duration (providing more opportunity for such listener responses); the "response pull" from adults is increasing; and there is a movement away from purely self-orientation toward imagining what others are going through" (p.65). It appears then, that within the first twelve years of a child's life, both the form and frequency of their back-channel responses differs from those used by the adults of their community (i.e., "adult communication.")

As pointed out by Ekman and Friesen (1969), signal misinterpretation between members of different groups provides a perplexing source of misunderstanding. "People are likely to attribute regulator differences to rudeness or unmannerliness, rather than to a regular system different than their own" (p.83). Erickson (1979) describes the effects of misinterpreted "listener responses" on the subsequent behavior of speakers. He defines "hyperexplanation" as persisting twice or more within the same speaking turn at the same explanation point. There are two intersubstitutable forms of hyperexplanation:

1. Talking Down (lowering the level of abstraction from one repetition of the explanation to the next)

2. Giving Reasons (each successive reason given, justifying the proposition asserted by implication in the discourse topic.

When a listener does not give the speaker feedback at "listener response-relevant moments" (similar to Duncan's "speaker within-turn signals") a frequent assumption made by the speaker is that the listener is inattentive or does not understand the stretch of talk. Subsequently the speaker simplifies, repeats or explains his contribution. Erickson describes this phenomenon in terms of conversational interactions between black and white individuals. His anlaysis of white job interviewers and black job applicants provided an excellent example of misunderstandings resulting from mismatched response signals. The white interviewers had reported that "something" was wrong in the interviews. That black applicants "don't seem to be listening". Conversely, the young black people reported that it often seemed like the white adults thought the blacks were stupid because the interviewers "would keep saying the same thing over and over as if they thought the young people did not know what the whites were talking about" (Page 106). The black applicants found these encounters both tedious and demeaning. While social role differences between an interviewer and applicant were not accounted for in Erickson's analysis, he did reveal important differences in both the form and frequency of listener response-relevant moments (LRRM) and the subsequent listener responses (LR) in the talk of the white and black individuals he studied. For white individuals, Erickson found that <u>speakers</u> signaled LRRMs more frequently than their black counterparts and in a more subtle manner, while the <u>white listeners</u> signaled their attention to speakers in a more elaborate manner than the blacks. The <u>black speakers</u> marked their LRRMs more grossly with sharp intonational shifts and considerable kinesic activity although the frequency of LRRMs was less than those produced by the whites. Their LRs, however, were much more subtley produced e.g., head nods with minimal excursions. An additional feature, noted by Erickson, which provided for further mismatch between the white and black conversational partners was the different gaze rules used by speakers and listeners across white and black cultures. While the white speakers averted gaze while speaking, the black speakers looked at their listeners continuously. Additionally, while the white listeners looked continuously at the speaker, the black listeners look away from the speaker, gazing at the speakers only at turn relevant moments. From the white interviewers perspective the black applicants were inattentive based on white cultural norms regarding the back-channeling system used by speakers and listeners. Extended sequences of hyperexplanation (both talking down and giving reasons) resulted. Erickson suggests that a retrospective analysis, as a more observant participant in interaction, might be the best method for greater cultural congruence with people one interacts with day by day.

Blau (1983b and 1983c) describes a frequent source of communication mismatch between speaking and nonspeaking individuals (i.e., speakers who must augment their oral speech with augmentative communication aids) as the lack of conventional back-channel signals given by the nonspeakers when they assume the role of listeners. Nonfamiliar listeners (i.e., speaking individuals who are not fully acquainted with the nonspeaking individuals or with nonspeech systems) often underestimate the cognitive status of the nonspeaker. "As the speaker conveys his ideas or feelings to the nonspeaker, his gaze will intermittently focus upon the nonspeaker for feedback as to the successful transmission of his message. A typical occurence in dyadic interaction between speaking and nonspeaking individuals is the lack or absence of conventional back-channeling signaled by the nonspeaker. The speaker, then, assumes that his message has not been transmitted and that the nonspeaker either does not understand or is uninterested. Subsequently, he simplifies his speech or terminates the conversation" (1983c, p.230).

In preliminary pilot research (Blau, 1982), the back-channel communication across two speakers and their nonspeaking partners was examined. Both of the nonspeaking subjects had been nonspeakers since birth and augmented their residual vocal speech by directly selecting letters and words on communication boards. While results were only preliminary, some interesting features regarding both the speakers' and nonspeakers' use of back-channel communication were identified. In addition to the speakers use of short back-channels, speakers seemed to use a greater proportion of repetitions, completions and restatements (long back-channels) than typically used in conversational interaction. This extensive use of long back-channeling appeared to reflect the active role taken by the speaking individuals <u>in assisting their nonspeaking partners during message transmission</u>. These long back-channels functioned as acknowledgments of the nonspeakers' contributions and were not claims for the speaking floor. The production limitations of the nonspeakers (i.e., their inability to communicate via vocal speech) set the occasion for <u>a more active listener role</u>

than is typical of oral conversationalists.

The pilot results further revealed that the nonspeakers produced back-channel acknowledgments for the primary purpose of <u>evaluating their listeners' interpretations of their own (i.e., nonspeakers') messages</u>. They appeared to produce few attentional or acknowledgment signals when the speaking partners conveyed their own self-initiated messages (i.e., not related to the transmission of the nonspeakers' messages). This infrequent use of conventionally placed short back-channels might in some way account for the frequent "hyperexplanation" or extraneous specification found in the talk of some speaking partners.

To further examine the role feedback plays within conversational organization, with specific attention to the form, function and frequency of back-channel communication exchanged by the nonspeaking/speaking dyad, the current research was designed. Prior to the description of the current research, an historical perspective on the evolution of interactional research in nonspeech/speech communication will follow.

Nonspeech/Speech Interaction Research

The interactional dynamics of nonspeech/speech conversation have captured the research interests of scholars in the field of augmentative communication. Within the past ten years a range of studies have emerged (Harris, 1978; Beukelman and Yorkston, 1980; Morningstar, 1981; Calculator and Dollaghan, 1982; Culp, 1982; Colquhoun, 1982; Wexler, Blau, Leslie and Dore, 1983; Calculator and D'Atilio Luchko, 1983; Green, Newhoff and Raney, 1984; Farrier, Yorkston, Marriner and Beukelman, 1984; Buzolich and Wiemann, 1985; Light, Collier and Parnes, 1985). Table NL1 lists the subject variables identified across this body of research. Studies differed in the number and age range of the subjects, the cognitive, linguistic and educational sophistication of the participants and the familiarity and social relationship of each subject pair. The cause of the nonspeaking condition (whether acquired or congenital), the amount of residual vocal speech available to the nonspeaking subjects, and the specific techniques and symbols system used in the nonspeech mode, differed both across and occasionally, within each study. Additionally, the specific units of analysis and the conversational contexts in which the data was collected differed greatly. Conclusive statements can not be made based on the accumulated findings of such varied research. Yet, each study does contribute to our

Table NL1

Subject Variables In Nonspeech/Speech Interaction Research

Authors	# of NSP Subjects	Population Description	Primary Technique	Symbol System	Conversatnal Partner(s)	Age Range of NSPs	Cog/Recept Language	Spelling Grade Level	Conversatnl "Context"	Location
Harris 1978	3	Nonambulatory Congenital NSP Cerebral Palsy	Direct Select Auto-com	Specifics N.R.	Teacher Peers	6.5-7.5	approx. Normal	N.R.	Conversation accompanying Classwork & Free Time	School
Calculator & Dollaghan 1982	7	Nonambulatory Congenital NSP Mental Retarda.	Direct Select Comm. Boards	Bliss*	Teacher	16-25	Moderate to Severe Mental Retarda.	N.R.	Conversation accompanying Classwork	School (Resdt)
Culp 1982	5	Congenital NSP Cerebral Palsy	Direct Select Comm. Boards Comm. Books Handi-Voice	Bliss Sounds Letters Words Phrases	Mother	5.5-13	within Normal range	N.R.	Conversation accompanying Activity	Home
Colquhoun 1982	7	N.R.	Direct Select Comm. Boards	Bliss	Teacher Mother Friend	10-27	N.R.	N.R.	Dyadic Conversation as focus	Center
Wexler, Blau Leslie, Dore 1983	10	Nonambulatory Congenital NSP Cerebral Palsy	Unaided/Vocal Direct Select Comm. Boards	Letters Words Phrases	Teachers Aids Therapists Counselors	15-41	approx Normal	3-11	Dyadic Conversation as focus	Center
Beukelman & Yorkston 1980	2	Nonambulatory Acquired NSP ALS/Brain Stem Lesion	Direct Select Comm. Board Elect. Typwrtr Scanning Zygo 10x10	Letters Words	Aids Spouse Author	27-53	Sub.#1, same as pre-injury Sub.#2, N.R.	N.R.	Conversation accompanying Activity & Therapy Visit	Home N Home
Morningstar 1981	4	Nonambulatory Congenital NSP Cerebral Palsy	Direct Select (N.R.)	Bliss	Experienced Inexpernced receivers	15-21	"sufficient processing abilities"	N.R.	Dyadic Conversation as focus	Center

N.R. = Not Reported   Bliss* = Blissymbolics   Resdt = Residential Facility   N Home = Nursing Home

Table NL1 (continued)

Authors	# of NSP Subjects	Population Description	Primary Technique	Symbol System	Conversatnal Partner(s)	Age Range of NSPs	Cog/Recept Language	Spelling Grade Level	Conversatnl "Context"	Location
Calculator & D'Atilio Luchko 1983	1	Nonambulatory Acquired NSP Brain Stem Lsn	Direct Select Comm. Board	Letters Words Phrases	N. Home Staff	24	Normal Receptive Language	N. R.	Spontaneous Conversation in "heavily trafficked area"	N. Home
Green, Newhoff & Raney 1984	4	Nonambulatory Congenital NSP Cerebral Palsy	Direct Select Comm. Boards	Letters Words	Author	24-37	Moderate M. R. Low Average Borderline IQ	N. R.	Dyadic Conversation as focus	School
Farrier, Yorkston Marriner & Beukelman 1984	5	Nonimpaired Adults Trained as NSPs	Unaided/Vocal Direct Select Memo-Writer Print Output	Letters	Familiar Able Bodied Matched Peers	15-26	within Normal Range	N. R.	Conversation accompanying Structured Problem Slvng Tasks	N. R.
Buzolich & Wiemann 1985	2	Nonambulatory Congenital NSP Cerebral Palsy	Direct Select Comm. Boards Handi-Voice 120 Numerical Code	Letters Words Sounds Syllables Phrases	Nonfamiliar Able Bodied Matched Peers	23-44	within Normal Range	N. R.	Dyadic Conversation as focus	Univer. Speech Center
Light, Collier & Parnes 1985	8	Congenital NSP Cerebral Palsy Lesch-Nyhan Sy.	Direct Select Indirect Slct Comm. Boards	Bliss*	Primary Caregiver	4-6	within Normal Range	N. R.	Conversation accompanying Unstructured Play	Clinic

N.R. = Not Reported   Bliss* = Blissymbolics   Resdt = Residential Facility   N Home = Nursing Home increasing understanding of conversational exchange between nonspeakers and speakers.

The evolution of this body of research reflects the movement in the field of augmentative communication from analyses focused on the communicative performances of individuals towards a more interactional study of communicative competency across partners in dialog. This movement appears to be strongly influenced by the concurrent evolution in the area of pragmatics. The early studies which examined the communicative function (or illocutionary force) of individual utterances (Dore, 1974; Bruner, 1975; Halliday, 1975) were soon supplemented by a range of studies which identified multiple pragmatic influences at work within conversation (Chapman, 1981). The function of an utterance in dialog, was found to be strongly influenced by the conversational context within which it was embedded (Garvey, 1975 & 1977; Dore, Gearhart & Newman 1978;) as well as by a range of implicit conventions (Hymes, 1964; Garfinkel, 1964; Grice, 1967; Gordon and Lakoff, 1975) which restricted the conversational options available to cooperative conversationalists of any given society. As the study of pragmatics moved from a focus on isolated utterances to the sequential nature of conversation and finally to the interactional nature of discourse, the definition of communicative competency began to change. The belief that competency was reflected by the performance of individuals, was enhanced to include a <u>cross-person measure</u>. The development of research in nonspeech/speech communication supports this strong interactional shift.

The earliest published studies, Harris (1978) and Calculator and Dollaghan (1982) focused primarily on the conversational interaction between teachers and their nonspeaking students. Classroom interaction was videorecorded and examined as representative of typical interaction styles between the nonspeakers and their teachers in their daily classroom setting. The focus of these interactions was on school work and the conversations which accompanied the work. While a variety of suggestions were proposed by these authors regarding the use of augmentative communication aids within these contexts, a fundamental finding by both authors was that teachers initate much more frequently than their nonspeaking students and that students provide more successful (in terms of outcome) and more varied conversational contributions when they are responding to their teacher's initiations than when they initiate conversational information.

These two studies differed in many significant respects. Harris examined three young (6-8) nonspeakers whose cognitive levels were commensurate with their age and who augmented their residual vocal and nonverbal skills with the Autocom, an electronic communication aid. Calculator and Dollaghan examined seven moderately to severely mentally retarded nonspeakers in a residential school setting between the ages of 16 and 25 who augmented their residual speech with nonelectronic direct select Bliss boards with restricted vocabulary. Clearly one would not compare the results of these studies but can note that in both respondent behavior predominated.

In terms of specific findings, Harris suggested that teachers dominate the communication exchanges via adoption of the roles of both message sender and message receiver (i.e., "formulating, expressing and interpreting messages for both participants"). Teachers participated in substantially greater extents than their nonspeaking students in these exchanges, they expressed a variety of communicative functions and nearly all of their interactions were intiations. Nonspeaking students, however, experienced only three communicative functions (responses, instructions and statements) and nearly all of their interactions were responses to their teacher's initiations. Finally, although a relatively "unambiguous" mode (the electronic Autocom) was available to each subject for interaction, the more "ambiguous" modes of gestures and head shakes were primarily used by the subjects. While Calculator and Dollaghan examined communicative behaviors with respect to the roles of the interactants (i.e., as intiators or responders) they additionally examined the relative success and efficiency with which each dyad member directed conversational exchanges. Again, these variables were examined in relation to the students' choices of communicative modes.

Calculator and Dollaghan reported that students assumed respondent roles within these interactions. They experienced greater success in eliciting teacher acknowledgment, received fewer requests for clarification, and were generally successful in sustaining topics when responding rather than initiating. Additionally, while the nonspeakers used their boards twice as often in responding than when initiating topics, nonboard modes constituted nearly 80% of student responses.

Culp's 1982 study, represents one of the earliest attempts at analyzing mother/child conversational interaction in nonspeech communication. Culp examined the conversations of five young (5-13 years) nonspeakers and their mothers during "communication activities", i.e., a party or helping in the kitchen. Culp focused on four communicative aspects; the symbolic mode used to produce each utterance, the grammatical complexity (as measured by M.L.U.) of each participants utterance, the communicative function of each utterance, and the communication effect of each interaction sequence (i.e., the success with which participants understood the topic and domain of the interaction). Culp adapted Halliday's (1975) taxonomy of young children's interactional speech, thus providing a simiplified schema of the communicative functions conveyed by her speaking/nonspeaking subjects. Culp reported that the nonspeaking children communicated most frequently through the use of gesture and residual speech. Communication aid use (which consisted of directly selecting a phoneme. letter, word, Blissymbol or phrase from a communication board, book or electronic device with speech output) reflected only 20% of the total number of utterances produced by each child. The percentage of successful interactions during aid use, however, was significantly higher than during the use of all other symbol modes combined. Culp observed that mothers dominated these interactions in terms of initiations produced and number of utterances produced. They produced utterances of sophisticated grammatical complexity (in contrast to their children's low M.L.U.) and rarely modeled use of the child's communication board during discourse. Communicative function analyses revealed findings similar to those of Harris and Calculator and Dollaghan. The adults primarily asked questions and the children produced responses.

A more sophisticated pragmatic analysis of nonspeech/speech conversations has been described by Colquhoun (1982). Colquhoun examined the conversations of seven nonspeakers who augmented their residual speech with direct select Bliss boards and seven adult speakers who were familiar with both the nonspeakers and the Blissymbolics communication system. Colquhoun coded these conversations along six parameters; participant producing utterance, relationship of utterances to the content of the discourse (meta-talk or information exchange), type of utterance produced (the sequence function of the utterance), the function of each utterance (at the utterance level), the form of each utterance (proposition or fragment), and the mode used to produce the utterance. The focus of the interaction was on conversation - i.e., conversation was not produced in conjunction with some ongoing activity (as in the Culp study) rather, the activity itself was conversation. Colquhoun's results showed that the majority of utterances were made by the speaking partners and that the majority of utterances were related to the content or information exchange within the conversation and while both partners produced "meta-talk" these exchanges were comparatively infrequent. In regards to type of utterance used by each participant, Colquhoun found support for the typical pattern of information exchange sequence she proposed: the speaker initiates a topic then narrows the field of responses by producing a sub-question to which the nonspeaker responds and the speaker confirms that response. The functions of the utterances used to produce these sequence types were predominantly statements, "wh" questions, yes/no and rhetorical questions for the speaker, and statements for the nonspeakers. An additional function classified as "other" (including the back-channeling symbol labels produced by the speakers) was also substantially used by speakers during their confirmations of the nonspeakers productions. Additionally, speakers'produced an approximately equal number of propositions and fragments in their utterances while nonspeakers' used more fragments than propositionally constituted speech acts. The fact that five of the seven dyads were teacher/student pairs may have contributed, according to Colquhoun, to the interaction pattern described. While similar patterns were found in the mother/child dyad and a bit more variation in the peer dyad, Culquhoun suggests that more research is needed before conclusive statements can be made concerning social role constraints on interaction.

Wexler, Blau, Leslie and Dore (1982 and 1983) have developed a rather elaborate coding scheme to capture the conversational functions used by speakers and nonspeakers in discourse. Their nonspeaking subjects were ten individuals (15-41 years of age) with cerebral palsy, who augmented their residual speech with direct select alphabet/word boards. Similar to Colquhoun's study the focus of the interaction was conversation. Ten adult speakers familiar to the nonspeakers and with their communication systems, were video recorded during conversational interaction with ten nonspeakers in two conditions; during half of the interaction the nonspeaker had his communication board available to him and for half of the interaction the board was unavailable to him. This enabled Wexler et al. to analyze the interaction patterns used by both partners in both conditions. Parameters coded included participant producing the conversational act, the number of initiatory sequences produced, number of turns produced, number of conversational acts produced, and the number of conversational acts produced which reflected one of the five general C-act classes produced (requests, responses, statements, acknowledgments and organizational devices). Yet, the most interesting parameters coded reflected the specific conversational act types used (there were 27 different types plus uninterpretable) and the proportion of utterances which were composite conversational acts (i.e., complex conversational acts which required multiple turns by both conversational partners in formulating and transmitting the particular act by the nonspeaker).

These latter two parameters revealed the qualitative differences which are typical of nonspeech/speech interaction when alphabet/word boards are used and when the two participants must rely on their vocal and nonverbal communication skills in discourse. A finding which superficially appeared similar to all the above studies, was that the speakers produced most of the initiations and predominantly produced requests while their nonspeaking partners predomiantly produced responses whether a communication board was available to the nonspeaker or not. This finding, however, reflects the quantitative analyses of the interaction patterns. Looking at the relations between the speakers' and nonspeakers' productions in the two conditions revealed subtle yet qualitatively important findings. For example, while the speakers produced 90% of the initiations in the unaided condition and 80% in the aided condition, the nonspeakers produced 48% more initiations when augmenting their speech while the speakers produced 38% fewer initiations. While in the aided condition the speakers still produced far more initiation sequences than their nonspeaking partners, the overall effect of the aid on the interaction was to shift a much larger share of conversational control to the nonspeakers.

The request/response patterns produced within these interactions were also described by Wexler et al in terms of the qualitatively different patterns used in the two conditions. While proportion of conversational acts which comprised requests and responses remained unchanged for each partner in each condition (i.e., in the unaided condition 37% of the speaking partners total conversational acts were requests and in the aided condition 36% of the total were requests, while 51% of the nonspeakers' conversational acts were responses in both the unaided and aided conditions) the types of questions which were asked and the types of responses which were given were very different. For example; less than 1/2 of the speakers requests in the unaided condition were for complex responses (i.e., for responses which require more than simple yes/no) yet only 22% of these complex requests received complex responses from the nonspeakers. In the aided condition while more than 1/2 of the requests made by the speakers were of the complex type, 53% of these requests received complex responses from the nonspeakers. Clearly, reporting results of general conversational act classes (e.g., requests, responses, acknowledgments) without looking at the specific types used by the partners, interactionally, in producing these classes, reveals little of the actual quality of the interaction.

Wexler et al. additionally reported, that while nonspeakers do not have as dominating a conversational role as their speaking partners (in terms of number of initiations and particular C-act types produced) there exists a much more equitable balance between nonspeakers and speakers when the nonspeakers augment their residual vocal skills with direct select alphabet/word boards. Nine times as many of the nonspeakers' attempts at producing conversational acts were uninterpretable in the unaided condition and concomitantly nine times as many clarification requests were produced by speakers in the unaided condition.

They additionally found that while only 1/4 of the nonspeakers' conversational acts in the unaided condition were complex, approximately 1/2 of their C-acts were complex when the augmentative aids were available. Four times as many composite C-acts were produced when the nonspeakers augmented their speech with aids. Similar to Colquhoun, they noted the potential effect social role exerted on the interaction style of each dyad.

The effects of communication partners on the conversational contributions of nonspeakers has been considered by both Beukelman and Yorkston (1980) and Morningstar (1981). In their description of an older (58 year old) "acquired" nonspeaker who augmented her residual speech with a Zygo 10x10 square scanning system (arranged with letters and words), Beukelman and Yorkston illustrated the different conversational functions produced by the nonspeaker when interacting with four different conversational partners; the author, two attendants, and the woman's spouse. While the nonspeaker did initiate nearly 50% of all communication exchanges, the particular "message type" used differed with conversational partner. Few requests for assistance or information were produced when interacting with the senior author, while requests for assistance were produced with all the other conversational partners. This, Buekelman and Yorkston suggest, was influenced by the context within which the researcher and the nonspeaker interacted; i.e., the researcher was not a primary caregiver but was a professional requesting and providing information about the use of the communication device. The three other conversational partners were primary caregivers and were asked many requests for assistance by the nonspeaker.

In addition to capturing the different conversational functions used by the nonspeaker with different partners, Beukelman and Yorkston examined how communication breakdowns were resolved with each partner. If there was a communication failure the resolution strategies attempted by the conversational partner were coded as; yes/no request, "wh" request, restatement, choice request, repetition request, different modality request. The authors were particularly concerned about the percentage of communication events which were unsuccessful because of unresolved communication breakdowns with each conversational partner. Their analyses revealed different resolution strategies used by the various conversational partners. While the author predominantly used restatements, repetition requests, and choice questions, and attendant two predominantly used yes/no questions, repetition requests and "wh" questions, both attendant one and the nonspeaker's spouse used yes/no questions and "wh"questions as their primary resolution strategies. The interesting finding, according to Beukelman and Yorkston, is that although both attendant one and the spouse used similar interaction patterns to resolve breakdowns, the spouse used these strategies in a highly successful manner while 20% of the communication events exchanged by the nonspeaker and attendant one were unsuccessfully resolved. The authors suggest that the husband's intimate familiarity with the nonspeaker enhanced his ability to anticipate her communication needs and ask appropriate questions. Attendant one, however, tended to rush the nonspeaker by asking a flurry of yes/no questions before the nonspeaker could complete her communication attempt. Beukelman and Yorkston's analyses of repair did not include the careful examination of these interactional sequences across conversational partners (i.e., they only examined the conversational partners' responses to communication breakdown. They did not look at the relationship of trouble source element, repair initiation, repair attempt and outcome of the repair sequence.) Their analyses, however, did support the notion that different conversational partners do influence the conversational functions of, and the success with which those functions are transmitted by, the nonspeaking individual in discourse.

Morningstar (1981) examined the potential influence of partner familiarity, with the nonspeaker's communication system, on the interaction. Morningstar's subjects were four Blissymbol users and their conversational partners. Each of four nonspeakers with cerebral palsy, between the ages of 15 and 21, were video recorded interacting with four different conversational partners; two speakers inexperienced with Blissymbolic communication and two speakers experienced with Blissymbolics. Morningstar's purpose was to evaluate possible differences in conversational strategies used by both the nonspeakers and their speaking partners related to "receiver" experience. Familiarity between conversational partners, i.e., how well the nonspeaking/speaking dyad knew each other, was not evaluated. Rather, the experience level of each speaking conversational partner, with Blissymbolic communication, was the independent variable.

No statistical analyses were performed. However, Morningstar did propose a number of trends distinguishing dyads composed of experienced and inexperienced "receivers". Inexperienced conversational partners interrupted the symbol user's message prior to complete proposition transmission more frequently than did experienced partners who tended to refrain from questioning or commenting on the symbol user's message until at least one "phrase" was completed. Also, while inexperienced receivers tended to repeat their own questions or the symbol user's messages , experienced receivers rephrased questions and comments relatively more often. Morningstar suggested that rephrased questions resulted in greater amounts of output from the nonspeakers than questions repeated thereby facilitating the interaction. Nonspeakers' tended to produce more telegraphic utterances when communicating with experienced receivers by producing more content words and eliminating many function words from their utterances. Relatively more function words were used with inexperienced receivers and when the nonspeaker realized that his conversational partner (either partner) did not understand his message. This, suggested Morningstar, points to the nonspeaker's linguistic modifications of his own utterances dependent upon his conversational partner and the feedback he receives.

Finally, it appeared that experienced conversational partners were sensitive to the nonverbal modes (eye gaze, gesture, etc.) used by the nonspeakers to convey information. This sensitivity, concluded Morningstar, was particularly refined following communication breakdown. Inexperienced partners failed to realize the communicative purpose of nonverbal signals except for the nonspeakers' head nods.

Much of the research cited above focused on the identification of communicational and conversational strategies employed by nonspeakers and their speaking partners. Calculator and D'Altilio Luchko (1983), focused on evaluating the effectiveness of a communication board training program. An interesting aspect of this single subject study was its focus on training interaction strategies to both the nonspeaking subject and her partners. The subject was a nonambulatory adult (in a residential setting) who had an acquired nonspeaking condition and who augmented her residual vocal speech with a nonelectronic ("fundamental") alphabet board. Base-line (and additional) data were collected through observations of one-hour segments in which the subject interacted with other residents and staff of the nursing home. An observer recorded data during these routine interactions and a tape recorder was concealed next to the subject to assist in later confirmation of the observer's on-line recordings of events. No video equipment was used. The subject was aware of the reason for the observer's presence, while other residents and staff did not have this knowledge during these base-line recordings. Changes in six dependent variables were recorded during data collection: communicator (who originated the message being exchanged), proximity (whether the communication partner was within three feet of the subject during exchanges), communicator's role (classification as initiator or respondent during message exchange), mode of communication (whether board was used or message conveyed through methods independent of board use), communication function (C-act function classified as request object, request action, request information, request clarification, answer, description, statement, conversational device, repetition and no response), and form (the subject's partners' requests for information were coded as WH (open-ended) or Yes/No questions. This final variable was examined relative to modality used by the subject and proximity between communicators.

The training program consisted of five phases. The first was for base-line data collection. The second involved the construction of a new communication board which included the alphabet, grammatical tense markers and frequently usable phrases and was attached to the subject's wheelchair (prior board was not). Phase three was spent acquainting the subject with her new board (no clinical training was added). Phase four included clinical training and strategy development for effective and efficient board use. The final phase involved staff training (a 1/2 hour inservice) which focused on issues such as proximity of partner, using open-ended questions, responding to the subject's attempts at board communication,and evaluating those situations where the subject did not respond. Not all staff attended the inservice and data was then evaluated separately for "listeners" who had or had not attended the inservice. The six dependent variables were examined for each of the five phases of the training. While each training phase appeared to contribute cumulatively to the subject's overall communicative effectiveness, phase five (inservice training of staff) appeared to greatly enhance the communicational effectiveness of the subject on all variables measured. The authors' state that "since communication is a two way process, speakers, particularly those using augmentative communication systems, require the cooperation of their listeners in order to successfully transmit messages." While giving the subject a more efficient communication system and training her in its use both produced gains in the subjects conversational abilities, adding conversational partner involvement in training strategies resulted in a higher level of effectiveness achieved.

Green, Newhoff and Raney (1984) examined the repair strategies used by four severely physically impaired adult nonspeakers (with cerebral palsy) during conversational interaction with a speaking partner (the senior author). The authors were interested in gaining insight into the pragmatic or discourse competence of these nonspeaking individuals as well as gain insight into what they termed "the uniqueness of this communicatively constrained population..." The subjects were nonambulatory adults who demonstrated operational competency in using their communication boards. These boards contained minimally 50 lexical items and for three of the subjects the alphabet was also listed. Subjects had used their communication boards for at least two years and had demonstrated the ability to chain minimally two constituents in response to open ended requests for information (criterion, 80% of the time). Four 60 minute interactions (with the senior investigator as the speaking partner within each dyad) were videorecorded for each subject. Open ended requests for information were used by the author to introduce topics. At approximately three minute intervals, the investigator interjected one of three nonspecific repetition requests to indicate the subject's communicative failure. The three requests used were "What?", "What did you say?" or "Hmm?". This procedure (based on Gallagher 1977/78) continued until 20 interruptions occured for each 60 minute session. The subjects' responses immediately following the interruptive probes were coded into ten predetermined categories descriptive of repetitions, revisions, inapproriate responses, and no response. These ten categories were listed as complete or partial repetition, linguistic revision (semantic or syntactic without meaning alteration), information deletion or addition (with meaning change), self correction, unrelated responses, uncategorizable utterances and failure to respond. The authors reported that as a group the overwhelming majority of the subject's responses were coded into either repetition or revision categories. (Only three responses out of 320 were coded as "no response".)

The authors concluded that the nonspeakers were well aware that following a contingent query a response was required (one measure of discourse competence). They also suggested, however, that many of the specific revision strategies used by the subjects were different from those strategies isolated as typical of other populations in similar contexts (earlier studies of young language-normal and language-impaired children and normal as well as brain injured adults). Three of the four subjects used significantly more repetition responses than revision responses. Only one subject used repetition and revision responses with equal frequency. (Studies of other populations, in similar contexts, revealed revision responses were used more frequently than simple repetitions). The authors suggested that linguistic constraints may serve to limit response alternatives for the nonspeakers studied, as well as restricted vocabulary constraints (approximately fifty lexical items appeared on each subject's board). Although three subjects had access to the alphabet, when lexical items appearing on their communication boards were queried during the conversation, the subjects' tendencies were to repeat (through indication) the same lexical items rather than spell-out revised forms. The one subject who did revise many of his messages demonstrated the highest cognitive-linguistic status of the four and had substantially greater experience interacting with a variety of communication partners within a range of contexts. These factors, suggest the authors, may contribute to the greater complexity of subject four's repair strategies.

The specific repetition and revision subcategory analyses revealed that for three subjects (not the same grouping of three as reported above) complete repetitions were used much more frequently than partial repetitions. Given the experimental paradigm, in which Nonspecific Repetition Requests (e.g. "What?" "Hmm?") were interjected into the conversations by the investigators, these complete repetitions were appropriate responses. One subject, however, tended to produce partial repetitions. The authors suggested that this discrepancy by one subject might be directly related to the severity of that subject's physical impairment (severe athetotic movements) which might necessitate the development of strategies which conserve physical effort. Additionally, all subjects used information additions as their principle revision strategy, semantic revision came next in frequency and syntactic revisions and information deletions were used infrequently. While the results of this study are of interest, a serious question regarding the quality of information revealed when timed probes (the three nonspecific repetition requests listed above) are used for examining the competence of communication partners in natural contexts remains unanswered.

Farrier, Yorkston, Marriner and Beukelman (1984) attempted to gain some insight into the conversational dynamics of nonspeech/speech interaction by examining conversational control. They felt that many of the studies cited above reported that their nonspeaking subjects demonstrated minimal conversational control in their interactions with speaking partners. Because a number of explanations for the reportedly poor conversational control were based on the assumption that individuals who use augmentative communication systems may, due to experiential or educational limitations, lack the skills necessary to assume equitable conversational roles, Farrier et al selected nonimpaired subjects for their study. Five pairs of non-impaired adults/adolescents participated. One partner from each dyad was randomnly selected as the "subject". Dyads participated in two structured interaction tasks; a direction giving task (in which the "subjects" gave the instructions) and a joint decision making task. Each pair performed each task in two conditions. In the first, the speaking condition, the subjects and communication partners were allowed to communicate normally, using speech and gestures. In the "nonspeaking" condition, subjects were restricted to use of an Expanded Keyboard Memo-Writer EL 7001 (requiring subjects to spell out entire messages by pressing letters arranged similarly to a typewriter or computer keyboard) and "yes/no" gestures throughout communicative interactions. Since the study's design prevented participants from viewing ecah others materials, the LCD (liquid crystal display) which appears on the top portion of the Memo-Writer and provides an ongoing display of alphabet characters as they are selected during message preparation, was not visible to the communication partners (only to the subjects using the Memo-Writer). As such, the subjects were limited to the print-out function of the Memo-Writer for communicating their messages. "Conversational control" was defined by these authors "as the manner and exent to which an individual directs and restrains communicative interaction." Quantity of output (proportion of total words produced) and patterns of initiation were used as its principle measure. (And, as such, all conclusions formed by these authors need be evaluated in terms of these specific measures). For the speaking condition, the subjects exerted a high degree of conversational control in the direction giving task but a more variable degree of control in the decision making task. For the nonspeaking condition (where subjects were restricted to the written output of the Memo-Writer and thus both rate and timing of message delivery was severely restricted), a markedly different pattern emerged. The overall tendency for subjects was less conversational control (although there was some individual variability reported). While the direction giving task reflected a higher degree of control for the subjects than reflected by the decision making task, the overall lack of control exhibited by the subjects was the most salient fact reported. The authors suggest that there appears to be a trade off between communication efficiency and conversational control - i.e., when partners allowed subjects greater amounts of uninterupted message preparation time, greater conversational control was exhibited by the subjects. This, however, was done at the expense of efficiency in that extensive message preparation required longer message preparation time. The authors also suggest that although the study examined the performance of non-impaired subjects and their communicational partners, insight into the performance of nonspeaking individuals and their speaking conversational partners is provided.

By 1985, conversational analyses which encompassed a blend of theoretical constructs, descriptive detail and clinical applicability began to emerge. These studies marked the evolution of a growing body of sophisticated research methods for examining the transactional nature of nonspeech/speech conversations. Analyses of communicative functions were supplemented by detailed microanalyses of face to face interactions for more adequately describing the organizational structure of these conversations. Two research projects of particular note, were those of Buzolich (1984, and Buzolich and Wiemann, 1985) and those of Light (1985, and Light, Collier and Parnes, 1985).

Buzolich and Wiemann (1985) used microanalyses to describe the turn taking mechanism used by adult nonspeakers and adult speakers within face to face conversations. Their subjects were two nonspeakers, with cerebral palsy, who had operational mastery of both alphabet spellers and the Handi-Voice 120 (a synthesized voice output device in which sounds, syllables, words and phrases are accessed through encoded numerical codes) and two "normal" speakers who were both unfamiliar with the nonspeakers and with augmentative communication systems. The subjects were matched for both age and educational level. Each nonspeaking subject was videorecorded interacting with each of the two speaking subjects for forty minutes. During half of each interaction, the nonspeakers augmented their residual vocal skills with alphabet spellers and for half of each session their

Handi-Voices were used.

Three specific issues were of primary interest to the authors; how turn taking was accomplished between augmented and "normal" communicators, how these patterns would compare with those typical of "normal" communicators in face to face interaction, and if the patterns used were affected by the particular communication device used by the nonspeakers for the purpose of communication augmentation. The interactional model used to reflect the turn taking system used by vocal conversationalists was that developed by Duncan (1972, Duncan and Fiske, 1977). Within Duncan's model, six regulatory signals were identified for the exchange of speaking turns within face to face interaction; speaker turn yielding signal, speaker gesticulation signal, speaker state signal, speaker within turn signal, back-channel signal and speaker continuation signal. Each signal is represented by discrete verbal and nonverbal cues which are displayed at precise locations within the conversation.

Analyses indicated that for both the nonspeaking and speaking subjects, these same six signals were used for the same regulatory functions as is typical between vocal conversationalists. The specific behavioral constituents which comprise each of these six signal classifications however, (i.e., the verbal and nonverbal cues which made up each signal category), were frequently different from those used within vocal interactions. Both members of each dyad seemed to adapt to the physical constraints within the interaction and compensated for them by using available behaviors to accomplish turn exchanges. For example, since the nonspeakers could not use paralinguistic behavioral cues within their speaker turn yielding signals (i.e., those behavioral cues which inform the auditor that he/she might claim the role of speaker), they relied upon head directional cues and hand relaxation cues (the nonspeakers used their hands for encoding messages on their augmentative aids, a relaxed hand posture signaled a turn yielding cue). The nonspeaker's physical limitations, however, also appeared to restrain the use of particular behavioral cues on the part of their vocal partners. Head direction away from the auditor which is used by vocal conversationalists as a speaker state signal (i.e., a cue used during a claim for the speaking turn), was replaced by direct eye contact with the nonspeaking auditor by the vocal speaker as a speaker state signal cue. The concomitant head position toward the auditor, however,was not functionally distinct from the typical vocal conversationalist's cue in that direct eye contact with the nonspeaker indicated eye gaze <u>away from the communication device</u>.

Results were computed for both within dyad and between dyad variables. Of particular note were the results of their sequential/interaction analysis (focused on Duncan and Fiske's <u>turn interaction units</u> as distinct from their within-turn interaction units). These results revealed that the augmented communicators experienced difficulty in claiming speaking turns while their vocal partners were consistently successful in claiming speaking turns. The lack of nonspeaker success was attributed to the slow rate of message delivery initiation and the concomitant "responsibility" assumed by the vocal subjects to fill-in conversational gaps (even during the nonspeaker's message preparation). The nonspeaking subjects were more successful, however, in turn regulation when using their alphabet spellers as compared with the Handi-Voice. Turn taking for the vocal speakers was not affected by the particular communication aid used by the nonspeaker but rather by the individual system user him/herself. Additionally, the authors found that simultaneous turns were typically resolved in favor of the vocal subjects and that vocal speakers typically preceded their turn attempts with vocal restatements (in the back-channel) of the nonspeaker's prior message. The authors suggested that a potential barrier to effective interaction within these "atypical" dyads, is the active role the vocal listeners assume during nonspeaker message formulation. They concluded that the notion of reciprocal influence is altered and instead of joint participation, the vocal partner tends to dominate the interaction. They also proposed the development of specific strategies to assist nonspeakers in providing explicit speaker state signals to increase the success with which nonspeaker's claims for the speaking turn are met.

Light, Collier and Parnes (1985) focused their research on communicative interaction patterns used by young nonspeaking children and their primary caregivers. Eight physically disabled children (4-6 years of age) who had been nonspeakers since birth and who augmented their residual speech with nonelectronic communication boards were videorecored in 20 minute free play situtations with their primary caregivers in which a predetermined set of toys was provided them. The authors describe the conventions used to facilitate conversational flow between these participants. (Additionally they were interested in describing the communicative functions expressed by these partners as well as the modalities used by them throughout the communicational exchanges.) Transcribed interactions included the verbal (vocal and nonvocal), nonverbal and nonlinguistic contexts which made up the twenty minute exchanges.

In terms of the discourse features analyzed, the authors found that primary caregivers produced nearly twice as many communicative turns as their nonspeaking children. In fact, these children fulfilled only half of the communicative turn opportunities given to them, responding primarily when the interactional context obligated them to do so. When their turn opportunities involved "response comments" (as opposed to "response obliges" those being obligatory responses), the children were less inclined to respond. Concommitantly, the primary caregivers noted the children's missing responses and frequently "replayed" their own prior messages (in a hyperexplanation type of paradigm) by both heightening the obligatory nature of the proposed response (i.e., the use of "obliges" as opposed to "comments") while reducing the communicative demands of the situation (i.e., the use of yes/no questions in lieu of open-ended requests). Clearly the caregivers seemed to consider the smooth exchange of turns of prime importance to these interactions, oftentimes holding their children accountable for taking their turns even if minimal communicational content was involved. Additionally, the computed mean probability of caregiver topic initiation was .85, while for the nonspeaking children mean probability was only .15.

The authors felt, however, that these children had much more substantive information available for communication than actually conveyed by them. They reported that although the children were capable of fulfilling their communicative turns within the 1 second speaker switching pause (especially when producing a child response), when initiating more complex information (specifically following their partner's comments) they typically required a pause time of 1.64 seconds prior to the initiation. Pauses of these lengths were infrequent, yet caregivers frequently began replaying their prior messages when pauses length exceded 1 second. While a simple cause effect relationship between the pacing of turn transfer and the frequency of child initiations was not proposed, the authors did report that the children were rarely afforded adequate time to initiate their own topics. Also reported was the greater success with which the nonspeakers messages were interpreted by their caregivers when these messages were produced as responses as opposed to initiations. It appeared that not only did the caregivers assume the principal responsibility for introducing topics and for keeping the conversation flowing but in general, caregivers were successful in controling the communication process while their children displayed maximal success when following their partner's lead. The authors suggested the development of interaction strategies which might facilitate the abilities of nonspeaking children in successfully initiating topics as well as in developing skills for encouraging their communicational partners to respond to their initiations. Implementation of these staregies, suggest the authors, would involve training both the nonspeakers and the individuals with whom they interact.

The present study also reflects the integration of descriptive, theoretical and clinical domains in nonspeech/speech interaction research. In contrast to the early studies cited above, the principal focus is not on the specific conversational acts exchanged by the participants. Nor is the success with which nonspeakers initiate information and exchange speaking turns the primary focus (although C-act and turn taking organization are of continual interest). Rather, conversational interaction is examined through the subtle yet powerful feedback system which operates across participants in dialog. The form, function and frequency of communication in the back-channel gives evidence of a basic organizational structure which shapes conversational exchange. The reduced rate with which these vocal and nonvocal partners interact provides a magnified picture of the dynamic role back-channel communication plays in organizing participants in dialog.

CHAPTER III

DESCRIPTION OF PRESENT STUDY: RATIONALE AND PURPOSE

Nonspeech communication is a term generally used to describe communication which is not in the vocal mode. It includes both nonverbal and verbal components. The nonverbal components are identical to those used within natural vocal communicative exchanges (Higginbotham and Yoder, 1982). Various combinations of body signals and movements subtly convey information across interactants (Birdwhistell,1970; Scheflen, 1972). In terms of their relationship to verbal behaviors, "the nonverbal act can repeat, augment, illustrate, accent or contradict the words; it can anticipate, coincide with, substitute for or follow the verbal behavior; and it can be unrelated to the verbal behavior" (Ekman and Friesen, 1969 p.53). An individual may or may not be aware of the production of some nonverbal act although nonverbal signals may intentionally be used for communicative purposes. These signals additionally vary in the type of information which they convey. A nonverbal emblem, such as a head nod, may have a direct verbal translation and is most typically produced for a communicative function. A self adaptor, such as the frequent stroking of one's beard, most often occurs with limited or no awareness on the part of its producer and for no intended communicative purpose. Yet its production may reveal personal or affective information about the individual. Nonverbal signals do not directly convey linguistic information, yet observers do infer meaning to many of these signals even in the absence of any co-occuring verbalization. For example, if a listener turns away from a speaker or stares out the window while the speaker is talking, the speaker may infer a low level of listener interest in the speaker's contribution. When a speaker shifts his/her gaze to the listener at particular points within the conversation, the listener typically recognizes these signals as opportunities to claim the speaking turn for him/herself. A listener's emblematic ear cupping or wrinkling of his/her brow when an airplane flies overhead is interpreted by the speaker as a clarification request. A student's fixed downward glance following a teacher's request for volunteers is interpreted by the teacher as an avoidance response on the part of the student. While linguistic forms were not used to convey any of these messages they were, none-the-less, conveyed. These examples represent only a fraction of the information available to participants through nonverbal forms.

Nonspeech communication, as verbally expressed, reflects the linguistic status of lexical items which are communicated by other than natural vocal means. A hearing impaired individual who is a native user of American Sign Language is verbally communicating in a nonvocal mode. American Sign Language (ASL), is a recognized manual language with a different linguistic structure from that of

American English (Klima and Bellugi, 1980). Blissymbolics, a logographic communication system, is another example of a linguistic system which is expressed in a nonvocal mode. Its linguistic forms are encoded in visual-graphic symbols. The "Bliss Model" for syntax is not equivalent to the grammatical structure of spoken languages (McNaughton, 1985 p.86). In addition to nonspeech language systems, there are a variety of sign and symbol sets which are not independent linguistic systems but reflect nonvocal language categories abstracted from spoken languages. They conform to the syntactic rules which govern spoken languages. The nonspeaking subjects participating in the current research, are adults with severe speech impairments. These individuals transmit their propositions by pointing to letters and words on communication boards. Their messages can be described as verbal expressions in the nonvocal mode which follow the grammatical conventions of the English language.

Typically in adult conversations partners take turns in vocally conveying messages. Within a speaker's turn at talk he/she may state a fact, acknowledge his/her partner's previous message, pose a question, seek clarification, and so on. These are just a few of the communicative acts which may be accomplished during an individual's conversational turn. A fundamental requirement for the natural exchange of "talk", is that participants produce utterances to convey these functions. An utterance may contain a single item (e.g., "mhm") or a complex sentence, but is most typically vocally produced. While nonverbal signals can possess conversational force, routine conversation typically involves verbal expression. The organization of conversation is composed of many implicit rules or conventions to provide for the coherent and orderly exchange of talk (Goffman, 1955; Garfinkel, 1964; Hymes, 1964; Grice, 1967; Lakoff, 1973; Sachs, Schegloff and Jefferson, 1974; Garvey, 1975, 1977). The basic prerequisite for its implementation, however, is the fundamental ability of both participants in the conversation to vocally speak. This does not imply that individuals who communicate through nonspeech communication systems (whether independent nonvocal language systems or nonvocal representations of spoken language systems) do not participate in conversations. This does suggest, however, that nonvocal techniques used to supplement or substitute for vocal speech in discourse may impose distinctive constraints on conversational organization.

Using a direct select alphabet/word board for verbal expression requires a nonspeaker to indicate with a finger, headstick, light beam or some other means of pointing precisely which word or letter he/she wishes to transmit. All twenty six letters of the alphabet and occasionally some frequently used words and phrases are displayed on the nonspeaker's communication board. The nonspeaker formulates his/her message through letter indication and the listener synthesizes the message elements to receive the complete message. Beukelman and Yorkston (1982) describe this exchange between nonspeaking and speaking adults in terms of message preparation (its generation) and message transmission (its reception). According to Beukelman and Yorkston, communication via direct select alphabet/word boards reflects a system for which message preparation and message transmission rates are equivalent. "In some systems these rates are the same", they write. "An example of such a system is the word/alphabet board, in which the partner reformulates the message as the nonspeaking adult points to the words or letters" (p.42). Whether message preparation and message transmission rates are precisely equal for these conversational partners is questionable. However, communicative exchanges in which minimally one conversational partner spells out entire messages before propositions are transmitted, undeniably involes a slower communication process than is typical within natural vocal exchange. (In natural conversations a vocal adult can produce between 126-172 words per minute, Perkins, 1971).

In describing the conversational organization of nonspeaking/speaking dyads, one must consider how "talk" is exchanged between partners who communicate through very different output modalities. Much more than a decrease in conversational rate is apparent within these interactions. Most notably, the relation of converational act to speaking turn is often reversed. Whereas in natural vocal interaction speakers produce several conversational acts within one speaking turn, nonspeakers using alphabet/word boards typically require several turns to complete a single conversational act; i.e., they spell out a word or message across several turns, with vocal reformulations signaled alternately by the vocal partner, prior to complete propositional exchange. Concomitantly, the organizational structure within which information is typically exchanged between partners in dialog is fundamentally altered.

Conversational Act Co-Construction

Wexler, Blau, Leslie and Dore (1983) describe some of the conversational constraints exhibited in the conversations of nonspeaking/speaking dyads. Their analyses of conversational interaction between ten adult nonspeakers and ten vocal speakers suggest the use of conversational strategies not typical of adult vocal discourse. While the taking of turns, which provides the framework for the exchange of information between participants, was strictly adhered to, both the form and function of many of the utterances produced within each participant's turn at talk were not typical of utterances produced by vocal interactants. For example:

SP = speaking partner   NSP = nonspeaking partner
( ) = pointed response

RQPC   SP   What do you do when the weather's that hot?

RQPC	SP	How do you get yourself comfortable?
	NSP	(A)
	SP	A
	NSP	(I)
	SP	I
	NSP	(R)
	SP	air
	NSP	(C)
	SP	C
	NSP	(O)
	SP	O
	NSP	(N)
	SP	N
	SP	air conditioner
	NSP	(YES)
RSPC	NSP	(AIR CONDITIONER)

(Wexler, Blau, Leslie & Dore 1983)

This sequence begins with a question and a subquestion by the speaking partner (SP). The nonspeaker (NSP) begins to respond by pointing to a letter on his board. As soon as his finger touches the letter the SP vocally reproduces it. NSP then points to the second letter of the word he is spelling which is then vocally repeated by SP. This turn taking continues until a major portion of the nonspeaker's message has been spelled out. At that point, SP completes the word the nonspeaker is in the process of spelling while simultaneously synthesizing NSP's entire message into a complete utterance. NSP then explicitly acknowledges SP's summarization as correct. Wexler et al., classify SP's initial two utterances as process requests (RQPC) and NSP's summarized utterance as a process response (RSPC, see Appendix B). In order for that response to be conveyed, however, fourteen distinct messages are shared between SP and NSP. They refer to the speaker's initial two utterances as "whole" conversational acts (Whole C-acts), the synthesized or summarized utterance as the "composite" conversational act (Composite C-act), and the distinct messages which function to transmit that C-act as "component" sequences of the composite utterance (Component C-acts). These component sequences appear to operate on a different domain than the main request and its response. They function on a type of metalevel in which the participants are negotiating the form through which NSP's message can be encoded and transmitted to SP. The "talk" that is generated throughout these sequences reflect the work that is being done by SP and NSP in co-constructing NSP's utterance. While meta-talk is produced by vocal speakers in discourse, its prevalent use in transmitting the forms of a participant's conversational acts, is not typical of vocal dialog.

Main-Channel and Back-Channels Acts.

The entire sequence in the example above can also be discussed in terms of the amount of "main-channel" and "back-channel" communication that is conveyed. The speaking partner initiates a question suggesting new topical information - clearly a main-channel contribution. NSP's letter identifications are also main-channel phenomena in that they provide the framework for NSP's "co-constructed" response (also new information). SP's vocal reproductions of NSP's letter identifications are acknowledgment back-channel repetitions of the nonspeaker's message elements. SP's completion and reformulation of NSP's complete utterance is also an auditor back-channel in that its function is to acknowledge, by vocally reformulating NSP's message, that the message has been conveyed, without claiming the speaking floor for the speaking partner. Finally, the nonspeaker's verbal acknowledgment ("YES") acts as a back-back-channel in acknowledging to the listener that the intepretation of the message is correct.

The rather extensive use of explicit back-channel communication, primarily by the speaking partners in nonspeech/speech conversations, reflects the active role the listener (the speaking partner) plays in assisting the speaker (the nonspeaking partner) convey his/her message. The various forms of back-channels used by speaking partners include the "mhm" signals and nonverbal signals which comprise the short back-channel classification used by Duncan (1975) and the extensive use of long back-channels such as acknowledging repetitions, word completions, message expansions, summaries and paraphrases, recalls, and guesses (Blau, 1982). It appears that this rather extensive use of "long" back-channels is much more typical of nonspeech/speech conversations (in which alphabet/word boards are used) than of vocal conversations. In fact Duncan and Fiske (1977) claim that in vocal face to face interactions "...long back-channels were rather rare events...(and do) not appear to be a fruitful variable for use in studying short interactions" (p.74). In face to face encounters involving alphabet/word board users and their vocal partners, long back-channels appear to play a dominant role in composite C-act co-construction.

Nonspeaker's back-channel signals are primarily "mhm" signals and nonverbal signals (head nods, smiles, eye contacts, idiosyncratic signals) which for many nonspeakers are used almost exclusively as back-back-channels (Blau, 1982, pilot study). ("Back-back-channels" is a term borrowed from Yngve, 1970. Duncan refers to these as "speaker" back-channels in contrast to "auditor" back-channels.) As revealed in the pilot study, nonspeakers frequently signal feedback information concerning the status of SP's back-channel reformulation. Yet, they less frequently provide back-channels for simply acknowledging the speaking partner's independent conversational contributions. This low incidence of conventional back-channels may be related to the decreased rate with which nonspeakers communicate, in combination with their limited experience with this conversational convention. These factors (specifically the temporal restrictions) may additionally contribute to the frequent use of "hyperexplanation" or extraneous specification by their speaking partners, as evidenced by the question/subquestion routine with which the speaking partner initiated the conversational sequence above.

Dominance Within Nonspeech/Speech Conversational Exchange.

C-act co-construction, with its interplay of main-channel and back-channel exchange, appears to play a dominant role within nonspeech/speech interaction. Recent research, examining conversations between nontechnical aid users and their partners (Colquhoun, 1982; Wexler, Blau, Leslie and Dore, 1983; Buzolich, 1984; Light, 1985) and technical aid users and their partners (Buzolich, 1984) report a high incidence of message reformulation by the speaking partners in their roles as listeners. While message co-construction processes are acknowledged by these authors, for the most part, only the perceived composite acts were actually used in the conversational analyses. The massive feedback system was not viewed as central to the interactional dynamics between nonspeakers and speakers.

It is at this very point that the current research differs from all of the above studies. The pilot results suggest that all the complex propositions conveyed by the nonspeakers were co-constructed. The organization of this co-construction process reflects, in a sense, the basic interactional unit which operate across these dyads. The facility with which nonspeakers' claim speaking turns and initiate varied propositional content are unquestionably important variables within the interactional processes. However, the mechansim through which information is encoded and acknowledged across participants in dialog provides the actual framework of the interactional process. What is being proposed here, is a re-examination of the basic interactional unit with which to examine dyadic exchange across nonspeakers and speakers. The speaker main-channel contributions, the auditor back-channel information which follows, and the speaker back-back-channel signals are the foci of the present research. It is also being suggested that this unit is identifiable across all dyadic exchanges. For adult vocal interactants, much of the back-channel and back-back-channel signaling can be expressed through minimal vocal, paralinguistic and nonverbal forms. For the nonspeaking/speaking dyad, however, the behavioral expression of this unit is magnified due to the nonvocal modality through which the nonspeaker communicates and the concomitant explicit mutual monitoring which exits across participants. Descriptively unpacking the composite sequences and more importantly, examining the main-channel/back-channel relationship, provide further insight into this interactional process.

Model for Adjacency Pair Exchange

A model might be proposed which reflects the minimal amount of interaction required for speakers and their nonspeaking partners (using alphabet/word boards) to exchange a simple adjacent pair of propositions. SP initiates as follows:

SP		main-channel information
NSP		main-channel information
	SP	back-channel signal
	NSP	back-back channel signal
((NSP		transmitted main-channel act))

The speaking partner performs a whole C-act (e.g., a request). NSP then points to his/her response which is back-channeled by SP in the form of a vocal reformulation. NSP signals (back-back-channel) to SP that the back-channel reformulation is consistent with the message NSP intended to convey. The adjacent set of propositions (i.e., the request/response) has now been conveyed.

Had the sequence been initiated by NSP the following would apply:

NSP		main-channel information
	SP	back-channel signal
	NSP	back-back-channel signal
((NSP		transmitted main-channel act))
SP		main-channel information

NSP initiates the first pair part of the adjacency pair (e.g., request). SP reformulates the message in the back-channel. NSP confirms SP's interpretation in the back-back-channel. SP produces the second pair part of the adjacency sequence (i.e., the response). In essence, there exists a four unit sequence, with the inner subsequence performed in the back-channel and the outer propositions (i.e., the adjacency pair) performed as main-channel conversational acts. Whether the sequence is initiated by SP or NSP, this process remains fundamentally the same.

Since nonspeakers predominantly spell out entire messages with their alphabet/word boards, the amount of work actually done by both the NSPs and their SP partners involves multiple embedded exchanges of main-channel and back-channel information.

(m-c) = main-channel (b-c) = back-channel
(bbc) = back-back-channel
single spaced forms = part of co-construction process

SP	What do you do when the weather's that hot?	(m-c)
SP	How do you get yourself comfortable?	(m-c)
NSP	(A)	(m-c)
SP	A	(b-c)
NSP	(I)	(m-c)
SP	I	(b-c)
NSP	(R)	(m-c)
SP	air	(b-c)
NSP	(C)	(m-c)
SP	C	(b-c)
NSP	(O)	(m-c)
SP	O	(b-c)
NSP	(N)	(m-c)
SP	N	(b-c)
SP	air conditioner	(b-c)
NSP	(YES)	(bbc)
NSP	(Air conditioner)	(composite C-act)

Using the model proposed above, the exchange would be illustrated thusly:

SP

SP

NSP		
	SP	
NSP		
	SP	
NSP		
	SP	
NSP		
	SP	
NSP		
	SP	
NSP		
	SP	
	SP	
	NSP	
NSP		(transmitted C-act)

The column on the left reflects main pieces of information exchanged. The column on the right represents information communicated through back-channel forms. In contrast to Fillmore's (1976) model of conversational exchange in which he likens the exchange of talk to a tennis match where the ball (the proposition or topic) is addressed by one partner followed by a return by the other partner and so on, the above exchange involves fourteen conversational turns before each partner has conveyed one complete message unit apiece. While this elaborate co-construction of the NSP's message is hardly efficient in terms of rate of information exchange, it also reflects the explicit negotiation of meaning (as defined by Krauss, 1979) which is accomplished during C-act co-construction by these conversational partners.

Issues Addressed

Several issues can be addressed by an analysis of the conversations of nonspeakers (who augment their residual speech with alphabet/word boards) and their natural speaking conversational partners.

Descriptive.

From a descriptive perspective, the methodology for capturing the extensive feedback signaling which dominates the conversations of much of nonspeech/speech exchange has been illusive. Classifying back-channel signals as "other" signals (Colquhoun, 1982) has not provided researchers with sufficient detail regarding these signals to analyze their crucial role within these exchanges. As discussed above, several studies have recognized the meta-communicative function of such signals (Colquhoun, 1982; Wexler et al, 1983; Light, 1985) yet have none-the-less treated these sequences as peripheral to the larger foci of these interactions. The identification of these back-channel signals has only recently been attempted (Blau, 1982; Buzolich, 1984) and the various functions of these back-channel forms (e.g., simple acknowledgments, restatements, expansions, etc.) have not yet been adequately distinguished. To facilitate such an examination, the development of a descriptive framework and methodology was a principle motivation for this study. To further examine communication in the back-channel from a theoretical or clinical perspective, a reliable method for identifying these signals and formally classifying them was a prerequisite.

Theoretical.

From a theoretical perspective, the analysis of the back-channel signaling between speakers and nonspeakers provides an ideal corpus for examining and refining the cross-person interactional unit proposed by Duncan (1975). Auditor back-channels, as described by Duncan, do not occur at random points within a conversation. These signals are related to both verbal and nonverbal features of speaker behavior during the course of a speaking turn. Auditor back-channels primarily follow these speaker signals. Duncan's proposed interactional unit included the speaker's main-channel information, the auditor back-channel which then followed and the speaker's continuation signal. In the model proposed in the current research, this basic interactional unit is viewed from an increasingly finer perspective. The unit includes the speaker's main-channel information, the auditor's back-channel form and the speaker's back-back-channel signal which precedes speaker continuation.

The notion of active listening, as proposed in the pilot project (Blau, 1982), merits further attention. Certainly the term "active listener" can be used to describe any listener who gives appropriate feedback to his/her partner throughout that partner's turn at talk. Yet in nonspeech/speech interaction, the vocal listener must play an even more active role than is typical in vocal exchange. The listener must explicitly signal information (through vocal reformulation) which he/she might implicitly signal or internally note across vocal interactions. This notion of active listening might prove useful as an initial step toward the development of a framework for understanding how information is processed across persons in dialog.

The notion of C-act co-construction is also of value on a theoretical level. Krauss (1979) has suggested that back-channel responses play an important role in the process by which a speaker's intended meaning is apprehended in dialog. ("It is through the medium of the back-channel response that the listener displays evidence of the nature of his understanding, and it is this evidence,...that the speaker employs to determine whether he has been understood" p.69). The co-construction of the nonspeakers' messages provides unusually explicit examples of how this meaning negotiation is accomplished. Across the nonspeaking/speaking dyad, both speaker and listener actively participate in transmitting the nonspeaker's messages. The role of mutual monitoring comes clearly into view. There have been numerous models developed for examining conversational interaction in face-to-face encounters. In clinical studies of face to face interaction (in the domain of speech and language pathology), propositions produced by participants are typically identified as conversational acts which are examined along with the nonverbal behaviors which have conversational force across participants. Suggested here is the existence of a mutual monitoring framework which operates on a different domain than typical C-act exchange. While there exists a dependency relationship between contingent conversational acts (e.g., the production of a yes/no request clearly shapes the conversational options available to the individual responsible for producing the response) there exits an even finer contingengy relationship between the production of a conversational act and its apprehension by the addressee. Back-channels, as exhibited by the nonspeaking/speaking dyad, are the primary, critical conversational mechanism of co-constraction.

Meaning, as defined by Krauss, remains an ambiguous term (which will not be defined here). As described by Goffman (1974/81) "A respondent cannot make evident that he has understood THE meaning of statement, because in a sense there isn't one. All he can do is respond to what he can display as A meaning that will carry - although, of course, he may effectively sustain the impression (and himself believe) that his A is the THE" (p.45). The massive feedback system in which a listener reformulates the speaker's message and the speaker provides feedback as to the accuracy of that reformulation, might be viewed as an externalization of cross-personal information apprehension (which occurs implicilty within vocal interaction). As such, meaning, in a sense, is more visible between the participants, than is typically the case. From Bahktin's dialectical viewpoint (Voloshinov, 1973; Holquist, 1982), meaning is shared when the listener, after hearing the words uttered by the speaker, reformulates them in his own words. Meaning is therefore shared <u>between</u> the partners in dialog rather than resting within each individual partner. The explicit reformulation required during nonspeech/speech communication might provide further insight into a dialogical perspective of communicative competency. Since nonspeech/speech conversation is slower than natural vocal exchange, uptake and ratification procedures are more explicit, revealing the inner "core" contingency of the interactional process.

Interactant "co-accountability", an issue of interest within vocal conversational research, can be further examined through an analysis of communication in the back-channel. For the nonspeaking/speaking dyads, mutual monitoring is explicitly signaled. The unit through which this monitoring is expressed is the back-channel. A listener may hold the speaker accountable for producing his/her main-channel contribution in an acceptable form (re: interpretability or social requirements) while the speaker may hold the listener accountable for both attending to and accurately interpreting prior main-channel contribution. This inner core co-accountability is reflected in the auditor/speaker back-channel subsequences which serve to link successive main-channel propositional exchanges. A careful examination of these units can provide additional insight into this theoretical domain.

The notion of "interaction style" has recently been stressed within nonspeech communication research as the frame within which to interpret communicative exchanges. Variations in style, however, have not yet been isolated descriptively or theoretically. In pilot findings (Blau, 1982), preliminary back-channeling "styles" were revealed. The form, frequency and function of back-channeling across interactants appeared to distinguish a didactic (i.e., instructive or accountability) style from a more balanced (or casual) conversational style across participants. While only preliminary findings were available from the pilot research, replicating these results (and further refining them) was strongy warranted.

Clinical.

In addition to providing a framework for examining conversational style, examining the role of back-channel signaling has additional clinical significance. The dynamics involved in conversational act co-construction (across the nonspeaking/speaking dyad), point to a measure of conversational efficiency and effectiveness which includes the contributions of both conversational partners. Typically, measures of efficiency and effectiveness have been performed independently. Communication efficiency has focused on the rate of information exchange, as evidenced by the speed and accuracy with which nonspeakers reach target lexical items with their communication aids. Conversational effectiveness has been measured by the success with which nonspeakers exchange speaking turns, regulate the interaction, initiate a range of informational content and repair conversational breakdowns across a variety of conversational partners. If message reformulation and message co-construction play a dominant role in nonspeech/speech exchanges, perhaps an additional measure of efficiency and effectiveness might be used which includes the contributions of both partners during composite act co-construction. The efficiency (rate) with which a nonspeaker formulates his/her message can be affected by the shape of the listener's feedback activity. Particular back-channel forms may be used effectively while others may result in conversational repair. Identifying these specific back-channel distinctions would provide a basis for developing more effective interaction strategies.

Finally, the identification and examination of specific back-channel forms has clinical applicability for a much broader clinical population than communication aid users and their conversational partners. Message reformulation and message expansion strategies are prototypical units for examination conversations between clinicians and clients. Facilitation is often conducted as a back-channel activity. Linguistic expansion, whether produced by a speech language pathologist or by a primary caregiver, is a principle unit for language teaching. The descriptive methodology developed for this research, will provide clinicians with an additional interactive framework for examining clinical intervention as achieved through conversation. Interactants do not organize conversations. Rather, conversation, with its back-channeling system is the structure which organizes participants. Recognition of this distinction, will help clinicians to maximize therapeutic efforts.

The research questions posed were as follows:

Research Questions

1. Does the use of explicit back-channel signals play a primary role in the conversations of nonspeaking individuals (who augment their residual speech with direct select alphabet/word boards) and their speaking partners? How does this differ from vocal face to face exchange?

2. Which types of back-channels are used with the greatest frequency by these conversational partners? For which conversational functions?

3. How frequently do long auditor back-channels result in conversational repair? (i.e., become Trouble Source Elements.)

4. What is the distribution of back-channels, by both the speaking and nonspeaking partners, in relation to the whole

vs. co-constructed act distinctions which dominate the conversational acts produced by these partners?

In answering these questions, the dynamic feedback system which organizes these participants in dialog is described. This information will help refine the notion of a cross-person interactional unit. More specifically, the explicit negotiatory processes used for propositional exchange across nonspeakers and their speaking partners will be examined. Communication in the back-channel may play a dominant role in shaping these interactions. The descriptive methodology will provide a framework for identifying a wider range of back-channel forms, available to auditors and speakers in face to face encounters, than previously examined. It thus extends the literature on the conversational analysis of vocal partners both theoretically and methodologically in several ways.

CHAPTER IV

METHODOLOGY

Subject Selection

The subjects selected for this investigation were initially selected to participate in an earlier study involving the analysis of conversational functions of nonspeaking/speaking dyads (Wexler, Blau, Leslie and Dore, 1983). In this earlier study ten dyads consisting of ten nonspeaking individuals and their speaking conversational partners were videorecorded in two predetermined situations. In one, the nonspeaking subject augmented his/her residual vocal skills with an alphabet/word board, the primary augmentative aid used by the nonspeaker for conversational interaction. In the other, the nonspeaker interacted with his/her conversational partner without the use of the augmentative aid. In the present study, four dyads from the original subject pool were eliminated from the analyses to facilitate a more homogeneous grouping of subjects. The rationale for the reclassification of subject eligibility criteria will be discussed below. A second major methodological difference between the Wexler et al., 1983 study and the current analysis, involved the two situational contexts, the aided and unaided conditions. In the present study only the augmented conversations were analyzed for back-channel communication.

Criteria for selecting nonspeaking subjects:

A synopsis of the subject selection criteria used by Wexler et al., 1983 was as follows:

Vocal speech inadequate to meet the nonspeaker's communication needs due to a lack of neuromuscular control of the speech mechanism. Hearing within normal limits. A receptive language score of at least 10 years as measured by the Peabody picture Vocabulary Test (PPVT). A diagnosis of cerebral palsy (thereby classifying the subject as congenitally nonspeaking). Aged twelve years or older. English as the native language. A minimal spelling level of second grade as measured by the Peabody Individual Achievement Test (PIAT). Use of direct selection technique as means of indication. Use of current alphabet/word board for minimum of six months. Approval of the physician responsible for medical care.

Several of these eligibility criteria remained unchanged for the present research. Those include the following:

1) Vocal speech inadequate to meet the nonspeaker's communication needs due to neuromuscular dysfunction

2) A diagnosis of Cerebral Palsy (thus classifiying the subject as congenitally nonspeaking).

3) Subject directly selecting alphabet/words on his/her communication board.

4) English is native language.

5) Hearing tests reveal normal function.

6) Medical approval for participation in the project.

The following eligibility criteria were made more stringent for the current research:

7) A receptive language score of at least <u>12</u> years of age was obtained on the Peabody Picture Vocabulary Test (PPVT).

8) Possessing minimally a <u>third grade</u> spelling level as measured by the Peabody Individual Achievement Test (PIAT).

9) Age not to differ from the mean age of the group by <u>+/- 10 years</u>.

10) Spelling grade not to differ from mean spelling grade level of group by <u>+/- three grade levels</u>.

11) Current alphabet/word board in use for minimally <u>three</u> years.

As stated above, the use of the more stringent subject selection criteria provided for a more homogeneous grouping of subjects. A minimum chronological and receptive language age of 12 years was selected. Back-channel development is not yet fully evolved for able-bodied vocal children prior to the age of 12. Including subjects whose receptive language skills fall below the age of 12 years, might have greatly reduced the homogeneity of the subject group. Matching nonspeaking subjects has typically been a difficult if not impossible task. Eliminating extraneous variables which might further invalidate group analyses was of primary concern. With the inclusion of these added eligibility criteria, four nonspeaking subjects were eliminated from the current analysis. One subject scored below the minimum receptive vocabulary criteria (scoring 10.2 on the PPVT). The second subject did not meet the third grade minimum spelling requirement. A third was 41 years of age, over 18 years older than the group mean ($\bar{x}$ = 22.9 years of age). And the fourth received a spelling grade equivalent of 11.4 which was nearly six grades higher than the group mean ($\bar{x}$ = 5.6). Six subjects met all eleven criteria and were selected as the nonspeaking subject group.

<u>Criteria for selecting speaking subjects</u>:

The subject selection criteria for speaking partners, as used in the Wexler et al., 1983 study, remained unchanged for the present research. These include:

1) Normal speech and language functioning.
2) Professional employment within the center, school or hospital which the nonspeaking subject attended.
3) Familiarity with the nonspeaking conversational partner
4) Familiarity with the nonspeaker's communication system, other than a speech and language pathologist currently treating the nonspeaker.

All six speaking subjects met the above criteria. The rationale for eliminating speech/language pathologists currently working with the nonspeakers from the eligibility pool was based on an attempt to obtain the most homogeneous grouping of speaking subjects. Clinicians who were currently working with the nonspeaking subjects on facilitating their communication skills might be expected to use different interaction strategies than the other speaking subjects.

Table _M1_ describes the subjects selected for the current research. Six nonspeaking individuals between the ages of 16 and 28 who augmented their vocal speech with direct select alphabet/word boards were selected as target subjects. Their receptive language scores, as measured by the PPVT, were between 12 years 8 months and the ceiling score of 18+ years. The spelling grade levels ranged from 3.4 through 7.4. All subjects had been communicating with direct select alphabet/word boards for a minimum of three years. Three subjects used headsticks as their primary method of indication and three directly selected items through finger pointing. The speaking conversational partners functioned within the nonspeaker's school, center or hospital setting, as teachers, occupational therapists, guidance counselors, speech therapists, and educational aids. These six nonspeaking/speaking dyads represented six different school, center, and hospital settings from the Metropolitan New York area.

Data Collection

Data were collected through videorecordings of each nonspeaking/speaking dyad during conversational interaction. The focus of these interactions was on conversation i.e., conversations accompanying some activity were not collected, rather, conversation itself was the activity. The recordings were done within each dyad's center, school or hospital setting. Nonspeakers were

TABLE M1

Subject Description

Subject	Age	MA on PPVT	Splng Grade PIAT	Drct. Slctn. Technique	Conversational Partner	Location
NSP1	16	18+	6.5	Headpointer	S.T. (SP1)	School
NSP2	19	12.8	3.4	Fingerpoint	Tchr (SP2)	Center
NSP3	19	18+	7.4	Headpointer	Aid (SP3)	Center
NSP4	20	12.10	3.5	Fingerpoint	Tchr (SP4)	Hospital
NSP5	26	14.1	5.6	Headpointer	Cslr (SP5)	Center
NSP6	28	17.3	6.2	Fingerpoint	O.T. (SP6)	Center

Age Range: 16 - 28　　PPVT Range: 12.8 - 18+　　PIAT Range: 3.4 - 7.4

Note: Each subject was nonambulatory with a congenital nonspeaking condition. The residual vocal skills of each individual were augmented by an alphabet/word board. These aids were used for minimally three years prior to each subjects participation in the research project.

Abbreviations Used:

M.A. = Mental Age　　PPVT = Peabody Picture Vocabulary Test

Splg Grade = Spelling Grade　　PIAT = Peabody Individual Achievment Test

Drct Slctn Technique = Direct Selection Technique

S.T. = Speech/Language Therapist　　O.T. = Occupational Therapist

Tchr = Teacher　　Aid = Educational Aid　　Cslr = Guidance Counselor instructed prior to the recorded sessions to be prepared to discuss topics of their own choosing with their speaking conversational partners. The speaking partners were not asked to prepare topics only to converse with the nonspeakers. A warm-up period of approximately 15 minutes was provided before the actual taping occured to accustom the subjects to the presence of the video equipment and the observers. Two ten minute segments of conversational interaction were recorded for each dyad. (Wexler et al., 1983 examined these dyads in two conditions, with and without augmentative aids, so that each dyad was recorded for a total of twenty minutes). For the present research only <u>one</u> ten minute segment for each dyad, in which the augmentative communication aids were available to the nonspeakers, was used for further analyses. In addition to the technician, a speech and language pathologist observed these interactions and recorded notes. During videorecording sessions, every effort was made to capture as much face to face interaction as possible within the limitations of single screen camera recording. When it was not possible to capture both the nonspeaker's and speaker's full faces within a conversational segment, the technician focused on the nonspeaking subject's face.

<u>Materials Required</u>.

A portable color video cassette recorder (SONY Model VO-4800), a color video camera (SONY DXC 1610) and a microphone and mixer were used for the videotaping.

Data Reduction

All of the data were transcribed verbatim following the videorecording. Transcription forms developed specifically for the Wexler et al., 1983 study were used to capture each utterance (vocally or nonvocally produced) by each conversational partner <u>in context</u>. That is, each page of transcript reflected both the nonspeaker's and speaker's utterances in the sequence within which they were produced. The transcriptional format additionally captured gestural, vocal and gaze behaviors as well as the mode of communication used (e.g., vocal, communication board, gesture). Actions which accompanied utterances (e.g., the speaking partner walking to a wall map or the nonspeaking partner reaching for a book) were written in parentheses next to the individual's utterance using a transcription procedure similar to that described in Bloom and Lahey (1978).

<u>Reliability of Transcription and Coding Procedures</u>.

Transcriptional reliability and coding reliability measures were computed using the Sander Agreement Index formula (a/(a+d) in which a = agreements and d = disagreements). All six videotapes were transcribed and coded for conversational act functions by two speech and language pathologists (the current investigator and the third author of the Wexler et al., 1983 study). An overall agreement index of .94 was achieved. Intrajudge and interjudge reliability measures for coding the transcribed videotapes with the back-channel coding scheme were .96 and .93, respectively. Once again, all six transcripts were used in scoring reliability measures.

Coding Methodology

The coding scheme designed by the investigator is listed in Table M2 . The units were developed to classify back-channel signals (both verbal and nonverbal). This taxonomy was designed specifically for this research project due to the absence of any existing coding schemes which might be used to analyze these phenomena in nonspeech/speech conversational exchanges. The taxonomy was developed by the investigator through careful examination of pilot transcripts of nonspeech/speech conversations (Blau, 1982) and from the writings of a variety of scholars interested in back-channel communication from a sociolinguistic perspective. (Most specifically, the writings of Yngve, 1970 and Duncan, 1975 influenced the current coding schemes.)

Back-Channel Classification.

The criteria for identifying back-channel forms as types are described in Chapter V. In summary, there evolved six discrete back-channel classifications (as distinct from the five classifications developed by Duncan, 1975). These six classifications were further divided into two classes: auditor back-channels and speaker

Table M2

Coding Scheme For Back-Channel Communication Analyses

Unit	Definition	Example	
Restatement Back-Channel (RBC)	Repeats, restates, paraphrases, or recalls prior speaker's utterance; prior utterance may be a complete proposition, a single word, letter or sound.	NSP * SP NSP * SP NSP * SP	(L) L (A) A (S-T) Last
Expansion Back-Channel (EBC)	Completes or extends prior speaker's utterance. May be at the word (completion) or message (extension) level.	NSP * SP NSP * SP	(W-O-U-) Would (Y-O-U) Would you go....
Query Back-Channel (QBC)	Briefly requests clarification (implicitly or explicitly); may take the form of Restatement or Expansion Back-Channels with the addition of a rising intonation (e.g., confirmation check).	NSP * SP NSP NSP * SP NSP	(YES) Huh? (YES) (9) ninth/ (YES)
Correction Back-Channel (CBC)	Corrects prior speaker's message in an unmodulated form; may be form critique or procedural command for repair; prior message may be a proposition, word, sound or letter; no attempt is made to claim the speaking floor.	SP NSP * SP NSP	A girl/ /b / (boy) The board! (B-O-Y)
Acknowledgment Back-Channel (ABC)	Signals attention/agreement; used singly or repeatedly; may be lexical item (e.g., "yes"), vocal emblem (e.g., "mhm"), expressive (e.g., "oh"), evaluative (e.g., "alright", "O.K.") or signals nonverbally produced. Includes head nods, smiles/directed gaze, and idiosyncratic signals (e.g. vocalizations with no standard linguistic or emblematic form).	SP *NSP SP NSP SP NSP * SP NSP	I told him. (Head-Nod) But he said go anyway. (I) I (W-A-N-T) Mhm (T-O)
Back-Back-Channel (BBC)	Signals acknowledgment, agreement or disagreement of listener's restatement, expansion or acknowledgment back-channel; may reflect informational addition following partner's Query or Correction Back-Channel; may signal word or message boundaries; encoded verbally and nonverbally.	NSP SP *NSP NSP SP *NSP	(M-A-C-H-) Machine (YES) (W-I-L-) With (NO)

back-channels (Table M3). While Duncan identified speaker back-channels in his description of dyadic interaction, he chose not to include them in his logical model of the turn system. "While back-channel behaviors by both speaker and auditor were observed in the corpus," he writes "the results to be described are based on analysis of auditor back-channels exclusively" (p.169). Since the conversational dynamics of nonspeech/speech interaction are so strongly encompassed within the massive feedback system (i.e., the unusually explicit mutual monitoring) between both partners in dialog, speaker back-channels could not be ignored. The first five classifications listed in Table M3 (i.e., Restatement Back-Channels (RBC), Expansion Back-Channels (EBC), Query Back-Channels (QBC), Correction Back-Channels (CBC), and Acknowledgment Back-Channels (ABC) are auditor back-channels. The sixth classification listed, Back-Back-Channel (BBC), is reflective of speaker back-channel forms. Within the auditor back-channel classification, each form is defined by its relationship to the main-channel bit which precedes it. A Restatement reflects a reformulation of a preceding informational bit, an Expansion reflects the completion or extension of some main-channel bit, a Query is a brief clarification or confirmation request in relation to some preceding main-channel bit (and can be identified verbally, nonverbally or paralinguistically), a Correction reflects unmodulated critiques or procedural commands in relation to

TABLE M3

Back-Channel Classes

Auditor Back-Channels
RBC = Restatement Back-Channel
EBC = Expansion Back-Channel
QBC = Query Back-Channel
CBC = Correction Back-Channel
ABC = Auditor Back-Channel

Speaker Back-Channels
BBC = Back-Back-Channel

SP = speaking partner NSP = nonspeaking partner prior main-channel bits, and an Acknowledgment refers to the traditional attentional/agreement signal produced verbally, emblematically or nonverbally in relation to a speaker's utterance. Within the speaker back-channel classification there is listed only one form - the Back-Back-Channel. This form is exceedingly rich in function as it includes a variety of signals, simple acknowledgments, information additions, and corrections which are produced by the speaker in response to an auditor back-channel. It should be emphasized, however, that it is the feedback function which identifies these speaker signals as communications in the back-channel. They do not provide additional substantive information to the topic of talk, but rather provide acknowledging or corrective information which subsequently allows the speaker to continue with his/her turn at talk. Since speaker back-channels always follow auditor back-channel signals they are best identified through their sequential relationship with the auditor back-channel which precedes them.

In Duncan's 1975 classification system, he distinguished between vocal short back-channel signals ("Mhm" signals) and visual short back-channel signals (e.g., head nods). In his analyses, however, he found no appreciable difference between these signals in terms of location within the interaction or function for the participants. In the pilot research (Blau, 1982) which preceded the current analysis, short back-channels were subdivided into vocal (whether produced as verbal forms or vocal emblems) and nonverbal acknowledgment signals. However, since these forms were used interchangeably and often simultaneously by the subjects (both within speakers' and nonspeakers' signals), collapsing this classification into a single acknowledgment/agreement code was pursued for the present study. Using Duncan's work as a guide, the classification of short and long auditor back-channels remained fundamentally intact. Classification was still determined by the linguistic content of the back-channel signal in addition to its relationship to the preceding main-channel bit. Restatements, Expansions, Queries and Corrections were classified as long back-channels. Acknowledgment/Agreement signals were classified as short back-channels. No long or short subclassifications were made for speaker back-channels (BBCs).

Status as Conversational Turns

A primary methodological consideration was the complex decision regarding turn status assignment to back-channel signals. As discussed in the literature review in Chapter II, both Yngve (1970) and Duncan (1975) did not assign turn status to back-channel signals. Turn status was ascribed only to main-channel information exchange. Feedback information, whether propositionally constituted or not, was typically transmitted through "auditor" signals. Only "speakers" were assigned turns. Auditor back-channels were considered "out of turn" communications by listeners and were an accepted ingredient for meaning exchange across participants in dialog. These feedback signals (most typically the short or "mhm" signals, as described by Duncan), did not add substantive information to the topic of talk and, in fact, often overlapped with the speaker's main-channel message without interruption. These overlaps were quite subtle as these short vocal and nonverbal "Mhm" signals consisted of minimal linguistic content. These facts appeared to support the qualitatively distinctive role back-channel feedback plays within conversational exchange. Duncan suggested that auditor back-channel signaling while not considered listener "turns", did not occur at random points within the speaker's message and, in fact, followed within-turn speaker-signals. He defined these speaker-signals as: completion of a grammatical clause and turning of the speaker's head toward the auditor. The display of either cue was sufficient to constitute this signal. Back-channels were therefore not considered as independently listener produced. Most typically, the speaker set the stage for the back-channel signal. Conversational pull for auditor feedback at these "within-turn opportunity spaces" was considered extremely high.

The nonintrusive nature of back-channels, however, does not preclude their consideration as "turns" at talk. It should be noted that in Duncan's work, very few "long" auditor signals were identified. The overwhelming majority of back-channels fell within the vocal and nonverbal short or "Mhm" signal classification. Given the nonpropositional content of most short back-channel signals, Duncan's turn taking schema did not heavily account for back-channels with varying linguistic content. While he quite elegantly classified these long auditor signals by their specific types, he did not find many examples of their occurrence in the natural conversations he analyzed. In the present corpus, however, long back-channel signals were produced with high frquency by the speaking subjects. Additionally, speaker back-channel signals, although identified by Duncan, were omitted from his model of the turn system. In the current corpus, speaker feedback signals could not be ignored as they were produced with high frequency by the nonspeaking subjects. It became evident that perhaps Duncan's less comprehensive consideration of these "nonprototypical" back-channel forms, might have supported his assignment of non-turn status to back-channel signals. The present methodology required an accounting of the very back-channel units Duncan had limited experience with. Pilot results (Blau, 1982) suggested that these units (long back-channels and speaker back-channels) manifested a foundation for the mutual monitoring across the nonspeaking/speaking dyad.

This lead to a central issue: whether back-channels might be assigned turn status. This reflected the assignment of turn boundaries to utterances. There exist numerous ways in which conversational turns have been segmented. In Light's 1985 research, the formula for turn segmentation was borrowed from Kaye and Charney, 1980. These authors defined turn boundaries by the pause structure which followed a speaker's contribution. During these pause boundaries a partner might or might not claim the speaking floor. Light used this definition to designate speaking turns and computed the appropriate pause length for turn transfer as demonstrated across her nonspeaking/speaking subjects. Conversely, Wexler et al., (1983) defined speaking turns as a unit "bounded initially and finally by another speaker's conversational acts (C-acts) which may consist of one or many C-acts by the same speaker" (p.68). Their definition of turn, while not temporally determined, was C-act determined. (Pause structure was considered by these authors as C-act boundary parameters rather than turn boundaries.) A conversational turn, according to their above definition, contained minimally a single C-act. Therefore to assign turn status to a back-channel form, it needed to be simultaneously classifiable as a conversational act. Their definition of a C-act, "A unit that has a grammatical form and an intended function in a conversational sequence" (p.67), left back-channel designation, once again, ambiguous. Could back-channels be assigned C-act status?

In reviewing the above criteria, it appeared that the designation of speaking turn status to communicational exchanges remained to a large extent, subject to the perspective and definitions perscribed by the researchers investigating them. Schegloff's (1968) notion of conversational turn, strongly appealed to the nature of the current research. "Notice", he writes "that I do not identify "turn" necessarily with any syntactic or grammatical unit or combination of units, nor with any activity. In the former case, it should be clear that a turn may contain anything from a single "mm" (or less) to a string of complex sentences. ...A "turn," as I am using the term, is thus not the same as what Goffman (1953) refers to as a "natural message," which he describes as "the sign behavior of a sender during the whole period of time through which a focus of attention is continuously directed at him" (p.165). There are of course other views of the matter, such as using a period of silence or "appreciable pause" to mark a boundary. But unanalyzed pauses and silences are ambiguous as to whether they mark the boundary of a unit, or are included in it (as the very term "pause" suggests)" (p.1076).

Schegloff's definition of "turn" captures the spirit of the distinction between conversational turn and conversational floor. While these issues are complex, they may be simply differentiated by examining Schegloff's above narrative. Goffman's (1953) notion of "natural message" seems closest to the notion of a participant's "owning" (or momentarily controlling) the conversational floor. Certainly, when one participant is initiating information, telling a story or producing a narrative, thereby providing the conversational focus of the interaction, his/her partner often produces conversational contributions in reaction to the ongoing topic. These responses (often communications in the back-channel) may be considered conversational "turns" but they are not claims for the speaking floor. Turns, as defined by Schegloff, can be comprised of minimal content ("from a single "mm" or less") or complex content ("to a string of complex sentences"). Both short and long back-channel signals (as well as speaker feedback signals) satisfy Schegloff's requirements for turn status.

Status as Conversational Acts

A second decision about back-channels, regarding C-act status, had to be made. As described above, a significant portion of auditor back-channeling was produced within the long back-channel classification. As such, for this corpus, back-channels most typically contained linguistic content. While these feedback turns were not viewed as conversational floor demands, they did possess grammatical forms with specific functions within conversational sequences. For the most part, they appeared to reflect the definitional parameters of C-acts as described by Wexler et al., 1983. These parameters were not identical to prototypical C-acts. The forms used to encode back-channels were occasionally vocal or nonverbal emblems (see Chapter II for definition of terms), their functions were always <u>feedback</u> in nature, and while their contingency relationship with the main-channel acts which preceded them was strong, they were bounded by a less precise pause structure than typically identified across main-channel C-acts. None-the-less, these three parameters (form, function and contingency) were all identifiable within the back-channels produced. <u>As such, all back-channels were assigned C-act status in addition to turn status</u>.

<u>Re-examination of Within-Turn Signal</u>.

With both turn and C-act act status assigned to back-channels, Duncan's (1975) notion of within-turn signals had to be reevaluated. If back-channels were to be considered turns, then the notion of <u>within-turn</u> opportunity spaces (which set the occasion for auditor back-channel responding) was no longer valid. Within-turn signals, as described above, were composed of a set of two cues, completion of a grammatical clause and turning of the speaker's head toward the auditor. The display of either one of these cues was sufficient to constitute this signal. While auditor back-channels were not considered obligatory responses following speaker within-turn signals, the conversational pull for their occurrence was extremely strong.

Assigning turn status to back-channels did not negate the occurrence of these back-channel opportunity signals. In designing or redesigning units of analysis in descriptive research, investigators do not alter what has occurred between partners in dialog. What is altered, however, is the focus or perspective within which these exchanges are viewed. Within-turn signals, as described by Duncan, provided an important perspective for examining the interactional focus across speakers and listeners committed to conversational exchange. These signals remain important in defining a cross-person interactional unit. It is not the existence or exchange of these behavioral cues across-persons in dialog that has been challenged. Rather, these behavioral and linguistic cues have been reanalyzed as conversational turn boundaries instead of within a speaker's turn at talk.

Back-Channel Opportunity Signal.

In the current analyses, given the size of the informational bits transmitted in the main-channel by the nonspeakers (often single alphabet letters produced while spelling out entire messages), an additional behavioral cue was included as a potential back-channel opportunity signal; the resting of the nonspeaker's finger or headstick on a word or letter without relaxing the posture of the hand (as would accompany a turn yielding signal as described by Buzolich, 1984) and without movement toward an adjacent word or letter (which would denote a speaker continuation signal). The display of any one of these three cues; completion of a grammatical clause, turning of the speaker's head toward the auditor and the resting of a finger or headstick (indicator) on a letter or word without relaxation of hand posture and without movement toward the next targeted letter or word, was sufficient to constitute a speaker signal for an auditor back-channel. All auditor back-channels identified within this corpus were preceded by at least one of these behavioral cues. It was not possible, within the present analyses, to identify early back-channel productions. With the co-construction processes encompassing 72% of all conversational acts produced by these interactants, speaker cueing and auditor back-channel responding were highly frequent. (In fact back-channel signals were produced, on the average, nearly every other second of the exchange). Main-channel component bits, as produced by the nonspeakers within a single speaking turn, were virtually always followed by an auditor back-channel during message co-construction. Since the nonspeaker's main-channel bits were most typically conveyed in a nonvocal mode while the speaking partner's auditor back-channels were vocally produced, temporal boundaries between main-channel and back-channel forms were often blurred (i.e., they overlapped, were latched, or were simultaneous). Occasionally an Expansion Back-Channel (e.g., listener completion and vocal reformulation of a word being spelled by the speaking partner prior to its complete formulation) was produced by the auditor in lieu of message element repetition. EBCs at times, might be considered early back-channel signals. At other times, it appeared that the nonspeaker visually monitored the auditor in the back-back-channel (BBCs) to facilitate word completions as an efficiency strategy. It is difficult to assign early or late back-channel status to these units. Future research, utlizing more refined temporal measurements of vocal and nonverbal behaviors, might reveal more specific findings regarding early and late back-channeling within nonspeech/speech conversations.

Statistical Analyses

The study is descriptive in nature. A primary focus of this research was the development of descriptive units with which to view the mutual monitoring system which appeared to shape nonspeech/speech exchanges. The four research questions posed were answered through both qualitatively descriptive and quantitatively statistical methods. Frequency counts and proportional distributions (e.g., percentages) were calculated for speakers and nonspeakers for each coding variable identified;

- Class of Back-Channel Used
  (auditor or speaker signal)
- Type of Back-Channel Used
  (among the six back-channel types)
- Number of Back-Channels Produced
  in Relation to Total Conversational Acts
- Number of Back-Channels Produced
  in Relation to Partner's Conversational Acts

- Back-Channel Distribution
  (across whole or co-constructed contexts)

- Back-Channel Rate Comparison
  (with that of vocal interactants).

- Frequency of Back-Channel Repair
  (in relation to specific back-channel types)

The chi square test of the independence of categorical variables was used to test for group differences for each of the variables as well as for comparisons of overall back-channel rate with that of vocal interactants. The Pearson Chi Square Test was also used to test for individual variability across the six dyads with respect to back-channel type distribution. Testing for individual variability, however, frequently required the partitioning of chi squares into subsets (Upton, 1978). An example follows:

Partitioning of Chi Squares.

The average distribution of back-channel use, across the six dyads, revealed that 79% were produced across co-constructed conversational acts while 21% were produced across whole act exchanges. (For definitions of terms, see Chapter III). A chi square comparison of the back-channel distribution found across each of the six dyads, revealed a sigificant difference between the dyads, X^2 (5) = 42.97, p>.001. A look at the individual cells showed that most of the variance was found within the performance of two dyads (Dyad #2 and Dyad #4). The actual frequencies and the expected frequencies are listed as follows:

CHI SQUARE #1

Actual and Expected Back-Channel Frequencies:

DYAD	CO-CONSTRUCTED ACTS		WHOLE ACTS	
	Actual	Expected	Actual	Expected
#1	191	(187.52)	46	(49.48)
#2*	197	(224.71)	87*	(59.30)
#3	292	(276.93)	58	(73.07)
#4*	85	(102.07)	44*	(26.93)
#5	208	(195.43)	39	(51.57)
#6	198	(184.35)	35	(48.65)

The chi square analysis revealed the following:

$$
\begin{aligned}
X^2\ (5) = {} & .06 + .24 + \\
& 3.42 + 12.94^* + \\
& .82 + 3.11 + \\
& 2.85 + 10.82^* + \\
& .81 + 3.06 + \\
& 1.01 + 3.83
\end{aligned}
$$

X^2 (5) = 42.97, $p<.001$

For both dyad 2 and dyad 4, higher proportions of back-channels were found across whole act exchanges than would be expected. To further examine whether the performance of these two dyads did indeed account for the difference found, the following chi square subsets were partitioned and calculated:

A chi square comparison was performed on the proportional distributions of Dyads #1,3,5, and 6 to see if any sigificant difference was found among these four dyads.

CHI SQUARE SUBSET A

Actual and Expected Back-Channel Frequencies:

DYAD	CO-CONSTRUCTED ACTS		WHOLE ACTS	
	Actual	Expected	Actual	Expected
#1	191	(197.46)	46	(39.54)
#3	292	(291.61)	58	(58.39)
#5	208	(205.79)	39	(41.21)
#6	198	(194.13)	35	(38.87)

$$\chi^2\ (3) = .21 + 1.05 + .001 + .003 + .02 + .12 + .08 + .39 +$$

$$\chi^2\ (3) = 1.87, \text{ n.s.}$$

No significant difference was found for the back-channel distribution across these four dyads.

A second chi square subset was then performed on Dyads #2 and 4, to test for significant differences across their back-channel distributions.

CHI SQUARE SUBSET B

Actual and Expected Back-Channel Frequencies:

DYAD	CO-CONSTRUCTED ACTS		WHOLE ACTS	
	Actual	Expected	Actual	Expected
#2	197	(193.92)	87	(90.08)
#4	85	(88.08)	44	(40.92)

The chi square analysis revealed the following:

$$X^2\ (1) = .05 + .11 + .11 + .23 +$$

$$X^2\ (1) = .498, \text{ n.s.}$$

There appeared to be no significant difference between the back-channel distribution found across Dyads #2 and 4.

A third and final chi square subtest was then performed comparing the former group (Dyads 1,3,5, and 6) with the latter group (Dyads 2 and 4).

CHI SQUARE SUBSET C

Actual and Expected Back-Channel Frequencies:

DYAD	CO-CONSTRUCTED ACTS		WHOLE ACTS	
	Actual	Expected	Actual	Expected
Group I	889	(844.23)	178	(222.77)
Group II	282	(326.77)	131*	(86.23)

The chi square analysis revealed the following:

$$X^2\ (1) = 2.37 + 9.0 + 6.13 + 23.24^{*} +$$

$$X^2\ (1) = 40.74,\ p<.001.$$

A significant difference was found between the back-channel distribution of Group I and Group II. The greatest variance between the actual and expected frequencies (note asterisks above) was found within Group II. For the dyads comprising Group II, back-channel use across whole acts was much higher than expected. The partitioning of chi squares into these subsets appeared to validate the hypothesis that the significant interdyad variability as noted in chi square #1 above, was indeed due to the performance of two dyads, #2 and #4. Furthermore, the subtests also revealed a homogeneity in back-channel use across Dyads 1,3,5, and 6 as well as a second homogeneity across Dyads #2 and #4. Further descriptive and quantitative analyses suggested that two distinctive back-channeling styles were identifiable across these two groups. The partitioning of the chi square into subsets provided a valuable statistical measure of style variations across dyad pairs.

CHAPTER V

CRITERIA FOR IDENTIFYING BACK-CHANNEL FORMS AS TYPES

There are six (6) distinct back-channel types in this coding scheme. They are:

Restatement Back-Channel	(RBC)
Expansion Back-Channel	(EBC)
Query Back-Channel	(QBC)
Correction Back-Channel	(CBC)
Acknowledgment Back-Channel	(ABC)
Back-Back-Channel	(BBC)

Tables <u>M2</u> and <u>M3</u> provide definitions of terms, examples of each back-channel type, and the classification of back-channels into auditor and speaker classes. Table <u>C1</u> lists the back-channel subtypes. <u>The following narrative provides further guidelines for assigning back-channel type status to select moves within conversational exchange</u>.

<u>RBC (Restatement Back-Channel)</u>

This back-channel type encompasses restatements or repetitions produced by the listener following the speaker's message. "Repetitions", in the current corpus, typically involve an immediate vocal reformulation by SP of a letter or word pointed to by NSP on the alphabet/word board. For example, if the NSP points to the letter (L) and the speaker repeats it vocally as "L", the latter would be assigned an RBC code:

NSP = Nonspeaking Partner SP = Speaking Partner

Items inside parentheses ( ) are pointed responses

TABLE C1

Definitions Of Back-Channel Subtypes

Within Restatement Back-Channel (RBC) Classification:

REPTN = Listener Repeats Speaker's prior message
SUMMARY = Listener summarizes or synthesizes Speaker's message or message elements
RECALL = Listener recalls element's of Speaker's message already reproduced in the back-channel
PARPHS = Listener paraphrases or restates Speaker's prior message or message elements

Within Expansion Back-Channel (EBC) Classification:

CMPLTN = Listener completes word Speaker is formulating
EXTNSN = Listener extends Speaker's message beyond those elements initiated by the Speaker.

Within Query Back-Channel (QBC) Classification:

CLA = Listener requests clarification from Speaker.
REF = Listener requests additional referential information from Speaker.
CNFRM/RQ = Listener requests confirmation of back-channel response.

Within Correction Back-Channel (CBC) Classification:

SPL/EVAL = Listener evaluates Speaker's spelling.
MOD/EVAL = Listener evaluates Speaker's output mode.
REF/EVAL = Listener evaluates Speaker's referential output.

TABLE C1 (continued)

Definitions of Back-Channel Subtypes

Within Acknowledgment Back-Channel (ABC) Classification:	
ACKNOW	= Listener acknowledgment of Speaker's message
EXCLM	= Emotive feedback response from Listener.
ATTNL	= Listener produces attentional feedback signal.
AGRMT	= Listener signals agreement with content of Speaker's message.

Within Back-Back-Channel (BBC) Classification:	
CNFRM	= Speaker signals confirmation in response to Listener's back-channel signal
CNFRM/RS	= Speaker signals confirmation in response to Listener's confirmation request
CNFRM/WB	= Speaker simultaneously signals word boundary while confirming Listener's back-channel
INT/RPR	= Speaker initiates repair in response to Listener back-channel signal.
COR/RPR*	= Speaker corrects repairable in response to Listener's back-channel signal.

*note: COR/RPR can be further subdivided into five repair classes. (For Further information see Blau, 1986b)

SPL/RPR = Spelling Repair

REF/RPR = Referential Repair

MOD/RPR = Modality Use Repair

TRN/RPR = Turn Taking Repair

CLA/RPR = Clarificational Repair

1)

		NSP		(L)
<u>REPTN</u>	RBC	SP	L	

The code is written next to the reformulated response. Another example follows:

2)

		NSP		(the)
<u>REPTN</u>	RBC	SP	the	

Immediate repetitions (message elements transposed into the vocal mode by the listener) are not the only type of RBCs produced. "Summaries" produced by the listener in which the individual message elements communicated in the main-channel by the speaker (here, typically NSP) are synthesized into a complete word or message, also receive the RBC code:

3)

		NSP		(L)
REPTN	RBC	SP	L	
		NSP		(O)
REPTN	RBC	SP	O	
		NSP		(V)
REPTN	RBC	SP	V	
		NSP		(E)
<u>SUMMARY</u>	RBC	SP	Love	

In example #3, not only are each of SP's letter repetitions assigned an RBC code, but the word which is summarized or synthesized by SP and reformulated vocally, also receives an RBC classification. The summary above is at the single word level, but it can also be produced at the multi-word, phrase or propositional level. There is a great deal of individual variability both within and across dyads in terms of when and how summaries are produced by the listener. The nonspeaker often sets the stage for an SP summarization through eye gaze behaviors or through Back-Back-Channel signals. The latter will be described later on in this chapter.

Another subtype of RBC involves "recalls". Exact repetitions (or more precisely, vocal reformulations) are produced immediately following the speaker's main-channel contribution. In this corpus, SP's vocal reformulation of an NSP message element typically immediately follows its formulation. There are times, however, when the listener (here the SP) recalls some piece of an NSP message, that has already been verified, as a sort of place holder during message co-construction:

4)

		NSP	(I)
REPTN	RBC	SP	I
		NSP	("SPACE")
REPTN	RBC	SP	space
		NSP	(L)
REPTN	RBC	SP	L
		NSP	(O)
REPTN	RBC	SP	O
		NSP	(V)
REPTN	RBC	SP	V
		NSP	(E)
SUMMARY	RBC	SP	Love
SUMMARY	RBC	SP	I love
		NSP	(YES)
RECALL	RBC	SP	I love
		NSP	(the)
REPTN	RBC	SP	the
		NSP	(S)
		SP	Steelers↗
		NSP	(YES)
		SP	Alright!

In the above four examples, each conversational move that was assigned an RBC code was also classified by its specific act function: repetition (REPTN), summarization (SUMMARY), or recall (RECALL). These subclassifications all fall under the RBC code. Subtypes are not typically used for coding purposes. A single RBC would typically be assigned to all of these back-channel moves. However, when specific information is being sought, for example, the number of summarizations produced by the listener during C-act co-construction, specific functions may be assigned. A complete list of these back-channel subtype functions is available on Table C1.

An additional type of RBC is assigned to a restatement or "paraphrase" of some prior main-channel exchange which is not exactly reproduced but is slightly altered in form. For example:

5)

		NSP	(YOU)
PARPHS	RBC	SP	I
		NSP	(KNOW)
SUMMARY	RBC	SP	I know

And,

6)

		NSP	(G)
REPTN	RBC	SP	G
		NSP	("MISTAKE")
PARPHS	RBC	SP	You made a mistake.

In summary, the classification of Restatement Back-Channel (RBC) is assigned to all feedback exchanges in which the listener repeats, summarizes, recalls or paraphrases some prior main-channel message (or message element) produced by the speaker.

EBC (Expansion Back-Channel)

Expansions refer to the listener's completions or elaborations of the speaker's prior main-channel contribution. In this corpus, since the nonspeakers typically spell out their messages, it is not unusual for their conversational partners (the SPs) to complete or guess a word before the nonspeaker has completed its spelling. There are predominantly two (2) forms of EBCs. The first (and more frequently used) form, reflects the listener's completion of a word in the process of it's formulation by the speaker:

7)

		NSP	(W-O-U-)
CMPLTN	EBC	SP	Would

And, in the following example:

8)

		NSP	(T)
REPTN	RBC	SP	T
		NSP	(H)
REPTN	RBC	SP	H
		NSP	(R)
CMPLTN	EBC	SP	Throw

A second form of EBC refers to extensions of the speaker's message.

Examples follow:

9)

		NSP	(M)
REPTN	RBC	SP	M
		NSP	(E)
REPTN	RBC	SP	E
		NSP	(A)
<u>EXTNSN</u>	EBC	SP	Mean Joe Green!
		NSP	(YES)

Or in the following example:

10)

		NSP	(M-A-N-Y)
SUMMARY	RBC	SP	Many
		NSP	(P-E-)
CMPLTN	EBC	SP	people
		NSP	(L-O-O-K)
SUMMARY	RBC	SP	look
		NSP	(A-T)
SUMMARY	RBC	SP	at
		NSP	(T-H-E)
SUMMARY	RBC	SP	the
		NSP	(M-A-C-)
CMPLTN	EBC	SP	machine
<u>EXTNSN</u>	EBC	SP	instead of you.
		NSP	(YES)

The primary distinction between completions and extensions is whether the speaker (here the NSP) actually began formulating the word which was expanded upon by the listener. Completions always imply a "start" by the speaker. Extensions go beyond that information actually begun by the speaker. In essence, the listener anticipates (typically from the linguistic context and presuppositional information shared with the speaker) the speaker's message and produces it for him/her. In the present corpus, message completions were more frequently produced than message extensions. (See Results and Discussion chapters for details).

QBC (Query Back-Channels)

Queries, as viewed within the back-channel coding scheme, reflect two distinct functions. In the first, the listener seeks clarification or elaboration of the speaker's prior message. These queries are frequently involved in clarificational or referential repair work. The second query function, which in the current corpus is used extensively, is the confirmational query. During message co-construction, the SP frequently produces his/her restatement or expansion back-channel, in response to NSP's main-channel contribution, with a rising tone. In essence, the listener (SP), vocally reformulates the speaker's (NSP) message while simultaneously requesting confirmation from NSP regarding the accuracy of the back-channel. In many respects, these confirmational back-channels are seen as repair preventors rather than clarification requests. Since NSP is the "author" of the messages co-constructed by both partners, mutual monitoring re: the successful transmission of NSP's message elements is fundamental to the co-construction process. Examples of both QBC functions will follow:

Clarificational or referential queries:

11)

		NSP	(L)
REPTN	RBC	SP	L
		NSP	(I) ((FINGER SLIDING))
<u>CLA</u>	QBC	SP	What was that?

12)

		NSP	(I)
REPTN	RBC	SP	I
		NSP	(am)
REPTN	RBC	SP	am
		NSP	(G-O-I-N-G)
SUMMARY	RBC	SP	Going
REF	QBC	SP	Going where?

In example #11, a typical clarificational query was produced by the listener following the speaker's main-channel exchange. Prior message element was not clear to the listener, and was followed, in the back-channel, with a brief request for clarification.

In example #12, the listener requests, in the back-channel, additional referential information from the speaker. These brief referential requests for message elaboration are classified as Query Back-Channels.

Confirmational queries:

13)

		NSP	(I)
REPTN	RBC	SP	I
		NSP	(love)
REPTN	RBC	SP	love
		NSP	(the)
REPTN	RBC	SP	the
		NSP	(S)
CNFRM/RQ	QBC	SP	Steeler↗
		NSP	(YES)

14)

		NSP	(D)
REPTN	RBC	SP	D
		NSP	(O)
SUMMARY	RBC	SP	Do
		NSP	(you)
REPTN	RBC	SP	you
		NSP	(like)
REPTN	RBC	SP	like

		NSP	(F)
REPTN	RBC	SP	F
		NSP	(O)
REPTN	RBC	SP	O
		NSP	(O)
REPTN	RBC	SP	O
		NSP	(T)
CNFRM/RQ	QBC	SP	Football↗
		NSP	(YES)

15)

		NSP	(I)
REPTN	RBC	SP	I
		NSP	(W-O-N)
SUMMARY	RBC	SP	won
		NSP	(1)
REPTN	RBC	SP	one
		NSP	(O)
CNFRM/RQ	QBC	SP	ten↗
		NSP	(YES)

In examples #13 and #14, the listener (SP) completes a word which NSP is in the process of transmitting. These completions are produced, however, with a rising tone as confirmation checks. Without these tonal rises, the completions are Expansion Back-Channels. With the addition of the confirmational component, they are classified as QBCs. Example #15 reflects a summary or restatement back-channel which is produced with a rising tone. The confirmational quality of the back-channel results in a QBC classification. These latter three examples are not reflective of repair initiators and are in essence, part of the traditional co-construction model used by these partners. It is typical for SP to confirm NSP's message before responding to it as a completely tranmitted conversational act.

It should be noted, that clarificational queries need not necessarily be encoded in a question form. Example #11 above, is a traditional clarificational query. Queries, however, are produced as statements and are also frequently "implicitly" produced through less traditional forms. Examples follow:

16)

		NSP	(A)
CLA	QBC	SP	I didn't get that.
		NSP	(A)

17)

		NSP	(T-H-I-S)
SUMMARY	RBC	SP	This
		NSP	(G-I-V-E)
COMPLTN	EBC	SP	gives
		NSP	/mi/ (Phonetic Transcription Vocally Produced)
REPTN	RBC	SP	me
		NSP	(T-H-E)
SUMMARY	RBC	SP	the
		NSP	(H-U-M-A-)
COMPLTN	EBC	SP	human
		NSP	/wɪʔɪ/ (Phonetic Transcription Vocally Produced)
CLA	QBC	SP	the human....((MOVES IN CLOSER))
		NSP	(F-E-E-L-)
SUMMARY	EBC	SP	feeling
		NSP	(YES)

18)

		NSP	(I)
REPTN	RBC	SP	I
		NSP	(P-R-E-F-E-R)
CNFRM/RQ	QBC	SP	prefer↗
		NSP	(YES)
		NSP	(A)
		SP	Mhm
		NSP	/ʌmʊɪɛ̃ɪbɪ b̃ɔ/ (Phonetic Trans. Vocally Produced)
CLA	QBC	SP	((SP SHAKES HEAD NO))
		NSP	(C-O-M-M-U-)
EXTNSN	EBC	SP	communication board
		NSP	(YES)

In example #16, SP produced a clarificational query through a statement form. The proposition "I didn't get that" functioned as a Nonspecific Repetition Request (Garvey, 1977; Blau, 1986a) and was responded to as such by NSP. In example #17, in which the SP was unable to decode NSP's vocal formulation of the word "human", SP produced a Specific Request for Repetition (Garvey, 1977; Blau, 1986a) by both reformulating the lexical items immediately preceding the trouble source item, paired with a nonverbal clarification request signal, that of moving closer to NSP. While these less explicit forms of query signaling were used, NSP did accurately perceive them as QBCs and provided the specific information (implicilty) requested, in a revised and more reliable mode (i.e., utilizing the communication board). Finally, in example #18, SP signaled the clarificational QBC, simply by shaking her head "no" following NSP's vocal communication. This nonverbal emblem ("NO"), functioned as a Nonspecific Repetition Request. It was immediately followed by a repetition of the preceding message by NSP, which he produced more intelligibly by altering the output modality from vocal to nonvocal (i.e., using the alphabet board).

Query Back-Channels, as classified within this coding scheme, can take both verbal and nonverbal forms. Both forms are used to encode queries which function as clarification requests. Queries functioning for referential information expansion, are encoded in vocal/verbal forms. Finally, the majority of QBCs found within this corpus are not traditionally repair related. These confirmation requests, reflect restatement and expansion back-channels which are produced in a modulated fashion (with a rising tone) by the listener. They appear within routine C-act co-construction sequences.

<u>CBC (Correction Back-Channels)</u>

This back-channel classification reflects the listener's correction of the speaker's message. Corrections, as found in the present corpus, do not reflect differences of opinion on the content of the talk exchanged across interactants. Rather, specific listener feedback forms, were used to by the certain speaking partners to alter the form within which NSP's message element was transmitted. Three primary functions were identified for Correction Back-Channels in this corpus. The first, involves <u>spelling corrections.</u> An example follows:

19)

		SP	Who else is coming?
		NSP	(My)
REPTN	RBC	SP	My
		NSP	(C)
REPTN	RBC	SP	C
		NSP	(U)
CNFRM/RQ	QBC	SP	C-U↗
		NSP	(S)
REPTN	RBC	SP	S
		NSP	(I)
REPTN	RBC	SP	I
		NSP	(N)
REPTN	RBC	SP	N

CNFRM/RQ	QBC	SP	Your cousin↗
		NSP	(YES)
<u>SPL/EVAL</u>	CBC	SP	Cousin is C-O-U
		NSP	(C)
REPTN	RBC	SP	C
		SP	Go ahead
		NSP	(O)
REPTN	RBC	SP	O
		NSP	(U)
REPTN	RBC	SP	U

In example #19, although the proposition was intelligibly conveyed by NSP, the listener (the SP) corrects NSP's spelling error and facilitates a spelling side sequence (in essence a spelling repair) in the back-channel.

The second type of CBC is used for <u>modality corrections</u>:

20)

		NSP	(We)
REPTN	RBC	SP	We
		NSP	(are)
REPTN	RBC	SP	are
		NSP	(go)
REPTN	RBC	SP	go
		NSP	(ing)
SUMMARY	RBC	SP	going
		NSP	(to)
REPTN	RBC	SP	to
		NSP	(S)
REPTN	RBC	SP	S
		NSP	(T)
REPTN	RBC	SP	T
		NSP	(A)
REPTN	RBC	SP	A
		NSP	(Y)
SUMMARY	RBC	SP	stay
PARPHS	RBC	SP	You're going to stay...
		NSP	/hoʊm/ (Phonetic Transcription Vocally Produced)
<u>MOD/EVAL</u>	CBC	SP	Use your board.
		NSP	(H)
REPTN	RBC	SP	H

		NSP	(O)
REPTN	RBC	SP	O
		NSP	(M)
REPTN	RBC	SP	M
		NSP	(E)
SUMMARY	RBC	SP	home
CNFRM/RQ	QBC	SP	You're going to stay home↗
		NSP	(YES)

In example #20, it appears that the listening partner (SP), while perhaps finding NSP's vocally transmitted message element intelligible (due to the linguistic context in which it was embedded and the presuppositional knowledge already shared), none-the-less held the speaker accountable to producing the lexical item in the nonvocal mode (i.e., through the aided modality). While spelling corrections were occasionally found among several dyads, both the spelling and modality requirement functions of CBCs when heavily used in unmodulated forms by a listener, reflect a didactic or teaching style of interaction.

A third CBC function involves linguistic form requirements which the listener places on the speaker's prior message. For example:

21)

		SP	Did any team member impress you?
		NSP	(Yes)
		NSP	(9)
REPTN	RBC	SP	9
		NSP	(9)
REPTN	RBC	SP	9
			((PAUSE 3 SECS>))
REF/EVAL	CBC	SP	Ninety-nine doesn't tell me much.
REF	QBC	SP	Ninety-nine percent of the team↗
REF	QBC	SP	Or number ninety-nine↗
		NSP	(YES)
REPTN	RBC	SP	Yes
REF	QBC	SP	Yes to which question?

		NSP		(N)
REPTN	RBC	SP	N	
		NSP		(U)
REPTN	RBC	SP	U	
		NSP		(M)
REPTN	RBC	SP	M	
		NSP		(B)
REPTN	RBC	SP	B	
SUMMARY	RBC	SP	Number	
		SP	OK	
<u>REF/EVAL</u>	CBC	SP	But you haven't made a complete sentence yet!	

Example #21, illustrates the same underlying principle found in all Correction Back-Channels. The correction does not actually reflect the listener's inability to understand the speaker's prior message. Rather, the CBC is used to correct the form of that prior message. These correction sequences are called "didactic" or teaching sequences in the current research and in the repair organizationa study completed by Blau, 1986b. The listeners appear to be holding their speaking partners accountable to some particular "acceptable" forms of communication. This type of accountability work appears more reflective of caregiver/child interaction or classroom teaching sequences than typical conversational exchange between partners in dialog. The notations used, SPELLG, MOD, REF/EVAL reflect spelling accountability sequences, modality accountability sequences, and referential form accountability sequences.

<u>ABC (Acknowledgment Back-Channels)</u>

This type reflects the simplest back-channel form. Short attentional/agreement signals (the "Mhm" signals described by Duncan, 1975) which the listener produces while the speaker "owns" the speaking floor (in terms of propositional content contributions) are classified as ABCs. Narrative discourse is typically rich with these short signals. The listener conveys to the speaker through short verbal and nonverbal forms that he/she is paying attention, is interested in the speaker's contribution or agrees with its content through Acknowledgment Back-Channel forms. These signals can be encoded through nonverbal emblems (e.g., head nods), facial smiles, vocal emblems (e.g., "Mhm" or "Uh huh"), brief vocally produced linguistic forms (e.g., "Yes" or "I see"), exclamations (e.g., "Oh" or "Ah") or other evaluatives (e.g., "Good", "Sure", "True"). Some examples follow:

22)

		NSP	(W-I-T-H)
ACKNOW	ABC	SP	Mhm ((NODDING))
		NSP	(P-E-O-)
CMPLTN	EBC	SP	people

23)

		NSP	(T)
REPTN	RBC	SP	T
		NSP	(E)
REPTN	RBC	SP	E
		NSP	(L)
REPTN	RBC	SP	L
		NSP	(L)
EXCLM	ABC	SP	Oh
SUMMARY	RBC	SP	Tell

24)

		SP	My tests are coming up next week.
ATTNL	ABC	NSP	((FACE-SMILE))
		SP	I have at least one I know of.
		SP	The others haven't told us yet.

		SP	I guess they'll tell us sooner or later.
AGRMNT	ABC	NSP	(YES) ((HEAD-NOD))
		SP	But I have no time to study.

In examples #22 and 23, the Aknowledgment Back-Channels were produced by SPs in their roles as listeners. In example #24, NSP produced the ABCs while listening to SP's self initiated conversational contributions. All of these ABCs were produced by the listener following the speaker's main-channel information exchange.

BBC (Back-Back-Channel)

Back-Back-Channel signals are part of a separate class of signals from the five codes which are describes above. Restatement, Expansion, Query, Correction, and Acknowledgment Back-Channels are auditor signals produced by listeners in response to speakers' main-channel exchanges. The first four types are Long Back-Channels and the fifth type of signal is considered the Short Back-Channel form (as initially described by Duncan, 1975). Back-Back-Channels, however, are not auditor signals. Auditor feedback signals, on occasion, also receive feedback responses from the main-channel act producer. The speaker also provides feedback signals to the listener when additional feedback is warranted. As with all back-channel responses, these speaker signals are not main-channel exchanges, and do not add substantively to the topic of talk. Both auditor and speaker back-channels are part of the mutual monitoring system across interactants in dialog. For the nonspeaking/speaking partners in the present corpus, mutual monitoring is done quite explicitly.

Back-Back-Channel signals are identifiable both by the speaker who emits them and by their relationship to some preceding auditor signal. An example follows:

25)

		NSP	(C-O-M-M-U-)
EXTNSN	EBC	SP	communication board.
CNFRM	BBC	NSP	/mhm/

In example #25, NSP began formulating his message by spelling out the target message. SP vocally reformulated the message prior to its completion, extending the message beyond the word actually initiated by SP. SP's vocal reformulation (EBC) was then confirmed in the back-channel (BBC) by the NSP.

Speaker feedback signals have a range of functions. In the above example, the BBC was used as a confirmation signal. In the current corpus, BBCs are also used as repair initiators and repair completors:

26)

		NSP	(P-E-O-P-L-)
CMPLTN	EBC	SP	people
		NSP	(W-I-L-L)
SUMMARY	RBC	SP	with
INT/RPR	BBC	NSP	(NO)
COR/RPR	BBC	NSP	(W-I-L-L)
SUMMARY	RBC	SP	will
CONFIRM	BBC	NSP	(YES)

In example #26, the speaker (NSP) formulates a word in the main-channel with his/her alpahbet board. The listener (SP) completes the word being spelled and reformulates the synthesized word vocally. The speaker (NSP) then spells a second word in the main-channel. The listener summarizes the letters and reproduced what he/she believes to be the correct word, vocally in the back-channel. The speaker (NSP) then, indicates in the back-channel, that the listener's reformulation is incorrect (the BBC signal "NO"). He/she then repeats his/her original message,in the back-back-channel, which the listener (SP) now summarizes and reproduces vocally. The final back-channel bit is then produced by the speaker (NSP) in which he/she confirms the listener's reformulation as correct. (It is interesting to note the increase in back-channeling necessary when repair negotiation is done. For additional information on the negotiation of repair, see Blau, 1986b).

Example #26 also illustrates that BBCs are not simply yes/no signals. NSP's repair completion, the respelling of his prior main-channel informational bit in response to SP's inaccurate RBC, is a speaker back-channel signal. NSP is not adding new information to the topic but rather reproducing information he/she has already attempted to convey. There are other BBC functions which reflect both yes/no and more complex linguistic content. Some BBCs are produced within highly obligatory contexts.
For example:

27)

		SP	Who is coming over?
		NSP	(My)
REPTN	RBC	SP	My
		NSP	(A)
REPTN	RBC	SP	A
		NSP	(U)
REPTN	RBC	SP	U
		NSP	(T)
SPL/EVAL	CBC	SP	N
SPL/EVAL	CBC	SP	N
COR/RPR	BBC	NSP	(N)
REPTN	RBC	SP	N
		NSP	(T)
REPTN	RBC	SP	T
PARPHS	RBC	SP	Your aunt is coming over.
CNFRM	BBC	NSP	(YES)

And the following:

28)

		NSP	(What)
REPTN	RBC	SP	What
		NSP	(is)
REPTN	RBC	SP	is
		NSP	(you)
CMPLTN	EBC	SP	your
		NSP	(F)
CMPLTN	EBC	SP	favorite
		NSP	(T)
CNFRM/RQ	QBC	SP	team↗
CNFRM/RS	BBC	NSP	(YES)

And finally:

29)

		NSP	(L)
REPTN	RBC	SP	L
		NSP	(I) ((FINGER SLIDING))
CLA	QBC	SP	What was that?
COR/RPR	BBC	NSP	(I)
EXCLM	ABC	SP	Oh

The three examples above are illustrative of BBCs which are produced as obligatory responses. CBCs and QBCs (whether confirmation requests or clarification requests) typically demand a back-back-channel response from the speaker who produced the original main-channel act which set the occasion for the back-channels. In example #27, the speaker's main-channel bit is followed, in the back-channel, by a correction by the listener (here the SP). The speaker's (NSP) back-back-channel response which follows is an obligatory feedback exchange. Similarly in examples #28 and 29, the speaker's confirmation and correction both follow the listeners' Query Back-Channels. As such, both BBC responses are obligatory in nature. It should be noted, that not all BBCs which function as confirmations are obligatory. The final BBC produced in example #27 is a confirmation response which does not follow a QBC but follows the listener's Restatement Back-Channel.

The speaker, therefore can monitor and refine the listener's interpretation of the speaker's main-channel message through Back-Back-Channel forms. In the present corpus, several nonspeaker's use nonobligatory BBC confirmation signals to additionally signal word boundaries to the listeners:

30)

		NSP		(I)
REPTN	RBC	SP	I	
		NSP		(T)
REPTN	RBC	SP	T	
<u>CNFRM/WB</u>	BBC	NSP		(YES)
SUMMARY	RBC	SP	it	

In example #30, the listener (SP) vocally restates each letter following the speaker's (NSP) letter indication on the alphabet board. After the last letter of the word being spelled is repeated, NSP confirms the accuracy of SP's RBC while simultaneously signaling the "completion" of the spelling process for that word. SP, then, summarizes the message elements and reproduced the synthesized word in vocal form. Verbal and nonverbal "Yes" responses (most typically combined with "eye gaze" indicators) when acting as BBCs in specific nonobligatory contexts, can serve as strong "reminders" to SP that an additional back-channel response is needed.

CHAPTER VI

RESULTS

1. Does the use of explicit back-channel signals play a primary role in the conversations of nonspeaking individuals (who augment their residual speech with direct select alphabet/word boards) and their speaking partners? How does this differ from vocal face to face exchange?

The Primary Role of Back-Channel Signaling

In examining the six dyads which provide the corpus for this study, an average of 57% of all C-acts produced by both NSP and SP were produced in the back-channel. More than half of all the C-acts exchanged by these partners are feedback exchanges. Clearly, these back-channels play a prevalent role within these interactions.

Approximately 23% of these back-channels were produced by NSP and 77% were produced by SP (see Table R1). Since back-channel production is typically influenced by factors such as "situational or conversational pull" one can conclude that contextual constraints seemed to influence the production of a significantly larger percentage of back-channels on the part of the SPs than that required of the NSPs.

Another way at looking at these percentages is to examine the proportion of each partner's total C-acts which were produced as back-channels. (It should be noted that component C-acts which were assigned individual C-act codes

TABLE R1

Proportion Of Total Back-Channels Produced Across Subject Groups

SP	NSP
1146/1480 .7743 77%	334/1480 .2257 23%

in the Wexler et al., 1983 study but were not included in the data analysis, are included in the present analysis receiving equal status with C-acts classified as whole conversational acts). 30% of the total number of C-acts produced by NSP were back-channels. 77% of the total C-acts produced by SP were back-channels (Table R2). This information will prove valuable when we look at the total number of C-acts produced by each partner. Typically, nonspeech/speech interaction research reports large gaps between the number of C-acts produced by speakers and those produced by nonspeakers, a gap which invariably points to the gregariousness of SPs. While this fact may be true, it also appears that a large proportion of these additional SP C-acts are actually produced as back-channels in which NSP's prior message element is rephrased, acknowledged or queried.

It may be useful to additionally examine the number of back-channels produced by each partner in relation to prior speaker's C-acts (a cross-person back-channel measure). That is, a back-channel by definition reflects a dependency relationship to some informational bit produced by prior speaker. An alternative method for looking at the relationship of main-channel and back-channel communication was proposed by Duncan and Fiske, 1977. They computed back-channel rate measures in which the number of auditor back-channels were divided by the partner's speaking time. For the current analysis, however, back-channel rate

TABLE R2

Proportion Of Total C-Acts Produced In The Back-Channel

SP	NSP
1146/1490 .7691	334/1123 .2974
77%	30%

measures, which involve main-channel and back-channel comparisions, are difficult to obtain due to the significantly large numbers of long back-channel signaling which occured and the turn status assigned to these signals. (Duncan and Fiske identified very few long back-channels in their research and temporal comparisons focusing on short back-channel signals in relation to speaker turns are less problematic). A C-act comparison, therefore, was used to assess the number of conversational acts which received back-channel communication signals. By collapsing the multiple successive sequences of back-channels which were dependent upon the same prior C-act (in a sense by the same "situational pull") into a single count, we have an accurate accounting of the precise number of conversational acts, produced by either partner (SP or NSP), which received back-channel feedback. (SPs frequently produced successive back-channels to NSP's main-channel bits. As illustrated in an earlier example, NSP might point to a letter (N) and SP might vocally produce a restatement back-channel "N" and immediately follow up with an expansion back-channel in a completion attempt of the word being spelled (e.g., "air conditioner"). In fact, there were occasions in which several back-channels were produced in succession by an SP (during repair negotiation) in relation to a single NSP conversational bit. Computing a back-channel cross-person measure which does not collapse successive feedback signals results in an inflated measure of feedback activity.) Following this data reduction it appears that 22% of SP's C-acts received an NSP back-channel response and 86% of NSP's C-acts received SP feedback (Table R3). Although a sizable number of back-channel signals were eliminated from this analysis due to multiple/successive signaling (data reduction resulted in the elimination of 6 NSP and 177 SP back-channels from the analysis) the percentages reported here give strong evidence to the predominant role back-channel signaling plays within nonspeech/speech conversational exchanges.

Comparisons With Vocal Face to Face Exchange.

A final way of looking at the prevalent use of back-channel communication across these conversational partners is to compare the number of back-channels produced per minute by these interactants, with the numbers reported for vocal interactants. While there is little information available in the literature concerning these frequencies, Duncan in 1972 published the actual number of short and long back-channels which he identified across the vocal interactants he studied. His corpus was comprised of two 19 minute dyadic face to face interactions and the frequencies reported reflected the total back-channels used across all conversational partners. 326 back-channel signals (both auditor and speaker back-channels) were counted during the 38 minutes of conversation. If the number of back-channels produced are divided by the number

TABLE R3

Proportion Of Speaker's C-Acts Followed By Partner's Back-Channel Following Data Reduction

SP	NSP
328/1490 .2201	969/1123 .8628
22%	86%

of minutes the partners were engaged in face to face interaction, a mean back-channel rate of 8.6 per minute is obtained. In the current study 1480 back-channel signals were produced (including both auditor and speaker signals) across six 10 minute interactions (actual time was 61 minutes, 12 seconds). <u>The back-channel rate per minute for the nonspeaking/speaking dyads was 24.2</u> (Table <u>R4</u>). While only limited comparisons of these very different studies can be made, the fact that the back-channel rate per minute across the nonspeaking/speaking dyads was nearly three times as great as that found by Duncan for vocal interactants (a significant difference, X^2 (1) = 25.01, $p<.001$), attests to the predominant role back-channel signaling plays in nonspeech/speech conversations.

2. <u>Which types of back-channels are used with the greatest frequency by these conversational partners?</u>
<u>For which conversational functions?</u>

<u>The Distribution of Back-Channel Types</u>

Tables <u>R5</u> through <u>R12</u> list the back-channel distribution found across conversational partners and within individual dyads. <u>Of the total number of back-channels produced by the NSPs</u>, <u>12%</u> were auditor back-channels and <u>88%</u> were produced as speaker back-channels (the back-back-channel classification described earlier). <u>100%</u> of NSP's auditor back-channels were produced as short back-channels (ABCs). Virtually no

TABLE R4

Back-Channel Rate Per Minute

Of Face To Face Conversation

Across Vocal Interactants: (Duncan 1972):
326 back-channels for 38 minutes of dialog 8.6 back-channels per minute
Across Nonspeaking/Speaking Dyads:
1480 back-channels for 61 minutes 12 seconds of dialog 24.2 back-channels per minute

(O) long auditor back-channel signals were produced by NSP. Of the total number of back-channels produced by the SPs, 100% were produced as auditor back-channels. No speaker back-channels were produced by SP. Of SP's auditor back-channels, 11% were produced as short back-channels (ABCs) and 89% produced as long back-channels. These long back-channels (the remaining 89% of the total back-channels produced) were distributed between restatements (59% RBCs), queries (18% QBCs) expansions (8% EBCs), and corrections (4% CBCs). (See Table R5).

In interpreting these results, it appears that 12% of the nonspeaking partners' back-channels were produced as simple acknowledgments of their partners' main-channel conversational contributions and 88% were produced as back-channel responses to their partner's back-channel contributions (since BBC's by definition follow prior speaker's back-channel). This distinction between the back-channel forms used by the nonspeakers is an interesting finding. Consistent with the pilot findings (Blau, 1982), nonspeakers produced significantly more back-channels when providing their speaking partners with feedback concerning SP's interpretation of NSP's message elements than when the SPs were producing their own independent conversational contributions. This result will be discussed in more detail when back-channels are described in terms of the co-constructed composite sequences, later on in this section.

TABLE R5

Back-Channel Type Distribution Across Subject Groups

	RBC	EBC	QBC	CBC	ABC	BBC
SPs	681	94	202	42	127	0
NSPs	0	0	0	0	39	295

Total SP = 1146 Total NSP = 334

Totals Reflected As Percentages Across Back-Channel Types Per Subject Group

	RBC	EBC	QBC	CBC	ABC	BBC
SPs	59%	8%	18%	4%	11%	0
NSPs	0	0	0	0	12%	88%

Totals Partitioned Into Auditor And Speaker Signals

	AUDITOR SIGNALS					SPEAKER SIGNALS
	long	long	long	long	short	
	RBC	EBC	QBC	CBC	ABC	BBC
SPs	681	94	202	42	127	0
NSPs	0	0	0	0	39	295

SP	NSP
89% long auditor signals	0% long auditor signals
11% short auditor signals	12% short auditor signals
0% speaker signals	88% speaker signals

Simple acknowledgment back-channels also play a less prominant role in the back-channel distribution used by the speaking partners of these dyads (accounting for 11% of total back-channels used. A percentage very similar to that used by the NSPs.) 89% of all SP back-channels were produced as long back-channels. As discussed above (and in the earlier portions of this paper) long back-channels are a more explicit form of back-channeling. While they typically take up more conversational space within an interaction (both by the forms used to encode them and the obligatory back-back-channel responses which follow certain of these forms) they also provide much more specific information regarding the listener's interpretation of the speaker's message. (E.g., a simple acknowledgment, such as "Mhm" or "yes" signals to prior speaker that the listener has received or accepted his/her message, however, a restatement, expansion or query provides the speaker with both specific and explicit information regarding the interpretation of prior message). The atypical manner with which the form of NSP's message elements are conveyed (that is, spelling out messages by pointing to letters which must then be synthesized into words and phrases before complete messages can be transmitted) clearly provides the situational pull or contextual constraints which influence the predominant use of long back-channels by the SPs. The high percentage of long back-channels used by these SPs supports the notion of an explicitly active listener.

This predominant use sharply contrasts with the amount of long back-channels which typify the conversational interactions of the vocal partners described by Duncan. In both of his studies (Duncan, 1975 and Duncan and Fiske, 1977) the percentage of long back-channel use across the conversational exchanges was exceedingly small. In fact Duncan suggests that measures of long back-channel rate are not particularly useful because of the low incidence of long back-channels found within brief face to face encounters.

A very different picture of back-channel distribution is found within the nonspeech/speech conversations analyzed here. Once again, a look at the back-channel frequency count found by Duncan (1975) illustrates this point. When total back-channel signaling (including short and long auditor back-channels as well as speaker back-channels) are combined across partners and dyads, 71% of all back-channels used by the vocal interactants within Duncan's analyses were short auditor signals, 7% were long auditor back-channels and 22% speaker back-channels. In contrast, in the present study, 11% of the total back-channels identified were classified as short auditor signals, 69% as long auditor signals and the remaining 20% as speaker back-channels. What appears immediately evident is despite the similar distributions between auditor and speaker back-channels found across these two studies, there appears to be inverse relationships between the frequencies of short and long auditor back-channels.

Apparently, within vocal face to face encounters, a high proportion of auditor signaling was done through simple acknowledgment signals. Across nonspeech/speech face to face encounters, a low proportion of auditor signaling was done through simple acknowledgments while a relatively high proportion was accomplished through explicit long back-channel forms. These latter partners appear to rely quite heavily on long back-channel signaling (in combination with speaker back-back-channel responding) in their attempts at decoding as well as co-constructing the nonspeakers' messages. Examining these back-channel forms in detail, therefore, seems advisable.

The most frequently used long back-channel forms (by the speaking partners) were Restatement Back-Channels (59% of total back-channels used). Speaker's repeated, summarized, paraphrased and recalled elements of NSP's messages with a high frequency. Query Back-Channels were used with the next highest frequency (18%). Requests for clarification and simple confirmation checks, were produced by SP throughout these conversational exchanges. Expansion Back-Channels received the next highest frequency count (that is of the long back-channels used, as short back-channels accounted for 11% of the total). Message completions at the word or sentence level accounted for 8% of all the back-channels produced by SP. And finally, Correction Back-Channels were used with the least frequency by SPs, with CBCs accounting for only 4% of all back-channels produced.

These results reflect the average frequencies found across all six dyads. The distributions within each dyad, however, reflect the individual variability and particular styles of the partners. In the following pages the results will be reported as averages across subject groups (i.e., distributions of the specific back-channel types used by the speaking subjects as compared with their nonspeaking counterparts will be described). Additionally, when significant, individual and dyadic differences will be reported to facilitate the identification of style variations across dyads.

The following format will be used to assist the reader in interpreting the results. The frequencies of specific auditor and speaker back-channels will be described for the speaking subjects followed by the description of auditor and speaker back-channel use for the nonspeaking subjects. Within each group's discussion, individual variability factors will be addressed.

SPEAKING PARTNERS' BACK-CHANNEL USE

Auditor Back-Channels Produced by the Speaking Partners: Long Back-Channels

Restatement back-channels (RBCs) accounted for 59% of the total back-channels produced by the speaking partners

(Table R6). In fact, RBCs were produced significantly more frequently by SP than all other back-channel types combined, X^2 (1) = 40.71, $p<.001$. Exact repetitions accounted for 77% of all RBCs produced and summarizations and paraphrases accounted for 21% of the RBCs (Table R7). The remaining 2% of RBCs were produced as recalls, guesses and statements. (A complete listing of these C-act terms can be found in Appendix B). In terms of individual differences, there appears to be a range in terms of the proportion of the total back-channels produced as Restatements. All the SPs used more RBCs than any other back-channel type (see Table R6). Five of the six SPs (SP1-5) produced RBCs more frequently than all other back-channel types combined (with individual percentages ranging between 53% to 68%). One SP, however, did not rely on RBCs quite as heavily, with a proportional distribution significantly distinct from that of the other five SPs, X^2 (1) = 33.20, $p<.001$. SP6's RBCs accounted for only 40% of all the auditor back-channels produced. In fact, as we examine the frequencies of RBCs produced as repetitions and summarizations we see another distinctive pattern as reflected by SP6's performance (Table R7). SP1 through 5 all used significantly more repetitions than summarizations as their RBCs (the frequency of repetition use ranged from 70% to 93%, X^2 (1) = 274.72, $p<.001$). SP6, however, produced 65% of her RBCs as summarizations (with 34% produced as repetitions). There was a significant

TABLE R6

Back-Channel Type Frequency Distribution Across Six SPs

Partner	RBC	EBC	QBC	CBC	ABC
SP1	103	8	47	0	17
SP2	113	5	47	35	12
SP3	188	21	42	1	26
SP4	70	4	17	3	8
SP5	139	9	34	1	24
SP6	68	47	15	2	40

Back-Channel Type Proportional Distribution Across Six SPs

Partner	RBC	EBC	QBC	CBC	ABC
SP1	.588	.046	.269	0	.097
SP2	.533	.024	.221	.165	.057
SP3	.676	.076	.151	.003	.094
SP4	.686	.039	.167	.029	.078
SP5	.671	.043	.164	.005	.116
SP6	.395	.273	.087	.012	.233

Back-Channel Type Percentage Distribution Across Six SPs

Partner	RBC	EBC	QBC	CBC	ABC
SP1	59%	5%	27%	0	10%
SP2	53%	3%	22%	17%	6%
SP3	68%	8%	15%	.3%	9%
SP4	69%	4%	17%	3%	8%
SP5	67%	4%	16%	.5%	12%
SP6	40%	28%	9%	1%	23%

Average Across Six Dyads

Partner	RBC	EBC	QBC	CBC	ABC
#1-6	59%	8%	18%	4%	11%

TABLE R7

Restatement Back-Channel (RBC) Breakdown (C-Act Types)

Partner	Exact Repetitions	Summaries/Paraphrases	Other
SP1	88	14	1
SP2	97	14	2
SP3	132	49	7
SP4	57	11	2
SP5	129	9	1
SP6	23	44	1

Totals and Proportions

Partner	Exact Repetitions	Summaries/Paraphrases	Other
SP1-6	526	141	14
	526/681	141/681	14/681
	.7724	.2070	.0206

difference between the proportional relationship of repetitions to summarizations for speakers 1-5 with that found for speaker 6, X^2 (1) = 88.63, p<.001. The preference of the conversational partners within Dyad 6 to co-construct NSP's messages at the word rather than at the individual letter level, is reflective of a distinctive interaction style used by <u>these partners</u>, which will be further elaborated upon in the pages to follow.

<u>Expansion back-channels (EBCs) accounted for 8% of the total SP back-channels produced</u> (Table <u>R6</u>). Expansion back-channels encompassed both word completions and message extensions. (Both completions and extensions, however, as described here were produced in unmodulated forms. When produced with a rising intonation, as a modulated confirmation check, these expansions were classified within the Query Back-Channel category. See Chapter V, Criteria for Identifying Back-Channel Forms as Types.) In examining the performance of SPs as averaged across all six dyads, only 8% of the back-channeling was produced as word or message expansions. In looking at the performances of individual dyads a fundamental distinction between Dyad 6 and Dyads 1-5 again was evident, X^2 (1) = 98.26, p<.001. While the percentages of EBCs produced by the SPs in Dyads 1-5 ranged from 2% to 8%, <u>27% of SP6's back-channels were produced as expansions</u> (47 EBCs, see Table <u>R6</u>). Consistent with the pattern which emerged in Dyad 6 for the SP to produce more whole word restatements than single letter

repetitions, a significantly larger proportion of this dyads back-channels were produced as expansions than those produced by the other dyads. What is beginning to emerge is a picture of NSP/SP interaction which involves back-channeling larger bits of NSP information throughout the co-construction process. (It should be noted that the frequency and location of the speaking partners' auditor back-channels were not soley SP determined. The conversational pull as defined earlier in this paper, produced by the NSPs', set the occasion for SP back-channel use. Back-channeling larger informational chunks instead of single letter repetition was mutually determined as the product of both NSP6's "back-channel opportunity signals" and SP6's responses to these signals. Further information on this topic will be covered in the discussion chapter to follow.)

When we look at the distribution of EBCs between word completions and message extensions (Table R8) we find that a significantly greater percentage of expansions were produced as completions than as extensions (72% and 28%, respectively, X^2 (1) = 18.77, p<.001). While the number of expansion back-channels produced within each dyad is relatively small (except for Dyad 6) on the average, across the six dyads, there existed a definite preference for completing an NSP word which was in the midst of transmission over extending NSP's message beyond the word or words explicitly begun by NSP. It should also be noted,

TABLE R8

Expansion Back-Channel (EBC) Breakdown (C-Act Types)

Partner	Word Completions	Message Extensions
SP1	7	1
SP2	2	3
SP3	16	5
SP4	2	2
SP5	6	3
SP6	35	12

Totals and Proportions

Partner	Word Completions	Message Extensions
SP1-6	68	26
	68/94	26/94
	.7234	.2766

that fewer expansion back-channels (whether produced as EBCs or produced as expansion confirmation checks and thusly classified as QBCs) were produced by SP2 in proportion to that speaker's total back-channel distribution. This finding appears consistent with the didactic interaction style which predominated the conversational exchanges produced by the speaking and nonspeaking partners of this dyad. In addition to the large number of corrections and didactic repairs (which will be described later), SP's infrequent use of word completions was consistent with her style of holding NSP heavily accountable to the production of messages within particularly acceptable forms (e.g., spelling out complete messages, using the alphabet/word board in lieu of vocal attempts at communication and spelling all messages accurately). This interaction style frequently appeared to focus more on accountability work than on information exchange.

It should be noted once again, that expansions, summaries and repetitions which were produced with a rising intonation (as a confirmation check) were classified as Query Back-Channels (QBCs). <u>Queries accounted for 18% of the total back-channels produced by SP</u> (Table <u>R6</u>). An average of 75% (with individual percentages ranging from 70 to 87%) of all the queries produced by the SPs were confirmation checks (Table <u>R9</u>). While queries have been traditionally viewed as repair initiations, confirmation

TABLE R9

Query Back-Channel (QBC) Breakdown (C-Act Types)

Partner	Confirmation Checks	Other
SP1	34	13
SP2	33	14
SP3	30	12
SP4	13	4
SP5	29	5
SP6	13	2

Totals and Proportions

Partner	Confirmation Checks	Other
SP1-6	152	50
	152/202	50/202
	.7525	.2475

Confirmation Checks Breakdown

Totals and Proportions

Partner	Expansion and Summaries Checks	Other Checks
SP1-6	119	33
	119/152	33/152
	.7829	.2171

modulated expansions of NSP's messages. However, as described in the EBC discussion above, SP6 produced significantly more unmodulated expansions (EBCs) than her speaking peers. A bi-product of the feedback mechanism used by the partners within dyad 6, in which larger chunks of information were back-channeled by SP, was the use of fewer tentative expansions and more expanded reformulations produced assertively by SP. (It should be noted when examining Appendix R3, that frequency counts are always examined in relation to the total C-acts or total back-channels produced by each dyad. Dyad 4, whose frequency of back-channel use is consistently less across each back-channel class, produced significantly fewer C-acts within the ten minute exchange than did the other five dyads (Appendix R2). Dyad 4's use of back-channels in relation to main channel information, however, is not significantly different from the mean proportional use of the other five dyads, X^2 (1) = 1.74, n.s.)

Corrections (CBCs) comprised only 4% of the total back-channels produced by SP across the six dyads (Table R6). Some interesting variations within each of the six dyads can be noted. SP1 produced no CBCs (0%), .4% of SP3's back-channels were corrections (1 CBC), .5% of SP5's were corrections (1 CBC), 1% of SP6's back-channels were corrections (2 CBCs), 3% of SP4's were corrections (3 CBCs) and 17% of SP2's back-channels were produced as corrections (35 CBCs). What becomes immediately evident when looking at the individual variation among these dyads is the different "styles" that emerge. While the average percentage across all six dyads reflected the rather infrequent use of correction back-channels within the corpus analyzed, an unusually high proportion of corrections were produced by one particular dyad. A significantly larger proportion of SP2's back-channel activity was spent in these didactic exchanges, X^2 (1) = 121.55, p<.001. Identifying these individual distinctions in back-channel type distribution will become quite useful, as we procede with our analyses, as several distinctive interaction styles will emerge. (The notion of style will be addressed in detail in Chapter VII).

Short Back-Channels

Acknowledgment Back-Channels (short back-channel forms) produced by SP represented 11% of the total back-channels used by these partners (Table R6). In examining the distribution of ABCs within each dyad, dyad variability again emerged. The proportion of ABCs used by SPs 1-5 was not significantly different (10%, 6%, 9%, 8%, and 12% for SP1-5, respectively, X^2 (4) = 6.31, n.s.). SP6, however, used a significantly greater percentage (23%) of ABCs than her speaking counterparts, X^2 (1) = 30.45, p<.001. One explanation for this might be found in looking at the back-channel distribution found within the composite C-acts in comparison to that found within the whole acts produced by these partners (See Wexler et al., 1983 or Chapter III for the definitions of composite, component and whole conversational acts). Typically, ABCs were produced by SPs following a whole or composite act produced by NSP. SP6, however, frequently (60% of her ABCs) produced ABCs during co-construction of NSP's message. Often, in lieu of producing an RBC or EBC in response to NSP's main channel bit, SP6 simply acknowledged the transmission of the message element with a short back-channel signal (such as "Mhm" or a head nod.) Oftentimes, in response to the first word spelled or transmitted by NSP within his turn at talk, SP vocally acknowledged that element with a short back-channel. This short or "Mhm" signal appeared to function both as an attentional and acknowledgment signal. As NSP began a new substantive contribution to the conversation, SP appeared to signal her continued commitment to hearing out the message ("assent terms" as defined by Schegloff, 1968) through the use of simple vocal acknoweldgment back-channels. Additionally, this particular speaking partner frequently used simple vocal acknowledgments ("Mhm" signals) when NSP vocally transmitted a word within his message and she explicitly reformulated his words (with long back-channels) after spelled items or uninterpretable vocal or nonvocal items. Using ABCs in this fashion (which more closely typified ABC use in vocal interactions) escalated the number of ABCs used by this partner while simultaneously limited the percentage of long back-channels used for the same function. (Fewer letter repetitions, then, were used). A more complete discussion of the back-channel distribution within the composite sequences, as distinct from the whole acts, will be addressed later in this section.

Speaker Back-Channels Produced by the Speaking Partners

No speaker back-channel signals were identified for SP (Table R5).

NONSPEAKING PARTNERS' BACK-CHANNEL USE

Auditor Back-Channels Produced by the Nonspeaking Partners

Long Back-Channels

No long auditor back-channels were produced by the NSPs (Table R5).

Short Back-Channels

Since all of the nonspeakers' auditor back-channels were short back-channels (Table R5), on the surface it appears that nonspeakers produced only simple confirmation/agreement signals in response to their partner's contributions. However, when we look at the distribution of back-channels across both the auditor back-channel and speaker back-channel classifications we find a more complex picture of back-channel use by NSP (as will be described in the narrative to follow). These ABC's, which comprised 12% of all the back-channels produced by NSPs (Table R10), were all produced in response to main-channel bits produced by SP; i.e., following SP's self initiated conversational contributions. The hypothesis then, that NSP's do not produce feedback signals when their speaking partners contribute their own information to the conversation was not supported. In fact, there was no significant difference between the proportional use of short auditor signals for the speaking and nonspeaking participants across all six dyads, X^2 (1) = .095, n.s (Table R5). When looking at individual variability, however, a somewhat different picture emerged. While three of the NSPs produced acknowledgment back-channel percentages fundamentally similar to the average percentage reported above, (NSP3, 5 and 6 scored 10%, 10% and 11%, respectively, in terms of ABC use) the three remaining nonspeakers (NSP1, 2, and 4) had more variability in the percentage of ABCs found. Of the total back-channels produced, 21% of NSP1's back-channels were ABCs and 30% of NSP4's were ABCs (see Table R10). These scores are substantially higher than the remaining dyads received. In looking at the contexts which influenced the production of these ABCs some interesting style variations might be mentioned. The principal topics discussed by dyads 1 and 4 were sports related. Although the NSPs chose the topics both SP and NSP contributed their opinions regarding team and player performances. SP, then, appeared to provide more self initiated information (not as

TABLE R10

Back-Channel Type Frequency Distribution Across Six NSPs

Partner	ABC	BBC
NSP1	13	49
NSP2	0	72
NSP3	7	65
NSP4	8	19
NSP5	4	36
NSP6	7	54

Back-Channel Type Proportional Distribution Across Six NSPs

Partner	ABC	BBC
NSP1	.210	.790
NSP2	0	1.0
NSP3	.097	.903
NSP4	.296	.704
NSP5	.100	.900
NSP6	.115	.885

Back-Channel Type Percentage Distribution Across Six NSPs

Partner	ABC	BBC
NSP1	21%	79%
NSP2	0	100%
NSP3	10%	90%
NSP4	30%	70%
NSP5	10%	90%
NSP6	11.5%	88.5%

Average Across Six Dyads

Partner	ABC	BBC
#1-6	12%	88%

expansions of NSP's utterances but as topic extensions) and NSPs appeared to acknowledge or evaluate SP's opinions through ABCs. In point of fact, it was predominantly within these self initiated SP contributions that within-turn signals were produced by SP which provided the situational pull or occasion for NSP's acknowledgment back-channels. The three dyads (3, 5 and 6) whose NSP ABC use averaged between 10% and 11% appeared to contain fewer SP self-initiated contributions, with the content within the topics of talk fairly controlled by the NSPs. With this reduced number of SP self initiated information came fewer SP within-turn signals and hence less opportunity for NSP back-channel acknowledgments. Within Dyad 2, however, no NSP ABC's were identified. Producing no acknowledgment back-channels is not at all typical of cooperative conversationalists. However, as mentioned above, Dyad 2 seemed to have a rather didactic interaction style filled with accountability sequences. SP seemed to contribute little to the topic of talk except in her attempts at drawing out information from NSP and holding NSP accountable to responding in a particular manner. In fact, the few SP messages which were noninterrogative in nature appeared at the end of the interaction. NSP, at that point did not respond to the few speaker within-turn signals which SP produced as NSP was no longer looking at SP but rather was covering her eyes and avoiding eye contact with her speaking partner. Additionally, NSP did not spontaneously initiate topics (as did the other nonspeakers) and a more interrogation style of "conversation" predominated.

Speaker Back-Channels Produced by the Nonspeaking Partners

Since 88% of NSP's back-channels were within the speaker back-channel domain (Table R5), these units need careful examination. (Significantly more NSP back-channels were produced as speaker as opposed to auditor signals, X^2 (1) = 196.22, p<.001). As described above, BBCs by definition follow prior partner's back-channel. Since BBCs in this corpus invariably involved NSP's provision of an acknowledgment, negation, correction or supplemental information to a preceding SP back-channel, they are rich in content and more complex than the traditional ABCs identified as auditor back-channels. In fact, although BBCs in form are short back-channels (as produced by NSP because of NSP's production constraints) they frequently function in a manner similar to long back-channels.

Conversational pull for BBCs was extremely high. In fact 59% of all BBCs were obligatory responses (Table R11). In this corpus an obligatory BBC was defined as a BBC which followed a Query Back Channel or Correction Back-Channel. While virtually all CBCs required a BBC response, BBCs were not always obligatory following QBCs. While it is difficult to imagine a query which does not obligate prior speaker to respond to it (assuming both

TABLE R11

Functions Of NSPs' Speaker Back-Channels (BBCs)

Total Produced			
295			
Within Obligatory Context		Within Nonobligatory Context	
59%	(174/295)	41%	(121/295)

70% produced as positive acknow/agreements

15.5% produced as negative acknow & other corrections

13.5% produced as information responses

1% produced as self initiated corrections speaker and listener are cooperative conversationalists) the use of mulitple successive queries was not unusual for SP. These successively produced QBCs (examples of "hyperexplanation") reduced the number of queries to which a response was obligatory precisely because conversational space for a response was provided only following the final query in the sequence. (For additional information regarding the appropriateness of NSP's responses in relation to these contingent queries, see Blau, 1986a.)

BBCs, however, served a variety of functions (41% of the BBCs produced followed nonobligatory contexts, see Table R11 and Appendix R4). During the co-construction of a composite sequence, the summarization or message expansion produced by SP at the end of NSP message transmission, even when produced without a rising intonation (that is, not as a QBC) invariably received an acknowledging BBC from NSP. Additionally, BBCs were occasionally used by NSP to signal word boundaries. (For example, following NSP's spelling and SP's repetition of the letters in a word, NSP often acknowledged the final letter repetition explicitly which served to signal word completion to SP. This was used predominmantly by NSP3). NSP also used BBCs following expansions when they were not produced as confirmation checks. This was particularly true for NSP6 whose speaking partner produced numerous expansions back-channels in an unmodulated form. The status of expansions were nearly always acknowledged by this NSP. BBCs also followed restatement back-channels, most frequently SP summarizations of message elements produced by NSP. (RBCs which served as simple letter or word repetitions during message co-construction were typically implicitly confirmed by NSP. This implicit acknowledgment was conveyed simply by NSP's continuation with the next letter in the message.) When the RBC was not an accurate restatement of NSP's message element, however, an explicit negation/correction BBC was typically produced.

<u>70% of all NSP BBCs were produced as positive acknowledgment/agreement signals in relation to SP's back-channel</u> (Tables <u>R11</u> and <u>R12</u>). BBCs produced for the purpose of positively acknowledging some SP back-channel bit were siginificantly more frequent than other BBC functions, X^2 (1) = 44.98, p<.001. This high proportion of positively confirmed SP back-channels reflects the relatively accurate interpretation of NSP's message elements fed back to NSP by SP through back-channel signals. (Note should be made, that while only 70% of NSP's speaker back-channels were positive confirmations of SP's auditor back-channels, the percentage of SP's accurate back-channel reformulations of NSP's main-channel messages was far greater than 70%. As mentioned above, RBCs produced as letter restatements were frequently not followed by NSP back-back-channels. NSP's message continuation served to implicitly signal prior back-channel's acceptability.) While these positive

TABLE R12

Back-Back-Channel (BBC) Breakdown By Function*:

Partner	Positive	Negative	Obligatory	Self Correction
NSP1	36	12	1	0
NSP2	35	5	31	1
NSP3	55	9	1	0
NSP4	15	0	3	1
NSP5	24	11	0	1
NSP6	41	9	4	0

Totals and Proportions

Partner	Positive	Negative	Obligatory	Self Correction
NSP1-6	206	46	40	3
	206/295	46/295	40/295	3/295
	.6983	.1559	.1355	.0101

*note: Functions are:

Positive Acknowledgments/Agreements

Negative Acknowledgments and Other Initiated Corrections

Obligatory Information Addition

Self Initiated Self Corrections

acknowledgment/agreement signals are identical in form to the ABC classification described within the short auditor back-channels, their feedback function is not the same. Using Labov and Fanshel's (1977) classification of rules for confirmation (as described earlier in this study), all of the acknowledgment back-back-channel signals produced by NSP can be described as confirmations. Labov and Fanshel classfied the function of these signals by examining the relationship of the preceding message being asserted to the knowledge shared by the participants. Acknowledgment speaker back-channels follow back-channel signals produced by the listener. These latter signals can be classified as "B-events" (using Labov and Fanshel's scheme), i.e., comments by individual A (here being the SPs) regarding events known only to individual B (the NSPs). NSP's back-back-channel acknowledgments which follow SP's back-channel assertion or query, functionally confirm information known conclusively only to NSP. ABCs produced as simple auditor back-channels by NSP, following SP's main-channel contributions at speaker within-turn signals, principally function as attentional signals, minimal responses or evaluations as described by Labov and Fanshel. Once again, back-channel function reflects the relationship of the preceding C-act to the knowledge shared by the interactants. If the C-act reflects knowledge known only to the speaker, the acknowledgment which follows is perceived as an interest or attentional signal. If the ABC follows information which is known by both speaker and listener (and considered a "remark") a subsequent short back-channel (when produced) reflects the minimal conversational demands for feedback. If, however, the speaker's main-channel information reflects his assertion about some disputable event, the back-channel which follows can be classified as an evaluation of that assertion. (All of NSPs' short auditor signals (ABCs) can be classified within these three functions. NSPs' acknowledgments, however, when produced as speaker signals (BBCs), served confirmational functions predominantly.)

Approximately 13.5% of NSP's back-back-channels were information responses which followed SP's QBCs and CBCs (Tables R11 and R12). These involved letter repetition, letter substitutions and message expansions which were obligatory responses in relation to SP's prior query or correction back-channel and which provided more complex linguistic information than did simple acknowledgment responses. An additional 1% involved NSP self-corrections which followed an SP back-channel (see Blau, 1986b repair study which describes the predominant use of third turn to trouble source element placement of NSP self corrections in augmented contexts).

The 13.5% breakdown of the BBC classification which was used by NSP specifically in providing information to SP when obligatory reflects the average across all six dyads. Interdyad variability here provides additional support to the didactic style used by two of the speaking partners (Table R12). The provision of obligatory information by NSP (in response to SP's query or correction back-channel) was relatively infrequent for NSP1, 3, 5, and 6 (2%, 2%, 0% and 7%, respectively) while for NSP2 and NSP4 a significantly higher proportion (43% and 16%, respectively) of their BBCs were in the form of obligatory information addition or repetition than that of their peers, X^2 (1) = 63.60, p<.001. Consistent with earlier findings, NSP2 reflects the most didactic conversational style among the six dyads. SP's frequent spelling corrections, and modality use requirement demands, (in which NSP's message or message elements were not fully accepted by SP until they were produced in the form with which SP held NSP accountable) resulted in a relatively high percentage of NSP's BBCs focused on complying with SP's modality and spelling accuracy demands. NSP4, while representing a less intensive didactic interaction style, was also laced with accountability work as reflected in the relatively high proportion of NSP BBCs produced as obligatory information in response to SP corrections and queries. SP typically held NSP accountable to the production of responses encoded in "complete" sentences. That is, holophrastic or telegraphic responses although potentially interpretable to SP were rejected and more extended surface forms were required by NSP, on several occasions. In addition to correction back-channels, SP's query back-channels occasionally reflected these referential requirements which NSP was held accountable for producing.

As discussed above, although speaker back-channels as produced by NSP were frequently similar to short auditor back-channels in form, certain BBCs functioned in a manner similar to long back-channels. The clearest examples are the BBCs which serve as negation or correction signals which indicate to prior speaker that his/her interpretation of an NSP main-channel bit was incorrect (i.e., functioning in a similar fashion to Correction or Query Back-Channels) 15.5% of all NSP BBCs reflected negation/correction bits (Tables R11 and R12). If these particular subtypes of BBCs are looked at in proportion to the total back-channels produced by NSP, 13% of all NSP BBCs were actually a form of SP correction. This fact is an important one. While NSP virtually never queried SP when SP produced his/her own conversational contributions, NSP did hold SP accountable for correctly interpreting NSP's contributions. Consistent with discussions above, interdyad variability was found (Table R12). While NSP3 and NSP6 produced negation/correction BBCs close to the average score across all six dyads (14% and 17%, respectively), NSP1 and NSP5 produced a greater proportion of negation/correction BBCs (25% and 31%). It is interesting to note that the speaking partners' within these dyads produced many more modulated expansions (expansion checks) than the other dyads. With this increased use of expansion checks came a larger number (than produced by their speaking peers) of QBCs which became Trouble Source Elements (i.e., the source of repair sequences). Identifying these trouble sources and then correcting them might contribute to the increased number of BBC's used as negation/correction markers by the NSPs. NSP2 and NSP4 produced fewer negation/correction sequences (4% and 0%, respectively) than the average. The infrequent use of negation/correction sequences among these last two dyads is an interesting finding. Rarely (if ever) did these two NSPs challenge SP, even during the co-construction of NSP's messages. These two dyads also reflect interactions which were laced with accountability work (more so with Dyad 2 but also found within Dyad 4). One might conclude that the didactic tendency on the part of these two SPs (and the more controlling role, then, asserted by them) might have affectively influenced the absence of challenging accountability work on the part of the NSPs.

3. How frequently do long auditor back-channels result in conversational repair (i.e., become Trouble Source Elements)?

Long Back-Channels and Conversational Repair

In the discussion above, 15.5% of all NSP's speaker back-channels (BBCs) were reportedly produced as negation/correction bits in relation to SP's auditor back-channel interpretation of NSP's messages (Tables R11 and R12). This percentage includes both negation and correction BBC signals which were often produced by NSP in reference to the same SP back-channel elements. That is, NSP frequently informed SP that his/her interpretation was incorrect with a negation signal (e.g., "no") followed by a correction attempt (e.g., repetition of intended message). Since each of these back-channel signals was produced as a discrete turn (each with its own C-act function, given the turn and C-act definitions used within this study), both the repair initiation and correction attempt were included in the BBC count described above. In computing an accurate accounting of the precise number of SP long back-channels which resulted in a repair initiation by NSP, we need to identify the precise number of SP back-channels which were followed by an NSP repair initiation (whether a correction was also produced by NSP or not). Despite the relatively large proportion of NSP's speaker back-channels involved in SP correction attempts, the actual percentage of SP's auditor back-channels which set the occasion for an NSP repair was relatively small. Approximately 3% of all SP long back-channels resulted in a repair sequence. In other words 97% of SP's long back-channels were accepted by NSP and only a small proportion of the auditor feedback signals produced by SP were challenged by NSP as inappropriate (Table R13). (The proportion of long back-channels which became TSEs were significantly less than the expected frequency, X^2 (1) = 900.32, p<.001.) While this percentage

TABLE R13

Accepted And Repaired Long Back-Channels

Partner	Accepted Long B-Cls	Repaired Long B-Cls
SP1	150	8
SP2	195	1
SP3	246	5
SP4	94	0
SP5	174	8
SP6	125	7

Totals, Proportions and Percentages

Partner	Accepted Long B-Cls	Repaired Long B-Cls
SP1-6	984	29
	984/1013	29/1013
	.9714	.0286
	97%	3%

is quite small, interdyad variability existed here as well (Table R13 and Appendix R5). For Dyads 1, 3, 5 and 6 frequencies of 5%, 2%, 4% and 5%, respectively, were obtained. For Dyads 2 and 4, however, .1% and 0% of SP auditor back-channels were challenged by NSP. (A significant difference was found between the performance of the former and latter groups, X^2 (1) = 9.26, p<.01.) While one might assume that these latter speaking partners produced consistently accurate interpretations of their nonspeaking partners' message elements, what might also be considered is the "intimidating" impact these didactic SP interaction styles had on their nonspeaking partners. Dyads 2 and 4, as described in the preceding section, reflected conversational exchanges rich in accountability sequences. With such small percentages of repairs initiated by the NSPs and such frequent didactic sequences initiated by the SPs in relation to NSP's productions, the one sidedness of these accountability sequences is clearly revealed.

Repairable Back-Channel Types.

In examining the long auditor back-channels which became Trouble Source Elements (TSEs) it's interesting to note the particular back-channel forms which most typically accounted for these repairables (Table R14). 52% (15) of these TSEs were produced as QBCs. That is, 15 queries in themselves became the focus of repair negotiation. While this seems a contradiction in terms, it is not. Of these

TABLE R14

Back-Channel Type Breakdown For Trouble Source Elements

Number		Back-Channel Type	Percentage
15	=	Query Back-Channels	52%
9	=	Restatement Back-Channels	31%
5	=	Expansion Back-Channels	17%
29	=	Total Trouble Source Elements	

Breakdown By C-Act Type

Number		Back-Channel/C-Act Type	Percentage
15	=	Query Back-Channels	52%
		10 ACEX-CK	
		2 ACRP-CK	
		1 ACGS-CK	
		1 ODCQ	
		1 RQYN	
9	=	Restatement Back-Channels	31%
		6 ACSM	
		3 ACRP	
5	=	Expansion Back-Channels	17%
		5 ACEX	

Note: For C-Act Definitions see Appendix B

15 queries, 10 (or 67%) were actually expansion back-channels produced as confirmation checks (see Table R14). While the majority of expansions produced as confirmation checks across all six dyads, were confirmed as accurate (87%), 13% of these expansion checks were infirmed as inaccurate expansions by the nonspeakers. These inaccurate expansions provided the greatest number of SP long back-channels which became Trouble Source Elements. Of the remaining 5 QBCs which became TSEs, 1 was encoded as an ODCQ, 1 as an RQYN, 1 as an ACGS-CK (a guess check) and 2 as ACRP-CKs (repetition checks). (See Appendix B for C-act terms). In total 13 of the 15 query back-channels which became trouble source elements were confirmation checks which were infirmed as incorrect. Restatements which became TSEs, accounted for 31% of the total TSEs produced as long back-channels and Expansion Back-Channels (i.e., produced in an unmodulated form) accounted for 17% of the total (Table R14). Since expansions, whether produced as confirmation checks (and classified as QBCs) or produced assertively (as EBCs), both reflect the speaking partners completion of the nonspeaker's message beyond that which was explicitly produced, it is not surprising that expansion forms would account for the majority of SP auditor back-channels which were infirmed as inaccurate interpretations of NSP's messages. Of the total auditor back-channels produced by SP which became TSEs, 69% were occasioned by SP expanding NSP's message during C-act

co-construction. In summary, while the total proportion of long back-channels which became the source of repair sequences was quite small (3%), the majority of these TSEs were caused by Expansions (whether produced in a modulated or unmodulated form) of NSP's prior message or message element. It should be noted, however, when the total expansion and query expansion forms of back-channels are combined across all six dyads, only 9% of the expansion forms produced resulted in errors. 91%, however, were accurate interpretations of NSP's intended message. Significantly more expansions were accurately than inaccurately tranmitted by the SPs, X^2 (1) = 111.81, p<.001.)

4. What was the distribution of auditor and speaker back-channels, by both speaking and nonspeaking partners, in relation to the whole vs. composite act distinctions which dominated the conversations produced by these partners?

Back-Channel Use Across Whole and Co-Constructed Acts

Conversation Act (C-Act) Distribution.

Before examining the distribution of back-channels which were produced within "whole" C- acts in comparison to the distribution found within "composite" C-acts we must look at the number of C-acts which were actually produced as whole acts and the number which required co-construction on the part of both SP and NSP.

According to Wexler et al., 1983, there are three distinctive types of C-acts within nonspeech/speech interactions. The first, <u>whole conversational acts</u>, refers to a C-act produced in its entirety within one turn at "speaking". Typically, all C-acts produced by vocal conversationalists are "whole" acts of this nature. The second, <u>composite conversational act</u>, is a synthetic C-act. Typically within nonspeech/speech interactions, the nonspeaker's C-acts are co-constructed by both NSP and his/her SP partner. Conversational fragments (such as letters or words) are produced within separate speaking turns which, with the partner's aid, accrue to a "perceived" whole C-act. This perceived whole act is the composite C-act. The conversational fragments which make up the composite act are called <u>C-act components</u>. These "components" make up the third C-act type.

In the Wexler et al. study while each and every C-act (whether whole, composite or component) received a C-act code, only the whole and composite C-acts were analyzed and reported as results. <u>When the total amount of C-acts which were explicitly produced by NSP and SP</u> (that is, the whole and components acts produced by Dyads 1-6) <u>are counted, 72% of these C-acts are produced as components of perceived composite acts</u>. (If the synthesized composite acts themselves are added to this total, then 69% of the total C-acts produced were component acts.) Since such a large percentage of the information exchanged by these conversational partners are <u>within</u> these perceived composite acts, excluding them from the analyses, results in an incomplete picture of the interactional dynamics within these exchanges. Additionally, since approximately 98% of all the complex conversational acts conveyed by these six NSPs are produced as composite acts, unpacking these acts would prove useful.

Back-Channel Distribution.

One might hypothesize that a significantly greater proportion of back-channels (especially long auditor back-channels) would be used by these partners within the co-constructed composite C-acts than used within the whole acts exchanged. Results support this hypothesis. 79% of the total number of back-channels identified are produced as components within composite acts while 21% are produced as whole acts or in relation to completed composite C-acts (Table R15). (For the current analysis, both whole acts and completed composite acts were incorporated within the "whole act" classification. All components sequences, which reflected a dependency relationship with perceived composite acts, were included within the "composite sequence" classification). A significantly larger proportion of back-channels, therefore, are used during the co-construction of NSP's complex messages than used across whole or synthesized act exchange, X^2 (1) = 78.92, p<.001. Before looking at the distribution of back-channel types within co-constructed and non co-constructed acts, several other comparisions may prove interesting. It should be

TABLE R15

Back-Channel Distribution And Proportions
Across Whole And Co-Constructed Conversational Acts

Dyad	B-Cls/ Whole Acts	B-Cls/Co-Constructed Acts
#1	46/237 (.1940)	191/237 (.8059)
#2	87/284 (.3063)	197/284 (.6936)
#3	58/350 (.1657)	292/350 (.8342)
#4	44/129 (.3410)	85/129 (.6589)
#5	39/247 (.1578)	208/247 (.8421)
#6	35/233 (.1502)	198/233 (.8497)

Total Frequencies, Proportions And Percentages:

Dyad	B-Cls/ Whole Acts	B-Cls/Co-Constructed Acts
#1-6	309/1480 (.2087) 21%	1171/1480 (.7912) 79%

emphasized that component acts are not synonymous with back-channel signaling. During C-act co-construction, NSPs' letter or word components are main-channel phenomenon. While the form of this main-channel information is different from that communicated across vocal interactants, due to its segmented nature, these segments still convey substantive main-channel information. The speaking partners' feedback signals and the nonspeakers' evaluations of those feedback signals are back-channel phenomenon. In the corpus analyzed, of the total C-acts produced as components of composite acts, 62% are produced as back-channels (see Table R16). The average number of component C-acts (as measured across all six dyads) required for a composite act to be conveyed, was approximately 21 C-acts. (See Appendix R6 for composite act breakdown across all six dyads). The average number of back-channels used within these composite sequences was 13. Nearly 2/3s of the work done by these partners during collaborated attempts at conveying NSP's complex messages, was focused on back-channel activity. When whole acts (and completed composite acts) were exchanged by these partners, 38% of these acts were produced in the back-channel. (It should be noted that composite C-acts, as used by the subjects in this corpus, were not back-channel signals in that they always added substantive information to the topic of talk). While a relatively fair proportion of C-acts were used, even during whole act exchanges, for feedback

TABLE R16

Percentage Of C-Acts Used For Back-Channeling

WHOLE ACTS	CO-CONSTRUCTED ACTS
309/813	1171/1889
.3800	.6199
38%	62%

Distribution Of Back-Channels Across SPs And NSPs

WHOLE ACTS		CO-CONSTRUCTED ACTS	
Total = 309		Total = 1171	
SP	NSP	SP	NSP
202/309	107/309	944/1171	227/1171
.6537	.3463	.8061	.1939
65%	35%	81%	19%

Back-Channel Distribution Across Groups And Contexts

WHOLE ACTS		CO-CONSTRUCTED ACTS	
SP	NSP	SP	NSP
35% ABC	64% BBC	67% RBC	100% BBC
28% QBC	36% ABC	15% QBC	0% ABC
22% RBC		9% EBC	
12% CBC		6% ABC	
3% EBC		2% CBC	
0% BBC		0% BBC	

activity, sigificantly higher proportions were used within co-constructed composite acts, X^2 (1) = 23.18, $p<.001$. (See Appendix R7 for back-channel type breakdown across individual dyads).

The interdyad variability found was consistent with prior findings. As reported above, the average distribution (across all six dyads) of back-channels within component sequences accounted for 79% of total back-channel activity with 21% produced as whole C-acts (Table R15). The participants within dyads 1,3,5 and 6 shared similar distributions (81%/19%, 83%/17%, 84%/16% and 85%/15%, respectively, X^2 (3) = 1.87, n.s.), as did the partners within dyads 2 and 4 (69%/31% and 66%/34%, respectively, X^2 (1) = .497, n.s.). Yet there was a significant difference between the proportional distribution of back-channels shared among the former group as compared to the latter group, X^2 (1) = 40.74, $p<.001$. Once again, this distinctive performance by Dyad 2 and Dyad 4 reflected the particular styles of these dyads. Because both SP2 and SP4 held the NSPs accountable for producing C-acts within "acceptable" forms (for NSP2 that involved using her communication aid in lieu of vocal attempts at communicating as well as spelling all her communication exchanges accurately, while for NSP4 accountability involved responding in complete sentences so that the referents and referential relations were explicitly produced within the C-act) for these dyads there was proportionally more back-channeling produced within whole acts and following the completion of composite acts than produced by their peers.. Wherein completed composite messages were actually intelligibly conveyed, these SPs frequently held the NSPs accountable to the production of prior responses in what they felt were "appropriate" forms. This accountability work then, influenced the production of more CBCs and QBCs by SP and concommitantly more BBCs by NSP within these whole acts.

The above distribution of back-channel activity within whole and composite C-acts reflected the amount of situational pull and conversational force within these distinctive acts which set the occasion for back-channel signaling. Clearly, the pull for feedback activity during C-act co-construction was much stronger than during whole act or following synthesized C-act exchange. Further analyses of the back-channel activity within these two contexts revealed more specific information regarding the form and function of the distinctive feedback system identified within this corpus.

The information to follow has been divided into two sections. The first section describes the distribution of back-channeling found across each subject group (i.e., speakers vs. nonspeakers) within each of the two contexts (i. e., whole vs. co-constructed act sequences). The second section describes the specific back-channel types used by each subject group within each context.

Differences across contexts will then be identified. (For complete information regarding the back-channel type distribution for each partner within each dyad, across whole or co-constructed C-act exchanges, see Appendices R7 and R8.)

Back-Channel Distribution Across Subject Groups:

Across all the whole or synthesized C-acts exchanged, SP produced 65% of the total back-channels across both conversational partners with NSP contributing 35% (Table R16). While not equal in distribution, these frequencies reflect a more balanced picture of back-channel activity than described earlier, when both whole and composite contexts were combined (Table R1). All of the back-channels produced by SP in relation to the nonspeakers' whole or completed composite acts were auditor back-channels (Table R17). 35% were simple Acknowledgment (short) Back-Channels and the remaining 65% reflected long back-channel forms. No speaker back-channels were used by the SPs. For the NSPs' 36% of the total back-channels produced as whole acts were short auditor back-channels (ABCs) and 64% were speaker back-channel signals (BBCs). No long auditor back-channels were used by the NSPs. Similar to earlier discussions concerning Acknowledgment Back-Channel use by both the speaking and nonspeaking partners, ABC use by both NSP and SP within whole acts reflected relatively equal proportional use (36% and 35% of total back-channels used by each partner, respectively, X^2 (1) = .093, n.s.). When results are averaged across all six dyads, it appeared that both speaking and nonspeaking conversational partners used similar proportions of their feedback signaling to simply acknowledge their partner's conversational contributions. The remaining 64% and 65% of the back-channeling produced by each partner within these whole acts, was used in sharing more complex feedback information. While there was a significant difference across speaking and nonspeaking groups in terms of the proportional distribution of back-channels across auditor and speaker signals, X^2 (1) = 164.57, p<.001, there was no significant difference in the proportional distribution of complex and noncomplex back-channel feedback produced, X^2 (1) = .07, p<.001.

81% of the total back-channels used across both speaking and nonspeaking partners, within the composite sequences, were produced by SP. 19% were produced by NSP (Table R16). Since only NSPs provide main-channel information within a composite C-act (since co-constructing their messages is the focus) and all of SPs' contributions are produced as feedback exchanges in relation to NSPs' main-channel bits, the dominance of SP back-channeling is not surprising. 6% of SP's back-channels were short auditor signals and 94% were long auditor signals (Table R17). No speaker back-channel signals were used by the SPs. 100% of NSPs' back-channels were speaker back-channel signals. (The proportional distribution of auditor and speaker signaling across speaking and nonspeaking partners was highly significant, X^2 (1) = 1171.02, p<.001.) The 19% back-channel distribution attributed to NSP reflected NSPs' speaker back channel refinement of SPs' interpretation of the complex messages being co-constructed. While the relationship between complex and noncomplex feedback signaling across speaking and nonspeaking partners was significantly different, X^2 (1) = 14.40, p<.001, the actual percentages reveal that the proportion of back-channels produced as complex signals by each group (94% and 100% for speaking and nonspeaking groups, respectively) are not as distinct as statistical measures suggest.

<u>Back-Channel Type Distribution Across Each Subject Group</u>

<u>The back-channel type distribution found across whole acts was indeed different from the distribution found within composite acts</u>. (See Table <u>R16</u>). <u>Across whole acts</u> exchanged, 35% of the <u>speaking partners</u> back-channels were short acknowledgment signals (ABCs). The remaining 65% were used as long back-channels. These long auditor signals were distributed across the four back-channel types. 22% were Restatement Back-Channels (RBCs), 28% were Query Back-Channels (QBCs), 3% as Expansion Back-Channels (EBCs) and 12% as Correction Back-Channels (CBCs). As described above, 36% of <u>NSP's</u> back-channels were produced as short acknowledgment signals (ABCs) and 64% were

produced as speaker back-channel signals (BBCs).

In terms of back-channel use, both SP and NSP appeared to use proportionally equal amounts of their total back-channel activity, simply acknowledging each other's contributions to the topic of talk and equal proportions signaling more complex information (Table R17). For SP, this complex back-channeling involved all four long back-channel types, although SP's simple acknowledgments reflected the largest proportion of SP back-channel signals communicated across this context (35%). Queries and Restatements accounted for the next highest frequencies (28% and 22%, respectively), Corrections accounted for 12% of back-channel use (a relatively high proportion) and Expansions were used 3% of the time. What is immediately evident, is that unlike the distributions described earlier (across combined whole and component sequences), Restatement Back-Channels play a less predominant role within SP's back-channel distribution across whole acts and simple acknowledgments play a greater role than previously described.

Earlier results (question #1) in which back-channel activity was not segmented into co-constructed and whole act contexts, revealed that Restatements were the largest single form of back-channels used by the SPs (accounting for 59% of total back-channel use) and, in fact, were used more often than all other back-channel types combined, X^2 (1) = 40.71, p<.001. In examining back-channel

TABLE R17

Totals Partitioned Into Auditor And Speaker Signals
Across Whole Acts

	AUDITOR SIGNALS					SPEAKER SIGNALS
	long	long	long	long	short	
	RBC	EBC	QBC	CBC	ABC	BBC
SPs	44	7	57	24	70	0
	22%	3%	28%	12%	35%	0%
NSPs	0	0	0	0	39	68
	0%	0%	0%	0%	36%	64%

SP	NSP
65% long auditor signals	0% long auditor signals
35% short auditor signals	36% short auditor signals
0% speaker signals	64% speaker signals

Totals Partitioned Into Auditor And Speaker Signals
Across Co-Constructed Acts

	AUDITOR SIGNALS					SPEAKER SIGNALS
	long	long	long	long	short	
	RBC	EBC	QBC	CBC	ABC	BBC
SPs	634	87	145	18	57	0
	67%	9%	15%	2%	6%	0%
NSPs	0	0	0	0	0	227
	0%	0%	0%	0%	0%	100%

SP	NSP
94% long auditor signals	0% long auditor signals
6% short auditor signals	0% short auditor signals
0% speaker signals	100% speaker signals

distribution across the whole act context, however, there was no significant difference in the proportion of back-channels used in the Restatement, Acknowledgment or Query classifications, X^2 (1) = 5.92, n.s. although ABCs were the type most frequently used.

Equally true for the NSP's, when whole act contexts are isolated, a relatively large proportion of their feedback activity was used for signaling attention and acknowledgment of their partner's conversational contributions. While the greatest frequency of back-channel use was within speaker feedback signals (i.e., when NSP was confirming, infirming or correcting SP's back-channel contributions) the balance between these two back-channel formats (i.e., auditor and speaker signals) across whole acts was much more equitable.

Short auditor back-channels (ABCs) were used only 6% of the time by SPs' within composite sequences (as component back-channels) with long auditor back-channels accounting for the remaining 94% of SP back-channel activity (Table R17). RBCs were used 67% of the time, QBCs 15% of the time, EBCs were used 9% of the time and CBCs only 2% of the time. No speaker back-channels were produced by the SPs. All of NSP's back-channels were produced as speaker back-channels (BBCs). When produced as components of composite acts these NSP signals were always produced in response to SPs' back-channel. (Hence by definition all acknowleding types of NSP back-channels produced within co-constructed acts are classified as BBCs. No NSP auditor back-channels are identifiable within co-constructed sequences.)

In discussing the back-channel type distribution within composite co-constructed sequences, an even less equitable picture of back-channel activity is evident than that described earlier, when both whole act and composite sequences were combined. 81% of all back-channel signals produced by these partners were attributed to SP, with only 19% NSP produced (Table R16). The feedback exchanged within these composite sequences was predominantly produced by SP. In fact, all of SP's contributions within these co-constructed acts are in the form of feedback activity. Only 6% of SP's back-channel signaling was used for simply acknowledging NSP's contributions while 94% was used for conveying more complex feedback information (Table R17). A significantly larger proportion of Restatement Back-channels were used than all other back-channel forms combined, X^2 (1) = 115.36, p<.001. In other words, SP explicitly restated NSP's message elements, words and messages as a form of feedback exchange, more frequently than any other type of feedback signaling. Concomitantly, all of NSP's back-channel communications within these co-constructed units reflected speaker back-back-channel signaling. NSP's feedback signals were exclusively used to confirm or guide SP's interpretation of NSP's prior main-channel bits during message co-construction.

Comparisons of Contexts

Speaking Partners' Back-Channel use:

In looking at these distributions (see Tables R19, R20 and Appendices R7 and R8), it becomes immediately evident that the form and frequency of back-channel activity across these two contexts (i.e., when used across whole act turns and within co-constructed sequences) was quite different, X^2 (4) = 251.77, p<.001. A comparison of these distributions reveals distinctive interactional activity within each of these contexts. Many more Restatement Back-Channels were produced by SP within composite co-construction than across whole acts (Table R19). The proportional distribution of Restatement Back-Channels to other back-channel types across whole or co-constructed contexts was significantly different, X^2 (1) = 144.13, p<.001. This is consistent with the situational pull or conversational demands of co-constructing NSP's message with him/her at the message element level. When feedback was conveyed following a completely formed NSP message, produced either within a single turn at talk (these "messages" were typically simple yes/no or single word messages) or following a completed composite act, SP restated the message as a form of acknowledgment (RBCs) 22% of the time. In fact, across whole acts, RBCs were less frequently used than simple ABCs. Within co-constructed composites, however, RBCs accounted for 67% of all the

TABLE R18

Back-Channel Type Distribution across Groups and Contexts

SPEAKING PARTNERS		NONSPEAKING PARTNERS	
WHOLE	CO-CONSTRUCTED	WHOLE	CO-CONSTRUCTED
22% RBC	67% RBC	36% ABC	0% ABC
35% ABC	6% ABC	64% BBC	100% BBC
28% QBC	15% QBC		
3% EBC	9% EBC		
12% CBC	2% CBC		
0% BBC	0% BBC		

TABLE R19

Back-Channel Type Frequency Distribution Across Six SPs

Across Whole Acts (W)
vs.
Co-Constructed Acts (C)

Partner		RBC		EBC		QBC		CBC		ABC	
SP1	W	1	(4%)	0	(0%)	14	(58%)	0	(0%)	10	(42%)
SP1	C	102	(68%)	8	(5%)	33	(22%)	0	(0%)	7	(5%)
SP2	W	9	(16%)	2	(4%)	15	(27%)	21	(38%)	9	(16%)
SP2	C	104	(67%)	3	(2%)	32	(21%)	14	(9%)	3	(2%)
SP3	W	16	(38%)	2	(5%)	12	(29%)	0	(0%)	12	(29%)
SP3	C	172	(73%)	19	(8%)	30	(13%)	1	(.4%)	14	(6%)
SP4	W	9	(31%)	1	(3%)	10	(34%)	3	(10%)	6	(21%)
SP4	C	61	(84%)	3	(4%)	7	(10%)	0	(0%)	2	(3%)
SP5	W	6	(21%)	0	(0%)	5	(18%)	0	(0%)	17	(61%)
SP5	C	133	(74%)	9	(5%)	29	(16%)	1	(.6%)	7	(4%)
SP6	W	3	(14%)	2	(9%)	1	(5%)	0	(0%)	16	(73%)
SP6	C	65	(43%)	45	(30%)	14	(9%)	2	(1%)	24	(16%)

Totals Across Six SPs

Partner		RBC		EBC		QBC		CBC		ABC	
SP 1-6	W	44	(22%)	7	(4%)	57	(28%)	24	(12%)	70	(35%)
SP 1-6	C	637	(68%)	87	(9%)	145	(15%)	18	(2%)	57	(6%)

back-channel forms used by SP (Table R18). ABCs were used much less frequently by SP within these composite sequences (6% of the back-channels used as compared with 35% in the whole act distribution, X^2 (1) = 138.23, p<.001). SP more frequently repeated and summarized NSP message elements in lieu of simply acknowledging them with a head nod or other short back-channel signal (e.g., the vocal emblem "Mhm") during co-constructed messages. The co-construction process itself necessitated a more active listener role for SP. (It should be noted that while significantly fewer restatements were produced across whole acts than within composite acts, RBCs were still relatively frequent in the former context. This fact will be discussed in the section to follow).

Queries were, proportionally, less frequently used during composite co-construction (15% as compared with 28%, X^2 (1) = 18.94, p<.001) and Expansions more frequently used (9% as compared with 3%, X^2 (1) = 7.31, p<.01) than throughout whole act exchanges (Tables R18 and R19). Both of these findings are consistent with inherent distinctions between back-channeling complete messages from back-channeling component message elements. Completed messages were more typically followed by a variety of queries in addition to confirmation checks (e.g., requests for additional referential information, in relation to NSP's messages, were productive only after completed composite acts were transmitted). The majority of queries used within composites, however, were confirmation checks in which the form of the message being transmitted was most typically checked at message boundaries. Additionally, the high use of RBCs which involved message verification at the element level resulted in proportionally fewer confirmation requests.

Expansions, however, were more frequently used within composite sequences. Since word completions were used significantly more frequently than message extensions, components within which words were being spelled provided more opportunities for SP to complete a word in the back-channel. EBCs, when produced across whole acts, generally reflected message extensions and were infrequently used.

An unusually high proportion of Correction Back-Channels (12%) were identified across whole act exchanges, with a much smaller percentage (2%) used within composite co-construction (Tables R18 and R19). It appears that SP corrected NSP's conversational contributions significantly more often across whole act exchanges, X^2 (1) = 46.92, p<.001. Dyad variability sheds light on this frequent CBC use. SP 1, 3, 5 and 6 produced no (0) CBCs within these whole acts exchanged. SP2 and SP4, however, did produce whole act CBCs and performed significantly differently than their four peers, X^2 (1) = 37.48, p<.001. Consistent with the discussion above, the SP within Dyad 2 produced a large number of CBCs. In fact, within this dyad's back-channel distribution for whole acts, the greatest number of back-channels produced by the speaking partner were actually produced as corrections (38%). This high frequency, once again, was related to the didactic style used by this SP in which heavy accountability work was done. Correction Back-Channels, while related to prior speaker's main-channel contributions, were not focused on traditional clarification work. They reflected unmodulated listener judgements that prior main-channel contribution was not "acceptable" in form. SP4, while producing fewer whole act CBCs than SP2 (only 10% of total back-channels produced), also reflected a didactic interaction style laced with accountability work. It should be noted, once again, that no (0%) CBCs were used as whole act back-channels by the other four dyads.

Corrections were infrequently done within composite C-acts (Tables R18 and R19). (In fact, one might predict a larger production of corrections to be used by NSP since the co-constructed messages were initiated by NSP. Negation/Correction sequences were indeed found within NSP's speaker back-channel BBCs.) While 12% of whole act back-channels (used by SP) were CBCs, only 2% were used by SP within composite acts. Interdyad variability, however, once again reinforces the picture of CBC use heavily resting within one dyad, X^2 (1) = 50.01, p<.001. 9% of SP2's back-channels within the composite acts were CBCs (14 corrections were produced) while for the remaining five dyads few (if any) CBCs were produced within a co-constructed message (0%, .4%, 0%, .5% and 1% for Dyads 1, 3, 4, 5 and 6, respectively.) With the intensive mutual focus, shared by SPs and NSPs throughout the co-construction process on transmitting NSP's message, one would hypothesize that the use of SP CBCs would be limited. In a general sense one would additionally hypothesize that throughout all of these exchanges, since the context was designed to promote conversational interaction between cooperative conversationalists (c.f., Grice, 1967), didactic exchanges (which typify CBC use) would be infrequent. Within the majority of these interactions, in fact, few didactic exchanges were found. For Dyad 2, however, (and in a lesser degree Dyad 4) a didactic focus was prevalent. For these partners, the interactional focus was frequently one of accountability instead of an equitable sharing of information, thoughts and feelings which typifies casual conversational exchange.

Nonspeaking Partners' Back-Channel use:

While only 64% of NSP back-channels produced within whole acts were produced as speaker Back-Back-Channel signals (with 36% used as simple auditor acknowledgments), all of the back-channels produced by NSP within the composite sequences were BBCs (Tables R18 and R20). (There existed a highly significant difference between proportional BBC use across whole and co-constructed

TABLE R20

Back-Channel Type Frequency Distribution Across Six NSPs

Across Whole Acts (W)
vs.
Co-Constructed Acts (C)

Partner		ABC		BBC	
NSP1	W	13	(62%)	8	(38%)
NSP1	C	0	(0%)	41	(100%)
NSP2	W	0	(0%)	31	(100%)
NSP2	C	0	(0%)	41	(100%)
NSP3	W	7	(44%)	9	(56%)
NSP3	C	0	(0%)	56	(100%)
NSP4	W	8	(53%)	7	(47%)
NSP4	C	0	(0%)	12	(100%)
NSP5	W	4	(36%)	7	(64%)
NSP5	C	0	(0%)	29	(100%)
NSP6	W	7	(54%)	6	(46%)
NSP6	C	0	(0%)	48	(100%)

Totals Across Six NSPs

Partner		ABC		BBC	
NSP 1-6	W	39	(36%)	68	(64%)
NSP 1-6	C	0	(0%)	227	(100%)

contexts, X^2 (1) = 93.73, p<.001.) These short signals were used to confirm, accept, reject and correct SP's interpretations of NSP's message elements as well as signal word boundaries throughout the co-construction process. The BBCs produced by the nonspeakers across the whole acts exchanged and within composite sequences can be compared in several ways (see Table R21).

In terms of the obligatory nature of these acts, 72% of BBC whole acts were obligatory. That is 72% of all NSP speaker back-channels were produced following an SP Query or Correction Back-Channel. 28% were nonobligatory responses. 6% of these self-initiated speaker feedback signals were produced (across whole acts) as negative acknowledgments, serving as repair initiators. The remaining 22% were simple positive acknowledgments of a nonobligatory nature (confirmations which followed Expansion, Restatement or Acknowledgment Back-Channels produced by SP. NSP speaker back-channel confirmations following a query or correction were included within the obligatory BBC percentage listed above.)

Within composite act co-construction, 55% of all BBCs were obligatory responses, with 45% nonobligtory. 11% of these latter signals were negative acknowledgments and functioned as repair initiators, with the remaining 34% available for a range of other nonobligatory functions. These included simple confirmations, other and self corrections, and word boundary signaling. This higher

TABLE R21

BBC Distribution Across Whole And Within Co-Constructed Acts (Average Frequencies Across All Six NSPs)

ACROSS WHOLE ACTS	ACROSS CO-CONSTRUCTED ACTS
72% Obligatory Response	55% Obligatory Response
48/67	126/228
28% Nonobligatory Responses	45% Nonobligatory Responses
19/67	102/228

The Nonobligatory Responses Can Be Further Subdivided

ACROSS WHOLE ACTS		ACROSS CO-CONSTRUCTED ACTS
6%	Negative Acknowledgments	11%
(4/67)		(25/228)
22%	Other Nonobligatory Responses	34%
(15/67)		(77/228)

frequency of nonobligatory feedback supports a notion of mutual monitoring by the partners for the purpose of co-accomplishing the nonspeaker's propositions.

In comparing these two contexts, proportionally fewer back-back-channel signals were obligatory in nature within the co-constructed sequences, while proportionally more were used to initiate an SP repair or signal other complex nonobligatory information than across whole act exchanges, X^2 (1) = 5.74, $p<.05$. Nearly twice the proportional use of BBCs as negative acknowledgments was found within co-constructed acts as compared with whole act exchanges, but no significant difference in these distributions was found statistically, X^2 (1) = 1.46, n.s.

Overall, nonspeaker's BBCs were used for similar functions whether produced across whole acts or within co-constructed contexts. Back-back-channel signals were more frequently produced as highly obligatory responses, across both contexts, although more so across whole act exchanges. When not produced as "required" feedback, BBCs were used to refine or confirm SP's back-channel interpretations of some NSP prior main-channel bit. NSP used these nonobligatory BBCs more frequently and for more complex functions within co-constructed sequences (e.g., for acknowledging SP's interpretations of NSP's message elements, for correcting trouble source elements, and for signaling word boundaries.)

<u>In summary</u>, for these nonspeaking/speaking dyads,

communication in the back-channel played a less dominant role across whole acts exchange than within C-act co-construction sequences. This seems consistent with the contextual influence co-constructing NSP's messages placed on feedback activity.

Across whole acts SP simply acknowledged NSP's messages in the form of simple auditor signals much more frequently, restated NSP's main-channel contributions far less frequently, queried the content of NSP's messages more often, expanded them less and corrected them more often than within co-constructed sequences. Concurrent with this, NSP acknowledged SP's main-channel messages (in the form of short auditor feedback signals) exclusively across whole act exchanges, and produced back-back-channel signals (speaker signals) less frequently than within co-constructed exchanges. Of the BBCs produced, however, a high percentage were obligatory responses to SP's back-channel queries and corrections, few functioned as SP corrections and proportionally fewer (than within co-constructed contexts) were nonobligatory signals. Back-Channel activity was distributed proportionally more equitably across conversational partners within this context (65% attributed to SP and 35% to NSP) than within co-constructed contexts (with 81% attributed to SP and 19% to NSP).

Within composite co-constructed sequences, few simple auditor back-channel acknowledgments were produced by SP.

Restatements were much more frequently used than across whole acts accounting for more than 2/3s of SP back-channel activity. Queries were used less frequently, as were corrections, while expansions were more frequently used than across whole act exchanges. (Word completion back-channels were more functional within the co-construction processes). Concomitantly, all of NSPs' feedback activity was produced as speaker signals. (Since no SP main-channel bits were produced within co-constructed units, no NSP auditor signals were used). Significantly fewer back-back-channel signals were produced as obligatory signals within these co-constructed sequences (than across whole acts). This is consistent with the smaller proportion of SP signals used for querying or correcting NSP's main-channel bits (which occasioned obligatory BBCs from NSP). A greater proportion of NSP's back-back-channels were used in correcting SP's inaccurate message interpretations. Proportionally more (than across whole acts) were produced in other nonobligatory contexts in which NSP organized and refined SP's message interpretations. The overall BBC distribution, however, in which NSP provided obligatory feedback responses to SP, initiated SP repair sequences (for SP's back-channel repairables) and fedback other nonobligatory information to SP, was proportionally not distinct across both whole act and co-constructed act sequences, X^2 (2) = 5.99, n.s.

CHAPTER VII

DISCUSSION

The notion of back-channel communication is particularly relevant to analyses of nonspeech/speech interaction because of the explicit role it plays in the organization of meaningful exchange across these partners. The current research, supports Duncan's (1975) cross-person interactional unit, in which a speaking partner's contribution sets the occasion for a listener back-channel response. Back-channel signals, in the present corpus, do not occur at random points within the conversation. Rather, they occur at discrete cross-person boundaries, revealing how the participants organize themselves socially via conversational interaction.

A Four Move Interactional Unit

Duncan described the speaker's main-channel contribution, the listener back-channel which followed, and the speaker continuation signal, as the smallest observable interactional unit across participants in dialog. In the current analyses, this interactional unit was refined and described as "moves" (Goffman, 1976/81) partners make vis a vis one another throughout face to face verbal exchange. A speaker main-channel move (containing linguistic content) sets the occasion for a listener back-channel move (message apprehension) which, in turn, sets the occasion for a speaker back-back-channel move (recognition/evaluation) in relation to the listener's feedback response. Duncan used the speaker continuation signal as the third move of his interactional unit, as its very production implied prior speaker's acceptance of the listener's back-channel response. Duncan did not, however, include explicit back-back-channel moves in his logical model of the turn taking mechanism (although he did attest to their appearance within the dialogs he analyzed). In the current corpus, speaker back-back channel signals were frequently embedded within a speaker's subsequent main-channel move (supporting Duncan's model). However, explicit back-back-channel signals were often produced as distinct moves in their own right. (In fact, 88% of all the nonspeaker's back-channels were produced as explicit back-back-channel signals). As such, the smallest interactional unit of conversation is viewed as the main-channel move, the back-channel move, the explicit or implicit back-back-channel move, and the speaker's subsequent main-channel move (Figure D1).

A Notion of Simultaneous Systems Operating within Dialog

Typically, in constructing a model for examining dyadic exchange, emphasis is placed on the turn-taking mechanism through which propositional content is shared by cooperative conversationalists. The turn taking system, in essence, provides the basic organizational structure for

FIGURE D1

A Four Move Interactional Unit

MAIN-CHANNEL TURNS	BACK-CHANNEL TURNS
move #1:	
SPEAKER MAIN-CHANNEL ACT	
	move #2:
	AUDITOR BACK-CHANNEL ACT
	move #3:
	SPEAKER BACK-BACK-CHANNEL ACT
move #4:	
SPEAKER MAIN-CHANNEL ACT	

the exchange of talk (Sacks, Schegloff and Jefferson, 1974/78). A turn, however, as described in Chapter IV, does not necessarily contain propositional content. Researchers concerned with linguistic aspects of conversation, typically focus on the verbal content of a turn at talk. Nonverbal behaviors have been identified and examined as highly relevant to interpreting a turn's talk, yet rarely are isolated nonverbal signals assigned turn status unless they are emblematic in form (such as a head nod). This is not to say that a turn taking mechanism can not provide the structure for nonlinguistic systems which operate and interact across dialogs. Nonverbal moves and their synchrony across participants in face to face exchange, while requiring fine grained frame by frame analyses for capturing their discrete temporal dimensions, have been described within a turn taking framework (e.g., Stern, Beebe, Jaffe & Bennett, 1977; Trevarthen, 1977).

In the current analysis, however, a different type of system has been defined in terms of the turn taking mechanism. A feedback system is proposed in which the linguistic content of a turn is put forward by a speaker, apprehended and acknowledged by a listener and recognized as such by the speaker prior to his/her next linguistic contribution. This feedback system is viewed as a distinct yet simultaneous system which operates in parallel to successive propositional content exchange (Figures D2 and D3). Feedback facilitates and links successive

FIGURE D2

Parallel Systems Operating In Dialog: Sequence Development

Proposition Exchange System	Feedback Exchange System
Main-Channel Turns	Back-Channel Turns
MAIN-CHANNEL CONTRIBUTION #1 (statement)	
MAIN-CHANNEL CONTRIBUTION #2 (statement)	
	BACK-CHANNEL SIGNAL #A (acknowledgment)
	BACK-BACK-CHANNEL SIGNAL #B (evaluation)
MAIN-CHANNEL CONTRIBUTION #3 (statement)	
	BACK-CHANNEL SIGNAL #A (acknowledgment)
MAIN-CHANNEL CONTRIBUTION #4 (request)	** BACK-BACK-CHANNEL SIGNAL #B (evaluation)
MAIN-CHANNEL CONTRIBUTION #5 (response)	
MAIN-CHANNEL CONTRIBUTION #6 (statement)	
	BACK-CHANNEL SIGNAL #A (acknowledgment)
MAIN-CHANNEL CONTRIBUTION #7 (statement)	** BACK-BACK-CHANNEL SIGNAL #B (evaluation)
MAIN-CHANNEL CONTRIBUTION #8 (statement)	
	BACK-CHANNEL SIGNAL #A (acknowledgment)
MAIN-CHANNEL CONTRIBUTION #9 (statement)	** BACK-BACK-CHANNEL SIGNAL #B (evaluation)

**note: Asterisks denote Back-Back-Channel signals embedded within subsequent Main-Channel moves. Auditor Back-Channels are labeled #A. Speaker Back-Back-Channels are labeled #B.

FIGURE D3

Parallel Systems Operating In Dialog: Interactant Specific

Proposition Exchange System Main-Channel Turns		Feedback Exchange System Back-Channel Turns
SPEAKER (A) MAIN-CHANNEL (statement)		
SPEAKER (A) MAIN-CHANNEL (statement)		
		AUDITOR (B) BACK-CHANNEL (acknowledgment)
		SPEAKER (A) BACK-BACK-CHANNEL (evaluation)
SPEAKER (A) MAIN-CHANNEL (statement)		
		AUDITOR (B) BACK-CHANNEL (acknowledgment)
SPEAKER (A) MAIN-CHANNEL (request)	**	SPEAKER (A) BACK-BACK-CHANNEL (evaluation)
SPEAKER (B) MAIN-CHANNEL (response)		
SPEAKER (B) MAIN-CHANNEL (statement)		
		AUDITOR (A) BACK-CHANNEL (acknowledgment)
SPEAKER (B) MAIN-CHANNEL (statement)	**	SPEAKER (B) BACK-BACK-CHANNEL (evaluation)
SPEAKER (A) MAIN-CHANNEL (statement)		
		AUDITOR (B) BACK-CHANNEL (acknowledgment)
SPEAKER (A) MAIN-CHANNEL (statement)	**	SPEAKER (A) BACK-BACK-CHANNEL (evaluation)

**note: Asterisks denote Speaker Back-Back-Channels embedded within subsequent Main-Channel moves. Participants are labeled (A) and (B). Each serves as both speaker and auditor as the propositional turn is exchanged.

propositions as produced by speakers in dialog.

The works of Duncan (1972, 1975) and Yngve (1970), which have strongly influenced the view that back-channel signaling plays an important role in face to face vocal interaction, have strongly stressed the non-turn status of back-channels. These signals were viewed as qualitatively distinct from typical turns at talk because of the lack of propositional information initiated by these signals, the feedback status attributed to them and the ability of certain back-channel forms to co-occur with main-channel information without being viewed as interruptions. In the present corpus, the notion of turn as being main-channel determined was held in dispute. Back-channels were assigned turn status. Yet, these back-channel turns were not in function distinct from Duncan and Yngve's back-channel forms. Back-channels did not serve as conversational topic grabbers nor did they seize the "conversational floor" from prior speaker. They served feedback functions exclusively, although they varied in the precise feedback function assigned (e.g., whether signaling agreement, confirmation, disagreement, evaluation, solidarity, query, correction, etc.). The proposed notion of parallel systems operating simultaneously across dialog, supports this turn status assignment to back-channels. Back-channel signals (whether auditor or speaker produced) are the subtle feedback links produced across partners which operate alongside the content exchange of traditional turn types (e.g., questions and answers; statements and responses). These feedback turns operate as acts on a different channel than traditional propositional exchange.

Co-Constructed Asymmetry

Across the nonspeech/speech conversations analyzed here, nonspeakers transmitted linguistic information through the use of alphabet/word boards. The cross-person participation, encompassing the transmission of nonspeaker messages at the letter or word level (rather than at the phrase boundary level, typical of vocal exchange) and the explicit back-channel reformulation produced by the listeners, provided a magnified slow motion transcript of the interactional unit initially proposed by Duncan and refined here. The smallest observable interactional unit remained fundamentally unchanged. A main-channel bit was offered, a back-channel signal typically followed, and an explicit or implicit back-back-channel verification was made on the part of the initial speaker. While this basic unit remained intact, there were fundamental distinctions which arose across the speaking and nonspeaking participants, setting these dialogs apart from typical face to face exchanges. These distinctions were reflective of basic organizational differences which occur when conversational partners communicate through different output modalities. An asymmetry, in terms of back-channel frequency and type, reflected this modality mismatch. It should be noted, however, that both partners contributed to this asymmetry. The dependency relationship between back-channel signal and prior main-channel information, shaped this interactional process. Back-channel frequency was not solely determined by the back-channel producer. The preceding main-channel bit set the "occasion" or provided the conversational pull for the ensuing back-channel. In describing what appeared to be an asymmetrical relationship, we must acknowledge the framing influence provided by both partners in creating this asymmetry.

Predominance of Back-Channel Activity

The predominant role of back-channel signaling within these nonspeech/speech conversations cannot be questioned. Over 57% of all C-acts exchanged by these dyads were produced within the back-channel. In comparing the nonspeaking/speaking dyad back-channel rate with the rate exchanged across vocal interactants (Duncan, 1972), we find three times as many back-channels were exchanged per minute of dialog for the former dyads. In terms of actual frequency, a back-channel form was exchanged by these partners nearly every other second of dialog!

Examining this heavy feedback activity across nonspeaking/speaking dyads revealed that speaking partners produced three-quarters of the total back-channels emitted, while the nonspeakers' back-channels accounted for only one-quarter of this total. These percentages support the asymmetrical back-channel distribution discussed above. Furthermore, over three-quarters of all Conversational acts produced by the speaking partners were produced in the back-channel while less than one-third of the nonspeakers' total C-acts were back-channel signals. Nonspeech/speech interaction research frequently points to the gregariousness of the speaking partners who often feel compelled to fill gaps of silence (in respect to the slow rate of information exchange by their nonspeaking partners) with extraneous talk - often interfering with the nonspeakers' turn taking and topic initiation attempts. The results of the present research highlights the fact that a significant portion of the speakers' conversational contributions are actually used in producing feedback signals in relation to the nonspeakers' messages. Once again, it should be noted that the conversational pull for these feedback signals come from behavioral cues embedded within the nonspeakers' preceding main-channel messages.

Back-Channel Form and Function across Modality Matched and Mismatched Pairs

Not only were back-channels more frequently identifiable across nonspeaking/speaking partners (in comparison to Duncan's vocal dyads), the predominant forms in which these feedback signals were encoded were also distinct from those reported for vocal exchanges. 71% of all back-channel forms used by vocal interactants (Duncan, 1975) were short auditor signals, with 7% produced as long auditor signals and 22% as speaker signals. For the nonspeaking/speaking dyads, 11% of total back-channels were short auditor signals, with 69% as long auditor back-channels and 20% as speaker signals. Interestingly, both groups (vocal dyads and nonspeaking/speaking dyads) used almost identical proportions of their back-channel forms for auditor signaling (78% and 80% for the former and latter groups, respectively) and nearly identical proportions for speaker signaling (22% and 20%, respectively). The fundamental distinction between these groups, was in the production of auditor back-channels as primarily short or long back-channel forms. The vocal dyads used short auditor signaling far more frequently, while the nonspeaking/speaking pairs used long auditor signaling predominantly.

These distinctions reflected the different functions of auditor feedback as used by the vocal dyads and the nonspeaking/speaking pairs. Short auditor back-channels are less complex feedback forms than long auditor back-channels. Both function as signals of message aprehension or reception, yet long auditor back-channels provide the speaker with more specific feedback regarding prior main-channel message. Interactants who conversed through the same vocal mode predominantly used auditor feedback to signal attention, interest, acknowledgement and agreement with the speaker's main-channel contribution. Interactants who conversed across different output modalities (vocal and nonvocal), used auditor signaling predominantly for reformulating the nonvocal speaker's message into the vocal mode. Message reformulation was produced in the back-channel through message restatement, expansion, query and correction forms.

Feedback Contingency: Evidence of Mutual Monitoring

What is immediately striking, in examining the back-channel distribution across speaking and nonspeaking partners, is the proportional symmetry across the two groups, in terms of back-channels produced for noncomplex and complex feedback functions. 11% of the speaking partners' and 12% of the nonspeakers' back-channels were produced as simple listener acknowledgments (ABCs). These short auditor back-channels functioned as signals of message apprehension, listener interest and listener attention to the speaker's contribution. The above proportions, however, are directly related to the proportion of back-channeling used by each group for more complex purposes. 89% of SP's feedback forms were produced as long back-channels. These long auditor signals functionally restated, expanded, corrected and queried prior main-channel contributions and were more complex in both form and function than short auditor signals. 88% of NSP's back-channels were produced as speaker back-channel signals. These speaker signals functioned as confirmations, corrections, information additions and repair initiations. They reflected NSP's evaluation of prior long back-channel signal produced by SP and as such were more complex in function than simple auditor feedback. NSPs' complex back-channels were produced as speaker feedback signals in relation to SPs' complex auditor back-channels. The proportional relationship between complex and noncomplex signaling across partners was nearly identical.

This feedback contingency is quite revealing. The communicative context engulfing partners who converse through different output modalities (i.e., vocal vs. nonvocal modes) appeared to shape an assymetry in terms of frequency and type of back-channel forms produced. The conversational pull for explicit feedback by the vocalizing partners was strong. Yet, mutual monitoring during message transmission remained the principle focus for these partners, not simply the reformulation of nonvocal messages into the vocal mode. On the average, speakers and nonspeakers used proportionally equal amounts of feedback in acknowledging each other's independent contributions, and equal proportions of feedback in conveying more complex information during message co-construction processes. Infancy research has pointed to the synchronicity of behavioral cues across caregivers and children. This appears to be evident across adult interactants as well (kinesic analyses). Despite the modality mismatches between the nonspeaking/speaking dyads, and the concomitant conversational asymmetry which has been reported as typical of nonspeech/speech conversations (Harris, 1978; Calculator and Dollaghan, 1981; Colquhoun, 1982; Culp, 1982; Wexler et al., 1983; Farrier et. al., 1984; Light et. al., 1985), synchronicity in cues used for mutual monitoring is evident. Support for this notion is not based on frequency counts but rather on proportional distributions.

It is interesting to note that consistent with pilot results (Blau, 1982), nonspeakers produced significantly more back-channels for providing their listeners with information regarding the status of their own message during co-construction processes than for acknowledging their partner's independent contributions. What was not discussed in the 1982 study, and which is clearly evident here, is that the speaking partners also produced significantly more back-channels as complex feedback signals during message co-construction than for simply acknowledging the nonspeakers completed messages. The relatively low incidence of NSP's short auditor signals was matched by the low incidence of SP's short auditor signals. Both partners, speakers and nonspeakers alike, produced few simple attentional/acknowlegment signals throughout these exchanges. Clearly, the presence of an augmentative system framed the focus and performance of <u>both</u> participants.

Explicit Back-Channeling as Evidence of "Active Listening"

In light of the interactional unit identifiable across vocal exchanges (Duncan, 1972, 1975) and across nonspeech/speech exchanges (the present corpus), a primary distinction can be described as the degree of active listening required of the listeners within the current corpus. Back-channel signaling is predominantly exchanged in subtle forms across vocal conversationalists. Message co-construction, in which main-channel messages are introduced by speakers, apprehended and acknowledged by listeners and recognized as such by speakers prior to main-channel message continuation, is typically a subtle phenomenon for vocal interactants. Long auditor signals are comparatively rare (especially during brief face to face encounters). Auditor feedback is most typically expressed through nonverbal or minimal vocal forms (e.g., head nods and "mhm" signals). Speaker feedback is produced even more implicitly, as embedded within speaker continuation signals. The atypical manner with which the form of NSP's messages are conveyed (i.e., with main-channel elements transmitted at the letter and word level through alphabet/word board selections) and the ensuing conversational pull for listener message reformulation, results in an organizational framework which demands predominant use of explicit back channel signals. Nearly 90% of all SP's auditor signaling are long back-channel forms. This explicit feedback signaling supports the notion of an "active" listener. This notion sharply contrasts, however, with the activity required of listeners across vocal exchanges. Duncan reported a high incidence of short back-channel signaling across vocal partners and a low incidence of long auditor signaling. While listener activity (as measured by back-channel rate) was consistently produced and appears to be a requirement for cooperative conversationalists, the predominant use of short auditor signals suggests less active participation on the part of the listener. Clearly, back-channel signals are not only more frequent within nonspeech/speech conversations, but they are encoded in more explicit forms and are used for different functions. Across vocal interactants, message co-construction is a much more subtly achieved phenomenon.

The absence of long auditor signaling by the nonspeaking listeners suggests that this higher level of active listening was not a requirement for them. Their auditor feedback was always produced as short attentional/acknowledgment signals. However, long back channel forms (specifically message restatements and expansions) were not available to NSPs because of the restrictions placed upon them in communicating via a nonvocal mode (alphabet/word board). Queries were not attempted by them in relation to SPs independent conversational contributions (perhaps due to the temporal restrictions of communicating through a nonvocal mode or perhaps due to their lack of experience with this conversational convention). Concomitantly, no speaker back-channels were produced by SP - as these are sequentially dependent upon some prior auditor long back-channel signal. However, NSPs were unusually active in their monitoring of their listeners' back-channel signals. 88% of their back-channels were produced as explicit speaker signals. These signals reflect the third element of the co-constructed interactional unit in which the speaker recognizes and evaluates the listener's back-channel interpretation of the speaker's prior main-channel contribution. Across vocal exchanges, these speaker signals are typically implicitly produced and are embedded within speaker continuation signals. Implicit speaker signals were also produced by NSPs, most typically during the spelling of a word prior to its completion. However, explicit speaker signals were also frequent. All co-constructed messages were finalized through an NSP explicit speaker signal. Additionally, NSP held SP heavily accountable for correctly interpreting each main-channel elements he/she was transmitting. An inaccurate SP back-channel reformulation was typically followed by an NSP repair initiation or correction through the speaker signal. Within these explicit co-construction processes, active feedback signaling was exchanged by both speakers and listeners.

Significance of Examining Back-Channel Type

Examination of back-channel type revealed specific information on how back-channeling functioned for these dyads. There is no question that back-channeling played an important role within these exchanges. Active listening and mutual monitoring were strong components found across all six dyads. Information regarding back-channel type, however, revealed how the specific forms and functions of the back-channel signals were used by the dyads.

Descriptively, the importance of back-channel type analyses rested in the clarity it provided regarding these feedback signals. Since back-channels were typically viewed as non C-act and non-turn phenomenon, a thorough examination of their form and function had not been done within nonspeech/speech interaction research. The breakdown afforded here, specifically the identification of five auditor back-channel forms and one speaker back-channel form, provided a method for characterizing how these conversations are organized.

On a theoretical level, the careful analyses of back-channel and main-channel forms provided insight into the organization of conversational exchanges in which two speakers, with very different output modalities, negotiate a shared ground (or format) for communicative interaction. Certain commonalities appeared across all six dyads which supports a model of conversational exchange in which explicit and implicit back-channeling play a central role. While the modality mismatch across these partners set the occasion for more detailed feedback work across partners, the basic interactional unit, as proposed by Duncan remained intact. In fact, Duncan's model was extended, by the inclusion of explicit or implicit speaker back-channel signals. This widened the basic interactional unit to a four part conversational sequence comprised of a main-channel contribution, an auditor back-channel signal, a speaker back-channel signal and the next main-channel contribution.

From a clinical perspective, the identification of specific back-channel types provided a framework for examining particular feedback forms or interaction of forms which were effectively or ineffectively used by the participants and those which were essential to maintaining the conversational flow across the nonspeaking/speaking dyads. In fact, within this corpus the notion of "style" was explicated specifically through the examination of the back-channel types used by the participants. Conversational control, an issue of prime interest to current conversational research in the field (Farrier et al., 1984), has been examined in terms of interactants' abilities to initiate topics (Light et al., 1985), produce a range of conversational act types (Wexler et al., 1983) and successfully claim and exchange speaking turns (Buzolich and Wiemann, 1985). These variables have been viewed as important components for examining equity in conversation. Back-channel signaling, however, is another important focus for looking at control issues. The didactic/accountability styles which so clearly emerged from the present back-channel examination, revealed how the delicate balance of equity can be dramatically disturbed by an atypical balance of specific forms used for feedback signaling. Identification of these distinct interactional styles can provide clinical baselines for both identifying inequitable interactions as well as providing a method for focusing on the specific units which merit change.

Message Reformulation Through the Back-Channel

Back-channel type analysis was particularly valuable in describing the role message reformulation played within these exchanges. Long auditor signals were the vehicles through which message reformulation was accomplished. Since all long back-channel signals were produced by SP in his/her role as listener, all reference to SP as message reformulator will imply SP's listener status.

Restatement Back-Channels (RBCs), a long auditor back-channel form, was the most frequently used format for message reformulation (accounting for 59% of SP's total back-channel count). Restatements reflected back-channel repetitions, summarizations and paraphrases. Repetitions were the most commonly used form, as NSP's nonvocal message elements were typically immediately followed by a vocal reproduction by SP. <u>Summaries</u> and <u>paraphrases</u>, also reformulations, reflected more complex forms. They typically were productive when extensive negotiations at the element level (i.e., NSP's letter selections and SP's immediate vocal repetitions) revealed a recognizable word or phrase.

Summaries involved the collection of NSP's transmitted message elements and their restatement as a synthesized whole. Summaries were produced at word levels (i.e., individually transmitted letters were synthesized into a complete word) and at phrase levels (i.e., transmitted letters and words were synthesized and reproduced as phrases by SP). Paraphrases involved SP's reproduction <u>in his/her own words</u>, of a message transmitted by NSP. Paraphrasing was most typically produced at the end of message co-construction. Both of these forms required more integration by SP. Repetitions, however, involved simple transpositions of NSP's message elements (letter or word) into the vocal modality. Communication which is dependent upon alphabet/word board selections for message formulation, demands a great deal of extra work both for the speaker and listener. NSP was required to spell out whatever message he/she attempted to convey, while SP was required to follow the spelling process, retain the message elements in memory and synthesize the completed message prior to responding to it. The SP in this corpus used restatement back-channels as the method with which to lessen the memory load while actively reformulating NSP's message during message co-construction.

Retatement Back-Channels, although far less frequent, have also been identified within vocal face to face exchanges (Duncan and Fiske, 1977). Studies have not yet examined the distinctive roles listener repetition, summarization and message paraphrasing play across vocal partners. Pilot research (Blau, 1982) suggests that paraphrases are used more often than exact repetitions within these exchanges. Paraphrases, as signals of solidarity have been identified within that corpus. Typically, vocal interactants, during face to face conversations, do not need to signal message reception through explicit message reformulation . Restatement Back-Channels are not only used significantly more frequently within nonspeech/speech conversations but their function involving explicit message repetition is not typically the function of RBCs when they appear within vocal exchanges.

SP's back-channel reformulations of the nonspeaker's message elements are central to the co-construction processes which organize these conversations. Message reformulation, however, is not restricted to the conversations of interactants who communicate through two distinctive output modalities (i.e., vocal and nonvocal). Native users of American Sign Language (Baker, 1976) also use Restatement Back-Channels as their primary auditor back-channel form. Message reformulation is also common across vocal interactants when message intelligibility or interpretability is in question and is not restricted to conversations in which augmentative systems are used (Blau, 1986).

"Reformulations" for the nonspeaking/speaking dyad transcend the boundary of the dyad. The speaking partner often becomes a close "re-envoicer" of the nonspeaker's messages through communication in the back-channel. Retaining the nonspeaker's role within the interaction, instead of imitating or speaking for him or her, is of prime interactional concern. Message reformulation then, and more specifically, how the listener uses these reformulations to help the nonspeaker actively participate in the interaction is quite important. Vocal reformulation is an integral part of the interactive relationship which speakers and nonspeakers negotiate. The process of message co-construction, which is organized by the interplay of main-channel and back-channel information, supports the nonspeaker's self initiated contributions.

Other Productive Forms of Re-Envoicing

The notion of "message reformulation", as used within this corpus, also pertains to the other long back-channels forms used. These other long back-channels were more diverse in function than the restatement classifications. Expansion Back-Channels, while accounting for only 6% of the mean back-channel distribution across the six speaking partners, is an important back-channel form. EBCs reflect the listener's completion of a speaker's contribution. Expansions, as defined within this corpus, were viewed as either word completions or message extensions. Completions at the word level, reflected SP's summarization and reformulation of NSP's message elements into a synthesized word, prior to NSP's completed element transmission. (SP's vocal reproduction of a word which NSP had not yet spelled completely). The letters which NSP has already conveyed, combined with the preceding linguistic context and presuppositional knowledge shared by the interactants, occasionally primed SP's access to a word in his/her mental lexicon which he/she offers to NSP, through back-channel reformulation, as the targeted word being spelled. Message extensions involved the inclusion, on the part of SP, of one or more words within the message reformulation which were not explicitly initiated by NSP. This form of expansion is more typical of expansion forms used by vocal interactants (Blau, 1982), although both forms are occasionally used.

Completing a speaker's word in the midst of message transmission is more intrusive than simply repeating or summarizing elements already explicitly communicated by the partner. In nonspeech/speech interaction, the reduced rate of message transmission is a prime contributer to the organizational distinctions which define these exchanges.

(The primary contributer being the modality differences across these partners. NSP's messages are encoded in a visual/graphic form and then again encoded by SP vocally). Completing NSP's messages at the word level, is typically done as a means for increasing the rate of message transmission. For well focused interactants, in particular, familiar partners like those examined across this corpus, word completions can be used relatively successfully. This is dependent, however, upon the familiarity level of the partners and both partner's "agreement" to the message completion strategy. As will be described in the style discussion below, specific partners negotiated particular patterns of main-channel/back-channel use. Completing a word and reformulating it vocally, instead of producing Restatement Back-Channels following each letter spelled, was a very effective interaction strategy for the partners of dyad #6. Their mutual monitoring remained intensive but was encoded in more efficient forms.

The notion of message completion is a controversial one - with perspectives on their function ranging from "message intrusion" to "message communion". Perhaps it is not the Expansion Back-Channel itself which is at issue, but rather the perspectives of the participants who use and receive that particular form of auditor signal. A listener expansion is intrusive if the speaker receives it as such. It has been suggested (Blau, 1982), that within vocal exchanges expansions may serve a solidarity function. A listener may illustrate through Expansion Back-Channels that he/she is "with" the speaker and supports the point he/she is making. Additionally, expansions are used within vocal exchanges in response to hesitation phenomenon. A speaker hesitation (i.e., the exhibition of a word finding problem) may, at times, set the occasion for the listener to "fill-in" the word or words he/she assumes prior speaker is searching for. The speaker may accept or even encourage these feedback exchanges. At other times, a listener's completions of a speaker's contributions can be perceived as extremely intrusive. The frequency with which these completions are made, the contextual pull for their production, the relationship between the participants, the knowledge shared by them, as well as the accuracy of these expansions, contribute to their acceptability to a speaker. (A discussion of the relationship of Expansion Back-Channels to conversational repair appears in a later section of this chapter). Within the nonspeech/speech corpus analyzed, expansions were primarily used for increasing the rate of message transmission for these familiar partners. There existed a definite preference for the use of word completions over message extensions. (Nearly three-quarters of all EBCs were produced as word completions). This finding is consistent with the mutual focus of the dyads which was fundamentally supportive of NSP's independent contributions. Back-channel forms, as occasioned by the main-channel forms which preceded them, functioned to facilitate (through message re-envoicement) rather than take over during message co-construction.

Modulated Forms of Message Reformulation

Query Back-Channels accounted for nearly one-fifth (18%) of all SP back-channel forms. Two-thirds of these queries, were produced as simple back-channel confirmation checks. Contingent queries have frequently been viewed as repair initiations. (This view has been challenged by Blau, 1986a). For the nonspeaking/speaking dyad, queries typically reflected SP's modulated vocal reformulations of NSP's prior main-channel contributions. Word completions and message summarizations were often produced in a modulated form. SP's synthesized message reformulations at end points within the co-construction processes (i.e., message boundaries) were nearly always produced with a rising tone. Since the "author" of the word or message being co-constructed was NSP, SP frequently checked on the accuracy of his/her message reformulation by producing the back-channel within a "confirmational tone" (in essence a re-animation of the "authors" words for co-verification). In terms of satisfying the ritual or social constraints of the interaction (Goffman, 1976/81), this confirmational tone clearly reaffirmed SP's status as message re-envoicer (especially during mesage expansions and summarizations) without challenging the authorship of NSP. These queries provided strong conversational pull for a subsequent back-back-channel confirmation/evaluation on the part of the main-channel message producer. NSP clearly retained authority over his/her own message transmission.

These modulated back-channel forms were additionally not identical to the modulated other corrections as defined by Schegloff, Jefferson and Sacks (1977). Vocal conversation is organized to facilitate both self initiation and self correction of repairs. The small number of other initiated other corrections identified by these authors, were similar in form to the confirmational query. The organization of repair across the nonspeaking/speaking dyad, however, is not identical to its organization across vocal interactants (Blau, 1986b). Modulated back-channel forms more frequently functioned as repair preventors than as repair initiators or modulated repair completors. In fact, 63% of all confirmational queries as produced by the SPs within this corpus, (i.e., Specific Requests for Confirmation and Potential Requests for Confirmation as defined by Garvey, 1977) were neither related to repair initiation nor repair completion.

Didactic Forms of Auditor Feedback

Schegloff et. al. (1977), noted that other-initiated other corrections, while seldomly identified across vocal conversationalists, were acceptable only when produced in polite forms. Unmodulated other corrections were not used by adult vocal conversationalists. These forms were frequently used, however, within the domain of parent/child interaction or in interactions with individuals whom, irrespective of age, were not yet considered "competent" in some domain. Correction Back-Channels, a form of message reformulation, appeared to be quite similar to these unmodulated other corrections as described by Schegloff, et al. (1977). Their feedback function was more complex than the simple reproduction and synthesis of NSP's message elements. In fact, CBCs reflected an SP "judgment" reformulation or potential redirection of some prior main-channel contribution by NSP. These signals did not contribute substantive information to the conversation and were clearly feedback in function. Yet, they provided the listener (SP) with a forum for holding the speaker (NSP) accountable for producing some prior main-channel contribution in what the listener deemed to be an "acceptable" form.

Correction Back-Channels were not identified by Duncan as a form of back-channel activity. In fact, the classification was developed as a result of examining pilot transcripts of nonspeech/speech conversations (Blau, 1982). The equitable sharing of ideas, thoughts and feelings which characterize the more casual conversations of friends and peers, hardly occasions formal accountability sequences. Interactants may (and often do) hold differing viewpoints on topics and express these opposing views. These are accomplished as main-channel contributions to the topic of talk or through modulated query forms. Correction Back-Channels, as expressed by the SPs in this corpus, did not challenge the content or opinion expressed by the main-channel act contributer (NSP). Rather, they were produced by the SPs as didactic feedback signals in which the modality, the spelling accuracy, or the number of words used by NSP in expressing some prior main-channel contribution was judged as inappropriate. The interpretability or intelligibility of prior act was not in dispute. CBCs simply reflected the listener's feedback "demand" to the speaker for the reproduction of prior message in a more acceptable form. These CBCs reflected 4% of SP's total back-channel production. 4% use is hardly significant. Yet, the very appearance of a socially unacceptable adult feedback form, within the present corpus, warrants further discussion.

Frequent CBC use reflects the social organization of the participants engaged in the exchange of talk. Goffman (1976/81) described how the social setting of talk can penetrate into and determine the structure of that interaction. He described classroom talk, between teacher and student, as being educationally, as opposed to conversationally, based. The educational imperatives which operate include the teacher's testing-out, evaluation and extension of the pupil's knowledge. Student reversal of these roles is not considered proper. Asymmetrical didactic sequences, then, appear to be quite appropriate within classroom interactions for which social roles are clearly defined.

Further examination of the current corpus revealed that corrective feedback was proportionally more frequently produced by two of the speaking partners (SP #2 and #4) than by the other four SPs. In fact, SP#2 produced significantly more Correction Back-Channels than all of her speaking peers combined. Also noted, was that SP #2 and #4 were the teachers of their nonspeaking partners. Although the interactional context, within which the data was collected, was so constructed as to encourage equitable conversational interaction, the social relationships of these teacher/student pairs appeared to facilitate the frequent shifting of style from a conversational to an educational focus. As will be discussed below (under the heading of "style"), these highly didactic exchanges were accompanied by affective shifts and noninitiatory behavior on the part of the nonspeaking partners.

Back-Channels as Attention/Reception Signals

Short auditor signals were the only form of back-channeling which was productive for both the speaking and nonspeaking partners. Long auditor signals were produced exclusively by the SPs and speaker feedback signals were produced exclusively by the NSPs. Yet both partners used simple auditor feedback during their respective turns as conversational listeners.

In contrast to long auditor signals, short auditor back-channels served as brief signals of attention, interest, acknowledgment and/or agreement in relation to the speaker's main-channel contribution. These short "mhm" signals, typically the dominant form of back-channel signaling across vocal conversationalists, were relatively infrequent across the nonspeaking/speaking dyads. Acknowledgment Back-Channels (ABCs) reflected 11% and 12% of the total back-channels signaled by the nonspeaking and speaking partners, respectively.

Auditor signals, as described above, are occasioned by the speaker main-channel contribution which precede them. In the pilot study (Blau 1982), the nonspeaking partners produced numerous speaker feedback signals but rarely produced short auditor feedback. A conclusion was made that nonspeakers carefully monitor their listeners' interpretations (as expressed via auditor message reformulations) of their own contributions yet do not provide listener feedback when their partners take on the role of speaker. This conclusion was not supported in the current analysis. NSP did produce far more speaker feedback than auditor feedback, yet, short attentional/agreement signals were produced when SP's preceding main-channel contribution occasioned them. (The differences between the pilot results in Blau 1982 and the current analyses was found to be related to individual variability across dyad pairs as will be described below.)

Short auditor signaling however, was far less productive for the nonspeaking/speaking dyads than for vocal interactants. The relative infrequent use of short auditor signals, reflected the lack of conversational pull for them. Fries (1952) noted that statements followed by "attentional signals" encompassed 60% of his corpus. Attentional signals, however, were always preceded by statements. That is, within Fries' corpus, there was sufficient propositional information initiated by the speaker to occasion short auditor signaling by the listener. Short auditor signals, according to Duncan, were preceded and succeeded by prior speaker's main-channel contributions. With the proposed refinement of Duncan's model (in which speaker main-channel, auditor back-channel, speaker back-back-channel and subsequent main-channel contribution, reflected the smallest interactional unit) the conversational pull for auditor feedback remained strongly speaker determined. Narratives, or conversational turns for which successive main-channel C-acts are produced by a single speaker, are ideal contexts for short auditor signaling. The speaker, during the course of narrative production, looks for listener feedback as he/she proceeds with the next main channel contribution. Throughout the nonspeech/speech conversations, however, little narrative production was noted. (Only one NSP successfully produced back to back composite acts without interim main-channel contributions by SP. See the style section below). For the nonspeakers, the production of even a single proposition demanded extensive co-construction by both partners. The relationship of turns to conversational acts was reversed. In lieu of NSP's production of several C-acts within a single turn at talk, multiple turns were exchanged by NSP and SP before a single complex NSP proposition was transmitted. At this co-constructed level, the pull for message reformulation (through long auditor feedback) was strong. The pull for minimal auditor feedback, however, was limited.

Narrative production was also rare during the speaking partners contributions. 72% of all conversational exchange was focused upon co-constructing NSP's messages. SP's contributions throughout these co-constructed sequences were back-channel responses. Main-channel contributions (which set the occasion for auditor feedback), were only productive for SP across whole act exchanges. Whole acts, (accounting for the remaining 28% of conversational space), were produced by both SP and NSP. One-third of all whole acts were produced in the back-channel. Clearly the amount of conversational space available for narrative production on the part of SP was extremely limited. When successive main-channel contributions were produced (i. e., when not produced as hyperexplanation or extraneous specification sequences) the occasion was set for listener feedback. Auditor back-channel signals were produced by the NSPs within these contexts.

Again, it should be stressed that the proportion of NSP or SP back-channels produced as short auditor signals, was tied to the amount of main-channel information initiated by the main-channel speaker. This appeared to be additionally influenced by the particular topics being addressed and whether each partner offered his/her own opinions or views regarding that topic. (For example topics such as "sports" appeared to be supported by self initiated contributions by both partners, while more personal accounts, in which, for example, NSP recounted a personal event, were less symmetrical in self initiated contributions). Unless a speaker holds the conversational floor for more than a short contribution, there is neither the need nor the opportunity for brief auditor feedback. This point further supports the argument that back-channels are strongly influenced by the conversational pull of the main-channel context within which they are embedded. As such they cannot and should not be examined in isolation of the context which frames their occurence.

Recent studies in language development and disorders (Watson, 1977; Fey, Leonard and Wilcox, 1981) have focused on auditor back-channel use among children with language impairments. Watson (1977) reported that young language impaired children used more short back-channels than their language normal peers, during story time interactions with their primary caregivers. Fey et al., (1981) observed that language impaired children used twice as many back-channel responses with same aged peers than during interactions with younger children. These authors interpreted their respective findings as evidence that the language impaired children attempted to avoid the speaking floor through short back-channel use.

These back-channels, however, were not examined in relation to the conversational pull of the preceding context. Looking at the frequency of back-channel use without examining the caregivers' or peers' main-channel contributions which set the stage for these back-channels, provides limited information regarding the skills of these language impaired children. In describing the frequency of short auditor signals, as produced by the SP and NSP subjects within the present corpus, an examination of the conversational pull for the auditor feedback signals was a prerequisite for identifying the interactive processes which were operative for these partners.

Back-Channels as Speaker Evaluation of Listener Reception

Speaker back-channel signals provide speakers with a vehicle for monitoring and fine tuning listener back-channel interpretations. These Back-Back-Channels (BBCs) follow auditor feedback, most typically long auditor signals. Within Duncan's (1975) model, speaker feedback was embedded within speaker continuation signals. The speaker's production of a subsequent main-channel contribution was seen as evidence of the speaker's acceptance of the listener's prior back-channel signal. Explicit speaker signals were not included within Duncan's logical model of the turn taking mechansim. In the current corpus, however, explicit speaker signals accounted for 88% of NSP's total back-channel production. 98% of all explicit speaker feedback followed complex auditor signals (i.e., long back-channels). Virtually all speaker signals were produced by the NSPs. Given the relationship between speaker signals and preceding long back-channel signals, an asymmetrical BBC distribution is not at all surprising. Complex auditor feedback was produced exclusively by the speaking partners. Subsequently all speaker back-channel signals which served to evaluate these signals were NSP produced. (The balance of complex feedback forms across the speaking and nonspeaking subjects was discussed above).

Nonspeaker BBCs were rich in content. Most of them were used as acknowledgment signals (70%) and in form were similar to short auditor signals. Yet their function was confirmational, i.e., evaluating and acknowledging SP's back-channels as accurate interpretations of NSP's main-channel contributions. This confirmational status was assigned whether or not SP's prior back-channel signal was produced with a rising tone (i.e., as a confirmational query). Using Labov and Fanshel's framework (1977), all SP long back-channels were seen as comments concerning "B" events; that is events (or main-channel contributions) whose identity was known for certain only to NSP. As such, NSP's Back-Back Channel signals were seen as confirmations of SP's interpretations. In fact 80% of NSP's BBCs were explicitly of this confirmational variety. As mentioned above 70% were positive confirmations. The additional 10% were negative confirmations, simultaneously assigning trouble source status to SP's prior back-channel signal. Of the 20% remaining, 5.5% were produced as other corrections (in which SP's inaccurate back-channel form was corrected by NSP) and 14.5% were produced as information additions (13.5% in relation to SP QBCs and CBCs, and 1% as self corrections).

It appeared then, that 20% of NSP's speaker back-channel signals contained varied linguistic information and the remaining 80% were explicit confirmations (either positive or negative) of SP's preceding back-channel. Nonspeakers, therefore, were linguistically active in their speaker back-channel contributions, providing additional information to their partners when necessary. Most specific linguistic information was provided for the production of repair responses (i. e., whether repairing their own or their partners trouble sources).

Conversational pull for BBCs was high. 59% were obligatory responses following Query or Correction Back-Channels. Back-Back-Channels served a variety of functions, often of a nonobligatory nature yet always conversationally regulating. At the end of message co-construction, NSP confirmed (or infirmed) the status of SP's sythesized message reformulation, whether or not it was produced as a confirmation request . It was also quite common for Expansion Back-Channels to be explicilty confirmed by NSP. A relatively high proportion (41%) of NSP BBCs were produced in these nonobligatory contexts (without intoned requests from SP). Their priniciple function was the explicit monitoring of SP's interpretations of NSP's main-channel contributions.

The fact that NSP heavily monitored SP's back-channel reformulations, as well as both initiated and corrected SP's misinterpretations of NSP's messages, conflicts with the view suggested by recent research that nonspeakers are passive during conversational exchange (Farrier et al., 1984). Support for this latter view has been the lack of initiatory behaviors identified on the part of nonspeakers (Harris, 1978; Calculator and Dollaghan, 1982), the restricted range of questions forms used by nonspeakers (Colquhoun, 1982; Culp, 1982; Wexler et al. 1983.) and the absence of repair initiation attempted by nonspeakers (Calculator & D'Atillio Luchko, 1983).

With 41% of all NSP's BBCs produced in nonobligatory contexts, the notion of NSP passivity did not adequately describe the nonspeaking subjects in this corpus. NSP held SP heavily accountable for accurately reformulating his/her messages. Additional analyses (Blau, 1986b) further suggests that nonspeakers both initiate and correct SP's back-channel misinterpretations throughout the co-construction processes. What was apparent, however, was the appearance of a distinctive dyadic style which was consistent with this "passivity" notion. For the two dyads whose interactions were laced with didactic accountability sequences, the NSPs rarely produced negation/correction back-channels although these forms were used by the other four dyads. This leads to the hypothesis, that NSP passivity may be a dyad specific phenomonen and not simply a singularly NSP personality trait. As discussed above, dyads #2 and #4 frequently shifted from conversational to educational interaction style. Within the educational framework, student corrections of teacher errors would have been considered a critical breach of the social order (Goffman, 1976/81). The conversational organization across teacher/student pairs, may facilitate the perception of student passivity.

Back-Channels as Trouble Source Elements

The fact that 15.5% of all speaker back-channels as produced by the NSPs functioned as repair initiations and corrections, gives further evidence of the non-passive nature of the nonspeaking subjects as a group. Since these repair initiations and corrections were all in reference to SP back-channel reformulations, it was important to determine how often SP back-channels reflected accurate reproductions of NSP's message elements. Message reformulation played a dominant role within these interactions. However, if these reformulations were frequently inaccurate, their prevalent use would merit careful re-examination. Perhaps specific back-channel types resulted more frequently in message misinterpretation than other types. This certainly would have clinical significance regarding the least effective (and most effective) use of back-channels.

<u>When the repairable back-channels were examined in proportion to the total SP back-channels forms, only 3% resulted in repair sequences</u>. 97% were accepted as accurate, either implicitly (by NSP's continuation of message transmission) or explicitly (NSP signaling "yes" or some other form of acceptance). This finding was quite significant. For the most part, SP auditor back-channels, as averaged across all six dyads, were overwhelming received by NSP as evidence that their main-channel messages were accurately apprehended by the listener. A very small percentage of back-channel signals resulted in side sequences focused on their repair.

These side sequences, however, took up additional conversational space within an already slowed down interactional exchange. For example:

<u>Example D1</u>

(Note: An asterisk (*) identifies the Composite C-acts)

STIN	SP	I think he does a decent job.	
	NSP	(F)	
	SP	F	
	NSP	(R)	
	SP	R	
	NSP	(A)	
	SP	A	
	NSP	(N)	
	SP	Fran	
	NSP	(NO)	
	SP	No↗	
	SP	OK	
	SP	Go ahead	
	NSP	(N)	
	SP	N	
	NSP	(C)	
	SP	C	
	NSP	(O)	
	SP	Franco.	
	NSP	(YES)	
STID	NSP*	(FRANCO)	perceived composite act

In the above example, SP produced a statement of internal report (STIN) regarding some preceding topic already on the floor (specifically, the interactants were expressing their opinions regarding sports figures). NSP attempted to introduce the next topic (i.e., the next sports figure, Franco) by producing an identification statement (STID). NSP's letter selections were followed by SP's vocal reformulations in the back-channel. After NSP had spelled the first four letters of his message, SP summarized the letters and reproduced them as the name "Fran". NSP's back-back-channel response "NO" served as a repair initiation, assigning trouble source status to SP's prior Restatement Back-Channel. SP acknowledged NSP's repair intiation and asked him to continue. NSP then resumed spelling the name "Franco" from the point immediately preceding SP's misinterpretation. The interactants then continued to co-construct the message without further repair.

The underlined components reflect the repair side sequence. While the majority of NSP's main-channel message elements were accurately reformulated, the repair sequence clearly increased the amount of conversational space required for composite act transmission. Looking at the specific back-channels types which resulted in these extended repair sequences revealed several trends.

Only three back-channel types became Trouble Source Elements; Query, Expansion and Restatement Back-Channels. Correction and Acknowledgment Back-Channels never resulted in repair sequences. Over half of these repairables, however, were actually Query Back-Channels. This finding was particularly interesting. Generally, queries in themselves have been viewed as clarification requests. While repair initiations can take repair (Schegloff, Sacks and Jefferson, 1977), only two repair initiations became trouble source elements in this corpus. Queries, however, possess a range of conversational functions in addition to signaling repair. As discussed above, over two-thirds of all Query Back-Channels were produced as back-channel confirmation requests (RBCs and EBCs with rising tone). These confirmation requests were frequently produced as a routine part of message co-construction. In these contexts they did not signal repair but rather were used as modulated forms of SP back-channeling, especially at phrase and word boundaries. In fact, they were more closely associated with repair prevention than repair initiation.

The remaining Query Back-Channels which became repairables were actually confirmation checks, which were infirmed as inaccurate by NSP. <u>The largest proportion of these infirmed queries, were encoded as expansion confirmation checks</u> (i.e., Expansion Back-Channels produced with a rising tone). This appeared consistent with the "world view", that word or message completions possess the greatest potential for inaccuracy in message reformulation. Restatement Back-Channels, which by definition are reformulations of message elements already produced (albeit in the nonvocal mode) even when produced as queries, may have a greater potential for accuracy as a feedback signal. However, when the remaining half of the SP back-channels which resulted in repair were examined (the remaining 48%), 31% were indeed Restatement Back-Channels with 17% produced as Expansion Back-Channels.

In total, Expansions, whether produced assertively or in a modulated form accounted for the largest proportion of back-channel repairables. Restatements, assertively or confirmationally produced, accounted for the next highest frequency. Since more repairables were related to some form of SP expansion of an NSP message, one would question whether the use of expansions was actually intrusive to the co-construction process. It should be stressed, however, that when examining all expansion forms (both modulated and assertive), only 9% resulted in repair. 91% of all expansion forms were received as accurate interpretations of NSP's messages, evidence of high attunement across the interactants. Expansions generally assisted the partners by increasing the rate of message transmission (by decreasing the amount of conversational space required for message co-construction) and, in fact, were used quite successfully by the dyads in this corpus. It should also be noted, however, that the SPs were familiar listeners (both with their nonspeaking partners and with the nonspeech systems) which may have influenced the success with which they anticipated information being shared. Beukelman and Yorkston (1980) have suggested that within nonspeech/speech interactions intimate partners more accurately anticipate each other's messages than do less intimate partners. In the current corpus, word completions (when not resulting in repair), were used both as an acknowledgment feedback form as well as an efficiency strategy. Had the repairable expansions been more frequent, as might be the case with less familiar partners, this efficiency strategy might not have been effective.

Back-Channel as the Principal Unit of Message Co-Construction

The basic organization of communicative interaction, across the nonspeaking/speaking dyad, is heavily influenced by the intensive mutual monitoring in the back-channel. There are differences, however, in both the frequency and function of these back-channels when exchanged across whole conversational acts and when functioning as the basic unit of C-act co-construction.

Dore (1978) categorized utterances with grammatical form and illocutionary function within conversational sequences as conversational acts (C-acts). Wexler, Blau, Leslie and Dore (1983) further described these C-acts as "whole" conversational acts, produced by a single interactant within one turn at talk. Co-constructed conversational acts, as defined by Wexler et al., reflected propositional information which, due to the nonvocal modality through which at least one conversational partner formulated messages, was conveyed through conversational components produced by both partners. These "component" C-acts ultimately accrued to a perceived "composite" C-act. The composite act was equivalent to the whole act in function yet reflected the active participation of both interactants for its ultimate transmission.

A principal characteristic of this co-construction process, is the dominant role of the "speaker" (i.e., the individual who "owns" the message being transmitted) in the conveyence of main-channel information, and the dominant role of the "listener" in actively translating these main-channel contributions into the typical (as well as most effective) expressive modality used by society. (Each word being viewed as territory shared by both the speaker and his interlocuter, as described by Voloshinov/Bakhtin, 1973). The "speaker" assumes the role of message author and tranmission evaluator while the "listener's" role is that of message reformulator. (In terms of Goffman's 1974 work, the speaker would be called the "originator" of these messages while the listener functions as the "animator" within these conversational exchanges.)

These "roles" (i.e., message author and message reformulator) exist within vocal dialog, yet they are typically exchangeable across partners and are not a requirement for conversational act transmission. Within vocal discourse, much of conversational feedback is expressed in nonverbal and implicit forms. Explicit message reformulation is not a fundamental part of conversational organization. In the corpus analyzed here, the main-channel contribution and the explicit back-channel moves which follow, provide the basic organizational structure within which message co-construction is accomplished. For the nonspeaking/speaking dyad, co-construction is focused on the expressive needs of only one of the interactants - the nonspeaking or nonvocalizing individual, and the receptive needs of the other, the speaking or vocalizing interactant. The author/reformulator/evaluator roles are consistently and sequentially assigned to the nonspeaker/speaker/nonspeaker, respectively, throughout these co-constructed exchanges.

An example of a co-constructed composite C-act will help clarify the above:

<u>Example D2</u> (Dyad #1)

	NSP	(D)	main-channel
RBC	SP	D	back-channel
	NSP	(O)	main-channel
RBC	SP	Do	back-channel
	NSP	(you)	main-channel
RBC	SP	you	back-channel
	NSP	(like)	main-channel
RBC	SP	like	back-channel
	NSP	(F)	main-channel
RBC	SP	F	back-channel
	NSP	(O)	main-channel
RBC	SP	O	back-channel
	NSP	(O)	main-channel
RBC	SP	O	back-channel
	NSP	(T)	main-channel
QBC	SP	Football$\nearrow$	back-channel
BBC	NSP	((HEAD-N/EEC) (YES)	back-back-channel
	(NSP*	DO YOU LIKE FOOTBALL?)	composite C-act
	SP	You bet!	whole C-act

In example D2, the nonvocalizing participant initiated a yes/no request to his vocalizing conversational partner. This request was the first part of an ensuing adjacency pair. Prior to a contingent response, the transmission of the request itself required co-construction by both participants. NSP, the author of the message, initiated main-channel bits of information which were reformulated in the back-channel by SP. NSP finalized the co-construction process by evaluating SP's reformulation, through a feedback or back-channel signal. Once NSP's evaluation had been expressed, the perceived request was transmitted. Seventeen turns were exchanged prior to the transmission of this complex conversational act. Nine of these turns were produced within the back-channel. In essence the co-construction process, while focusing on form exchange, in effect reflected the negotiation requirement for the illocutionary force of NSP's complex C-act to be conveyed. The perlocutionary effect of the composite act could then be seen by examining SP's contingent response.

This intensive co-construction, which organized the nonspeaking/speaking partners' contributions, accounted for 72% of all C-act produced by these partners. Explicit mutual monitoring (i.e., back-channel forms) represented nearly two-thirds (62%) of all component acts exchanged.

Back-Channel use Across Whole Conversational Acts

The explicit use of back-channel signaling (i.e., message reformulation and subsequent evaluation) is quite different from the typical "Mhm" signaling which is frequently used across vocal interactants. Even for the nonspeaking/speaking dyads, the exchange of whole conversational acts (by both partners) required a less explicit form of mutual monitoring. (Only 38% of all whole acts were produced in the back-channel). In fact, the NSPs produced "Mhm" signals, during SP's self initiated contributions, which closely resembled the typical short auditor feedback signaling produced across vocal interactants (c.f., Duncan, 1975). These short auditor signals, when produced by NSP, were <u>exclusively</u> produced across whole act exchanges.

Examples of these short auditor signals, as used by NSP across whole act exchanges, follow:

<u>Example D3</u> (Dyad #1)

	SP	My husband played football.	
ABC	NSP	((HEAD-N/EEC/FACE-S))	back-channel
	SP	And a couple of friends of his play for Dallas.	
	SP	Then he's got a couple that play for Kansas City and a few other teams here and there.	
	SP	So he's a real Dallas fan and I'm a real Pittsburg fan so we have real fun.	
ABC	NSP	((HEAD-N/FACE-S))	back-channel
	SP	Last time the superbowl was on his birthday	
ABC	NSP	((HEAD-N/FACE-S))	back-channel
	SP	We barely talked.	

In the former example (D2), all of the main-channel and back-channel moves which were necessary for NSP's request to be conveyed, were produced as component acts within a larger composite C-act. In the latter example (D3), each main-channel and back-channel move was produced as a whole act. These latter back-channels, while subtly providing feedback to the speaker regarding the listener's attention, interest or perhaps agreement with the content of the speaker's contribution, were not reformulations of the speaker's contribution. (And, as discussed above, NSP <u>never</u> reformulated SP's main-channel contributions through the production of long auditor feedback signals.)

The SPs also produced feedback signals in relation to the whole acts and completed composite acts conveyed by NSP. These back-channels, while frequently produced as short auditor "Mhm" signals, were also frequently produced as long back-channel forms (similar to the SP back-channels produced in example D2 above). In fact <u>the back-channels produced by SP in response to these whole or transmitted composite act exchanges, appeared to possess characteristics of both active reformulations and subtle attentional/agreement forms</u>. Their use more closely approximated back-channel use across vocal participants yet they retained a relatively high proportion of reformulatory feedback forms (which is not typical of vocal exchanges). The amount of message reformulation produced across whole acts appeared to vary from dyad to dyad.

An example of SP message reformulation (i.e., long auditor signal) across whole act exchange follows:

<u>Example D4</u> (Dyad #3)

	SP	Did you take a midterm in that too?	
	NSP	(NO)	
RBC	SP	No	back-channel
	SP	Is that still to come?	

In example D4 above, although NSP's response was conveyed within one turn at talk (a "whole" C-act) SP none-the-less reformulated NSP's message in the back-channel. NSP messages, which were conveyed within one turn at talk, were not considered composite acts despite their frequent reformulation by SP. A minimum of two main-channel elements communicated through two different turns by NSP (with interceding back-channel turn by SP) was necessary for composite act status to be assigned. (For specific methodology for determining composite act initiation and termination for co-constructed acts, see Wexler et al., 1983).

This reformulation of non-complex messages by the SP can be attributed both to the interactional style of the partners as well as the modality in which NSP's message was conveyed. Yes/No messages were most often conveyed by the nonspeaking partners through nonverbal (e.g., head-nod) and vocal forms. This particular nonspeaker more frequently used his communication aid to signal yes and no (by pointing to these lexical items on his board), when contributing main-channel information. (When producing auditor back-channel signals he used the nonverbal and vocal modalities, exclusively). His aided responses were typically vocally reformulated by his speaking partner. This was not affected by the length or complexity of his response, but rather by the mode of his response. Once again, it should be noted that this was strongly related to the style established by the individual dyad. (See style discussion to follow).

An example of back-channel signaling, across whole act and completed composite act exchanges, in which explicit message restatement by SP was not productive, now follows:

Example D5 (Dyad #6)

(Note: An asterisk (*) identifies the Composite C-acts)

	NSP*	(WITH PEOPLE WHO DON'T KNOW ME I USE THE BOARD MORE)	
ABC	SP	((HEAD-N))	back-channel
	NSP*	(ON THE OUTSIDE THE BOARD GIVES ME THE LITTLE HELP I NEED WITHOUT HAVING TO USE A MACHINE)	
	NSP*	(PEOPLE WILL THINK IT'S A GAME)	
QBC	SP	the board↗	back-channel
BBC	NSP	((HEAD-SH)) (NO)	back-back-channel
EBC	SP	the machine	back-channel
BBC	NSP	/m/ (YES)	back-back-channel

Example D5 reflects back-channel use consisting of both short and long SP auditor signals as well as NSP speaker back-channel forms. The interaction of main-channel and back-channel forms, closely approximates typical vocal exchanges despite the nonspeaking status of one of the conversational partners. The nonspeaker's first composite act (marked with the first asterisk) is followed by a short attentional or agreement signal by SP. This is immediately followed by a second NSP composite act (also marked with an asterisk). This particular formula, speaker main-channel C-Act/listener "Mhm" feedback signal/speaker subsequent main-channel C-Act (continuation), reflects the prototypical main-channel/back-channel relationship used by vocal interactants as described by Duncan. Examples such as this across nonspeaking/speaking dyads, however, are rare (i.e., where the "speaker" in the above formula is the NSP). In fact, this dyad represents the only pair of interactants within this corpus whose interaction patterns across whole and completed composite acts frequently shared this "vocal" feedback organization. Both partners had formative roles in establishing this interaction style. The nonspeaker initiated complex propositional information without major prompting from the speaking partner. Queries which functioned (across whole acts) to draw out the topics the nonspeaker was addressing, were not used by the SP nor were they needed. This NSP in essence dominated the interaction in terms of self initiated information which he was eager to share (albeit in the form of co-constructed composite acts). The SP, concomitantly produced feedback signals in following NSP's message but did not immediately produce a contingent query or extraneous talk following these messages. NSP typically continued with his next composite C-act, thus holding onto the conversational floor. In examining the second and third Composite acts transmitted by NSP in example D5 ("ON THE OUTSIDE THE BOARD GIVES ME THE LITTLE HELP I NEED WITHOUT HAVING TO USE A

MACHINE" and "PEOPLE WILL THINK IT'S A GAME"), we find that NSP produced two successive back to back complex C-acts - a very rare occurence. (Never produced by the other NSPs). Again, this was influenced both by the assertiveness of the nonspeaker and the lack of compensatory behavior exhibited by the speaking partner (i.e., to fill in silence gaps or draw out her partner through extraneous talk).

In the above example, the third composite act ("PEOPLE WITH THINK IT'S A GAME") was followed by a Query Back-Channel by SP. The query, however, was not produced in the typical reformulatory confirmation form which predominated QBCs across the six dyads, but rather was a referential repair initiation. An anaphoric reference (i.e., "it's") in the Composite C-act was unclear and required unpacking. The remainder of this side sequence, the Back-Back-Channel response, the Expansion Back-Channel and the subsequent confirmation (also a BBC) which ended the sequence, (in total consisting of two long SP back-channels and two NSP speaker signals) is quite typical of vocal exchanges in which partners negotiate meaning clarification.

The Basic Interactional Unit: Examples From Whole and Co-Constructed Conversational Acts

The basic interactional unit, speaker main-channel contribution, listener back-channel response, explicit or implicit back-back-channel evaluation, (either embedded within or followed by) subsequent main-channel act, has been described as the smallest observable interactional unit across participants in dialog. It should be noted, however, that conversational pull for back-channel forms is not produced by each and every main-channel contribution within dialog. In describing the smallest observable interactional unit, it is not suggested that this unit is explicitly identifiable throughout all of conversational exchange. Message apprehension is certainly necessary for dialog, yet the explicit communication of that apprehension is typically not required for each transmitted proposition. Short auditor back-channels inform the speaker that the listener is following, attending to, or is sympathetic with the information exchanged. Long auditor signals supply the speaker with more explicit information regarding the status of message transmission. Message apprehension, however, can also be implicitly signaled through the listener's production of an appropriate contingent response as he/she assumes the role of speaker.

<u>Example D6</u> (Dyad #1)

(Note: An asterisk (*) identifies the Composite C-acts)

NSP*	(WHAT IS YOUR FAVORITE TEAM?)	main-channel
SP	I have a few.	main-channel
SP	I tend to go up and down with whoever's winning.	main-channel

	SP	I was born in Pennsylvania.	main-channel
ABC	NSP	((HEAD-NOD))	back-channel
	SP	So I like the Pittsburg Steelers.	main-channel

Following the transmission of NSP's composite act, no auditor back-channel was produced. SP, however, conveyed message apprehension by responding to NSP's information request. Short auditor back-channels are not appropriate responses to requests. In terms of conversational act classes, short auditor signals <u>most typically</u> follow propositions categorized as statements. For the nonspeaking/speaking dyad, the back-channel opportunity signals, which provided the conversational pull for the back-channel responses, were not identified following requests. Rather, turn yielding signals (Duncan, 1975; Buzolich and Wiemann, 1985) were produced. (Auditor back-channels following requests are <u>only</u> appropriate when produced as repair initiations (e.g., specific QBC forms). As noted by Sacks et al., (1974/78) clarification work, directed to problems of understanding, supercedes all other conventions in the organization of conversation).

The notion of simultaneous systems operating in dialog has been described earlier in this chapter. Figure <u>D1</u> schematizes the feedback mechanism which connects successive main-channel contributions. In Duncan's model (1975), the auditor feedback response is followed by a speaker continuation signal. Since back-channels are not viewed as claims for the speaking floor (Duncan, 1975; Yngve, 1970), prior speaker retains the "ownership" of the floor and continues with his/her next contribution. (See example D6 above).

During message co-construction, this interactional unit is highly visible. Example D7 provides examples of the main-channel/back-channel contingency within message co-construction. Examples of the four move sequence (i.e., the smallest observable interactional unit), reflecting speaker main-channel/listener back-channel/speaker back-back-channel/and speaker main-channel contributions, are bracketed below).

<u>Example D7</u> (Dyad #3)

	NSP	(T)	main-channel
RBC	SP	T	back-channel
	NSP	(H)	main-channel
RBC	SP	H	back-channel
	NSP	(A)	main-channel
RBC	SP	A	back-channel
	NSP	(T)	main-channel
RBC	SP	That	back-channel
BBC	NSP	(YES)	back-back-channel
	NSP	(I)	main-channel
RBC	SP	I	back-channel
	NSP	(S)	main-channel
RBC	SP	S	back-channel
RBC	SP	That is	back-channel
	NSP	(A)	main-channel
RBC	SP	A	back-channel
BBC	NSP	(YES)	back-back-channel
	NSP	(F)	main-channel
RBC	SP	fact	back-channel
BBC	NSP	(YES)	back-back-channel
QBC	SP	is a fact↗	back-channel
BBC	NSP	(YES)	back-back-channel

NSP*	(THAT IS A FACT)	(composite act)

During C-act co-construction, the "owner" of the conversational floor is clearly the nonspeaking partner, the author of the message being co-constructed. The main-channel/back-channel/main-channel sequence further supports Duncan's notion that the listener is not claiming the speaking floor through back-channel production. Rather, the speaker retains "floor ownship" as signaled through the subsequent main-channel contribution.

Maintaining control of the conversational floor was relatively easy for the speaking partners within this corpus. Examples D3 and D6 above, illustrate the ease with which SP held onto the conversational floor following NSP's auditor back-channels. An additional example follows:

<u>Example D8</u> (Dyad #3)

	SP	My tests are coming up week after next I think.	main-channel
ABC	NSP	((FACE-SMILE))	back-channel
	SP	I have at least one.	main-channel
	SP	The others haven't made up their minds.	main-channel
	SP	I guess they'll tell sooner or later.	main-channel
ABC	NSP	((HEAD-NOD))	back-channel
	SP	But I have to find the time to study.	main-channel

The ease with which SP held onto the floor was fecilitated both by SP's ability to rapidly produce successive C-acts through the vocal mode as well as NSP's appropriate production of auditor signals without further attempting to claim the speaking floor. The interactional unit of speaker main-channel, listener back-channel, and speaker main-channel contributions was co-constructed through the cooperation of both participants. This smooth synchrony is reminiscent of natural vocal conversations.

This cooperation was also clearly exhibited within composite act co-construction (as described above in Examples D2 and D7). However, following the transmission of the composite C-act, maintaining floor ownership was much more difficult for NSP. An example follows:

Example D9 (Dyad #5)

(Note: An asterisk (*) identifies the Composite C-acts)

Underlined segment denotes interruption of the basic interactional unit.

	NSP*	(I ARRANGED TO GIVE MY PARENTS A VACATION)	main-channel
QBC	SP	A two day vacation↗	back-channel
BBC	NSP	((VOC/FACE-SMILE))	back-back-channel
	SP	Are they going anywhere special?	main-channel
	NSP*	(AND I WILL HAVE A VACATION FROM THEM)	main-channel

NSP transmitted a statement to SP via a composite conversational act. SP then produced an auditor back-channel response which was then followed by NSP's speaker signal. At that point, SP claimed the speaking floor and initiated a request. This request, however, was not preceded by NSP's turn yielding signals and in fact interrupted the main-channel/back-channel/main-channel interactional unit, as described above. NSP chose to reclaim the speaking floor and continued with her main-channel contribution. In essence, NSP overrode SP's claim for the floor. SP yielded the floor to NSP and subsequently worked with NSP in co-constructing the second composite conversational act.

The above example provides evidence that despite difficulties often found within nonspeech/speech conversations concerning the frequency or success with which NSP <u>obtains</u> the speaking floor (Buzolich and Wiemann, 1985; Light, Collier & Parnes, 1985), once the floor is obtained it is quite difficult for NSP to hold onto it. As discussed earlier, the production of successive composite acts, by NSP, was very rare. However, individual competencies and dyadic style served to alter that picture. Example D5 (discussed earlier) illustrated that a nonspeaker could not only obtain the floor but also <u>could</u> produce sucessive complex co-constructed C-acts prior to his partner's independent propositional contribution. This was largely a factor of the assertiveness of the nonspeaker as well as his speaking partner's cooperation in letting the nonspeaker take the lead. In Example D9 (representing a different dyad), the nonspeaker's assertiveness is also evidenced by her persistence in reclaiming the floor despite her partner's propositional contribution. The speaking partner, in giving up the floor following the nonspeaker's reclaiming, facilitated the success with which the nonspeaker regained the floor without being seen as a breach in the ritual system.

What distinguished these two dyad pairs was the speaking partner's production, within example D5, of brief auditor back-channels in acknowledging NSP's contributions without additionally interfering with the flow of NSP's ongoing "talk" through propositional exchange. Back-channel signals were immediately followed by propositional contributions, by the SP within example D9, thereby preventing the nonspeaker's conveyence of multiple or successive C-acts. The determination of the NSP (as described in example D9) to reclaim the speaking floor, served to overide SP's turn claim. Yet, for this dyad pair, successive complex C-acts were never produced by NSP without renegotiation of turn ownership.

<u>For the remaining four dyads multiple or successive complex conversational acts were not produced</u>. The success with which NSP retained the speaking floor depended, to a large extent, upon <u>both</u> partners adherence to the main-channel/back-channel/main-channel sequence. Following the transmission of NSPs' composite acts, SPs rarely

produced back-channel signals without immediately adding propositional contributions of their own. (A similar finding was reported by Buzolich, 1984). In fact, the majority of their back-channels had propositional content (i.e., subject/predicate information), whether produced as Queries, Restatements or Corrections. The speaking partners appeared "compelled" to match NSPs' composite contribution with their own substantive contribution. Even their short auditor signals (ABCs) were typically of the vocal/linguistic type (i.e., "alright", "good", "I understand", "Yeah") in lieu of the more subtle vocal and nonverbal emblems (such as "mhm" signals and head nods) which encourage narrative production.

This particular finding has clinical implications as well as theoretical significance. In terms of clinical intervention, NSP needs to learn a range of methods not only to gain the speaking floor (as suggested by Buzolich & Wiemann, 1985 and Light et al. 1985) but also a range of methods <u>to hold onto the speaking floor</u>. SPs should be encouraged not only to give the NSP's sufficient time to initiate and extend topics (again, as suggested by the above authors) but also to provide simple short auditor signals following whole act or completed composite act conveyance (to signal their attention and continued commitment to "hearing out" the nonspeaker), without immediately claiming the speaking floor for themselves. Simple auditor feedback with minimal linguistic content (most typically "mhm" signals) facilitates narrative production.

Conversational Organization as Expressed Through Back-Channel Use

When each conversational act produced by NSP and SP was examined, 72% were produced during composite act co-construction. Nearly two-thirds of these component C-acts were produced within the back-channel.

Across whole or completed composite acts (the remaining 28% of the C-acts), a little over one-third were produced in the back-channel. The participants' interaction pattern was qualitatively different during composite act co-construction from that exhibited across whole act information exchange. The feedback and mutual monitoring system, which organized their contributions, was much more intensive during co-constructed complex message expression. The conversational pull for back-channels was not as strong across the whole act context.

There was increased conversational pull for feedback activity within the co-construction process. This "pull" was behaviorally identified by the increased number of NSP back-channel opportunity cues identified within co-constructed acts (as compared to whole act exchanges). The resting of the nonspeaker's finger or headstick on a letter or word without relaxation of hand or head posture, provided a powerful "pull" for an SP back-channel reformulation. Additionally, the turning of the nonspeaker's head away from the communication aid toward the SP during message formulation, was another powerful behavioral cue for a subsequent auditor back-channel signal. That is, such moments of resting and turning occurred at junctures that made them readily open to interpretation from their partners. (See methodology chapter for a description of these "cues").

The immediate context (i.e., message co-construction) provided the situational pull for intensive mutual monitoring. The very fact that one of the interactants conveyed complex propositions in a nonvocal mode, pointing to individual letters and words, while the listener retained this information in active memory and synthesized the message as a whole prior to producing a contingent response, demanded a conversational organization in which explicit mutual monitoring played a crucial role. Explicit feedback by both interactants served to lessen the memory load for the listener while providing the speaker with an ongoing format for checking the accuracy of message element transmission.

A fundamental distinction in the conversational organization across whole and co-constructed contexts, was that message reformulation played a less dominant role across whole act exchanges. Active listening (on the part of SP) was operative, yet far less explicitly marked than within co-constructed sequences. Reformulating and confirming NSP's information was a central focus of the conversational organization of message co-construction.

A Comparison of Conversational Contexts

The term "context" has been used to reflect the environment which encompasses ongoing talk. Scholars have attributed importance to the nonlinguistic or exophoric context which co-occurs with talk (Halliday and Hasan, 1976; Bloom and Lahey, 1978), the preceding or succeeding linguistic context surrounding a given utterance (Dore, 1978), the phonemic context within which a sound is embedded (Borden and Harris, 1980), the situational context which sets the occasion for the exchange of talk (e.g., naturalistic or experimental contexts; or normal and abnormal contexts as described by Crystal 1969), the social context of language (Labov, 1970/72), and the contextual frame within which participants interpret what they are doing together with their talk (Frake, 1977).

Conversation itself can also be viewed as context. Its organization provides participants with a format for interacting with one another. Conversational context, as used here, is defined as the structure and focus of ongoing linguistic activity which organizes the participants' in dialog. Two specific conversational contexts have been identified for the nonspeaking/speaking dyads within this corpus. The first, <u>the whole act context</u>, reflects single turn propositional exchange produced for the purpose of dialog (as might typify vocal exchanges). The second, <u>the co-constructed act context</u>, reflects propositional co-construction for the purpose of co-producing one partner's complex conversational acts (which is atypical of vocal exchange).

Comparing the feedback activity across these two contexts revealed several organizational distinctions. A more equitable balance of back-channel production was identified within the whole act context. SPs produced less than twice as many back-channels as NSPs. Within co-constructed act contexts, SPs produced over four times as many back-channels as NSPs. The more equitable distribution was associated with the increased number of independent (or completely transmitted) contributions by <u>both</u> conversational partners. The function of whole act contexts was information exchange. Both the speaking and nonspeaking partners contributed self-initiated information. (Co-construction processes never involved SP initiated messages.) These C-acts, in turn, provided the conversational pull for auditor feedback signals. In fact, one-third of each group's feedback signaling, within the whole act context, were simple Acknowledgment Back-Channels. Similar to earlier discussions in this chapter, the symmetry across the partners was quite striking.

Also apparent, however, was the high proportion (two-thirds) of each partner's back-channels production used for complex feedback functions. Since C-act co-construction was not the focus during whole act exchange, the relatively large number of long back-channels and back-back-channels produced, was very different from the "whole act" feedback activity of vocal interactants. Vocal listener's typically produce numerous short auditor signals when their partner's have the speaking floor (especially during narrative production). When NSP's messages were transmitted within one turn at talk (or following a composite act's completion) a sizable proportion of SP's back-channels were still produced for explicitly reformulating, querying or correcting NSP's contributions. These in turn, influenced the production of NSP's contingent speaker back-channel signals (BBCs).

The function and overall focus of the co-constructed context, was on NSP C-act transmission. As described above, SPs produced four times as many back-channels as their nonspeaking partners within this context. Because NSP was the exclusive "author" of co-constructed messages, and therefore, the only main-channel act producer, all of the auditor signals were produced by SP. Due to the numerous main-channel message elements within this context (i.e., the individual letters and words as selected by NSP), the pull for auditor signaling was strong. Back-channel signals when produced by NSP, were speaker signal evaluations of SP's back-channels. Much of this evaluation, however, was not explicitly signaled but was embedded within NSP's subsequent main-channel contributions. What appeared as an unequitable balance of back-channel use (resting heavily with the speaking partners), was, in fact, dictated by the organization of the co-constructed conversational context. This back-channel distribution was not the result of individual style variations across nonspeakers and speakers. Rather, it reflected the overall requirement for NSP's complex message transmission, i.e., it was the local structure of this particular type of conversational activity.

Within co-constructed contexts, the distribution of back-channel forms across speaking and nonspeaking groups while quite different, reflected mutual monitoring across partners. Nearly all of SP's auditor signals were "long" (i.e., in terms of back-channel type classification) back-channel types. NSP message elements were typically reformulated vocally by the SP. Concomitantly all of NSP's back-channel forms were produced as back-back-channel signals. These BBCs served as evaluations of SP's long back-channel responses.

The relative absence of short auditor signaling in the co-constructed context, was related to the work that was being done by the partners - i.e., co-constructing the form of NSP's complex message. Short auditor back-channels convey listener interest and attention but they do not meet the active listening requirements of the co-constructed act context. Rather than signal attention, SP most often re-envoiced NSP's prior message elements through Restatement Back-Channels. This preferred back-channeling method appeared to be related to the memory demands placed on the SPs in following and synthesizing NSP's messages during co-constructed contexts. Explicit reformulation supported on-line retention of message elements in active memory. Message reformulation additionally served as a repair prevention procedure. Reception errors were immediately identifiable and corrected thus avoiding excessive work in locating trouble source elements for negotiating repair. (See Blau, 1986b). The organization of the co-constructed context, as reflected by the back-channel forms which were productive, facilitated the participant's interaction.

Back-Channel Type Distribution: Context Specificity

The organizational distinctions across whole and co-constructed act contexts were reflected in the specific back-channel types produced by the participants. There were differences in the proportional use of each of the five auditor back-channel types. Differences were also identified across speaker back-channel signals. These proportional distributions, are listed on Table D1 and Figure D4.

Across the whole act context, simple acknowledgments (ABCs) were used more frequently by SP than any other back-channel type, more closely approximating (although not

TABLE D1

Back-Channel Type Distribution: Context Specificity

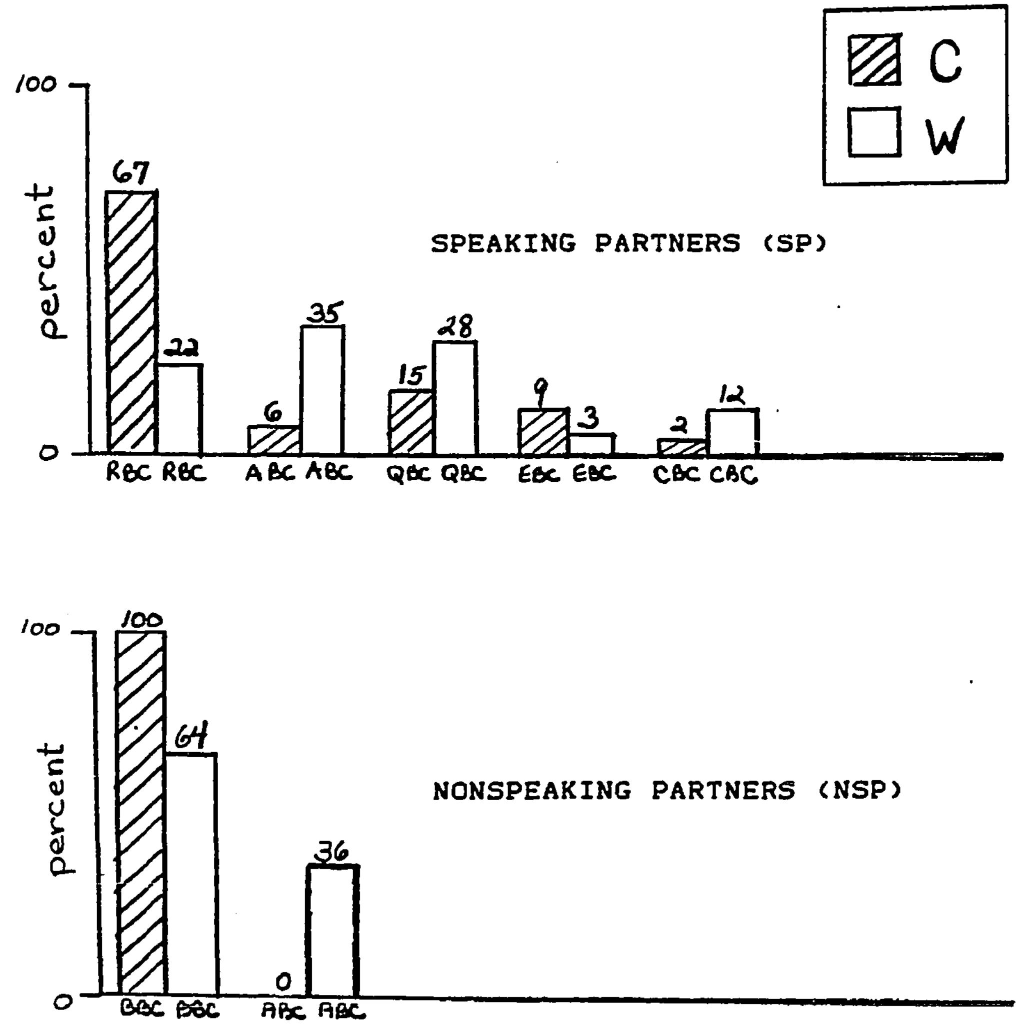
SPEAKING PARTNERS		NONSPEAKING PARTNERS	
WHOLE ACT	CO-CONSTRUCTED ACT	WHOLE ACT	CO-CONSTRUCTED ACT
AUDITOR SIGNALS		AUDITOR SIGNALS	
22% RBC	67% RBC	36% ABC	0% ABC
35% ABC	6% ABC		
28% QBC	15% QBC		
3% EBC	9% EBC		
12% CBC	2% CBC		
SPEAKER SIGNALS		SPEAKER SIGNALS	
0% BBC	0% BBC	64% BBC	100% BBC

RBC = Restatement Back-Channel
ABC = Acknowledgment Back-Channel
QBC = Query Back-Channel
EBC = Exapansion Back-Channel
CBC = Correction Back-Channel
BBC = Back-Back-Channel

FIGURE D4

Back-Channel Type Distribution: Context Specificity

W = WHOLE ACT CONTEXT   C = CO-CONSTRUCTED ACT CONTEXT



RBC = Restatement Back-Channel
ABC = Acknowledgment Back-Channel
QBC = Query Back-Channel
EBC = Expansion Back-Channel
CBC = Correction Back-Channel
BBC = Back-Back-Channel

identical to) feedback activity across vocal interactants. As described above, ABCs were rarely produced by the speaking partners during message co-construction.

Restatements which accounted for two-thirds of SP's back-channels within the co-constructed contexts, accounted for only one-fourth of SP back-channel activity across whole act contexts. Speakers appeared to spend less time directly reproducing NSP's messages across whole act contexts, and more time simply acknowledging these acts.

Query Back-Channels were produced proportionally more frequently across whole act exchanges. Due to the consistent use of message element reformulation by the SPs within co-constructed contexts, fewer confirmational requests were produced. Those produced did not initiate repair or query the content of NSP's message elements. Rather, they were confirmational forms of Restatement and Expansion Back-Channels typically used at word and message boundaries. Messages produced within a single turn at talk (or completed composite acts) were available for content queries in addition to confirmations of message form. This added to their usefulness within the whole act context.

Expansions Back-Channels were proportionally more frequently used within co-constructed contexts. As discussed earlier, there existed an organizational preference for word completion over message extension. Opportunities for word completions were virtually impossible across whole or synthesized composite acts.

NSP's whole acts were simple acts (specifically, yes/no responses), while synthesized composite acts were complex acts of varying propositional content and illocutionary function. Few opportunites for word completions were available following simple yes/no responses or completed complex messages. Message extensions could be produced, but not message completions.

Correction Back-Channels were more frequently produced (proportionally speaking) across whole act contexts. This high proportion (12%) of CBC production, reflected SP's evaluation of several of NSP's whole and composite act contributions as unacceptable. This corrective style is not typical of adult interaction in which casual information exchange is the focus. Corrections are more frequently found within mother-child interaction or teacher-student exchanges. Virtually all of these corrections, however, were produced by the two speakers who actually were their partners' teachers. As described earlier in this chapter, the conversational mode across these two dyads frequently shifted to an instructional one. This shifting, in essence, was focused on evaluating and correcting NSP's main-channel performance. The high proportion of CBCs across whole act exchanges, reflected these contextual shifts.

NSP's back-channel distributions varied quite significantly across whole act and co-constructed act contexts. The greatest difference was in the production of short auditor signals (ABCs). One-third of all NSP feedback, across whole act contexts, was produced for signaling attention to and interest in SPs' contributions. Within co-constructed contexts, no short auditor signals were produced by NSP. The organization of the co-constructed act context demanded that all NSP back-channels function as speaker back-channel signals (BBCs).

In summary, a more varied distribution of back-channel type use, for both speaking and nonspeaking subjects, was noted across whole act contexts. SP's feedback (in decending order of proportional use) focused upon signaling attention/agreement to NSP's messages (ABC), querying the content and confirming the form of NSP's messages (QBC), vocally reformulating NSP's messages (RBC), and correcting some aspect of NSP's prior message (CBC). Expanding NSP's messages (EBC) was rarely done. For the nonspeaking partners, back-channel activity consisted of both acknowledging SP's independent conversational contributions (ABC), as well as Back-Back-Channeling information (BBC), often within highly obligatory contexts.

Within the co-constructed act contexts, SP's feedback activity focused on message reformulation. Restatement Back-Channels (RBC) were used more often than all other back-channel types combined. Confirmation queries (QBC) were used at word and message boundaries and Expansion Back-Channels (EBC) were productive at the word completion level. Simple acknowledgment signals (ABCs) were rarely used and message corrections (CBCs) were not typically done. For the nonspeaking partners all back-channel activity was focused on refining SP's back-channel reformulations.

It should be noted that while a more equitable balance of back-channeling was identified within the whole act context, the term "balance" should not be equated with "better". The explicit back-channeling that was produced across whole act contexts often interfered with NSP's production of successive conversational acts. The integrity of the interactional unit, as reflected in the main-channel/back-channel relationship, was frequently breached following composite act exchange. The relationship was much sturdier within the co-constructed act context.

Shifting Organizational Contexts: Structural Distinctions

In the basic interactional unit, the speaker (i.e., the main-channel act producer) retains "ownership" of the speaking floor following the back-channel activity. Within the co-constructed act context, with its interplay of main-channel and back-channel forms, NSP successfully retained control of the speaking floor until the composite act was transmitted. However, at the composite act's juncture (when the perceived composite act was transmitted), it was nearly impossible for the nonspeakers in this corpus to retain the speaking floor (although they could reclaim it). These junctures signaled the contextual shift from co-constructed act to whole act exchange. That is, at the end of the co-construction process, the composite act was perceived by the auditor as a whole conversational act. Requests could receive responses, statements could be acknowledged or the nonspeaker could (in theory) transmit another complex conversational act. The speaking partners, however, frequently identified composite act junctures as opportunities to claim the speaking floor. The interactional structure itself facilitated this interpretation.

The completion of the co-constructed act was signaled through an NSP Back-Back-Channel signal. BBCs, when used at message boundaries, were produced through both vocal and nonverbal forms (i.e., vocalizations, head nods and prolonged eye contact). When produced within message co-construction (i.e., at word boundaries), NSP's turn continuation signals (i.e., retaining hand or head posture in transmission position, movement toward next lexical target, and eye gaze shift to communication board), immediately followed or co-occured with the BBC. Following the extensive negotiation of the composite act sequence, the final BBC was delivered in a slower manner, eye gaze was prolonged and head position was away from the communication board. This final BBC both confirmed the accuracy of SP's prior back-channel message while simultaneously signaled the end of the co-constructed message unit. The behavioral cues used in signaling this terminal BBC, looked quite similar to speaker turn yielding signals. Since these occurred at the turn's transitional space, the SP's interpreted these signals as turn transfer opportunities. Most SPs elected to seize the speaking turn at these junctures. NSPs were therefore unable to continue with a second co-constructed message without first reclaiming the speaking floor (Example D9).

One nonspeaker, however, successfully retained floor ownership across these "whole" act contexts and produced successive complex composite conversational acts (see Example D5 above). He produced less pronounced BBCs at composite act junctures and immediately signaled speaker continuation by shifting gaze downward to the board, moving toward the next letter selection, or by vocally producing the next word (i.e., the first word in his ensuing message). By producing these speaker continuation signals, NSP shifted the conversational context back to C-act co-construction. The success with which the nonspeakers produced successive complex propositions depended upon their ability to smoothly shift conversational contexts. These shifts were a collaborative effort by both partners. SP's production of short auditor signals, following composite act transmission, facilitated this contextual shift by not redirecting NSP's contribution towards responding to an SP initiation.

Style: Individual Differences in Back-Channel Use

The subtle interactional dynamics negotiated across partners in dialog are reflected in back-channel use. Main-channel/back-channel contingency are part of the basic organizational structure of conversation. Conversational structure, in turn, organizes its participants. Interactional style influences dyadic performance within this organizational structure. Style, as such, is manifested as active negotiation by partners. Social roles provide the interactants with a frame for acceptable interaction styles. Most typically, however, styles shift throughout a conversations exchange.

Consistent patterns of feedback signaling were identified across the six dyad pairs. The back-channeling system functioned as the basic interactive framework of the conversational organization. Individual differences in back-channel use, reflected style distinctions within this interactive framework.

Dyadic Variability in Message Reformulation.

All of the speaking partners used vocal reformulation (RBCs) as their basic back-channeling form. Their typical RBC subtype was message repetition. That is, they most typically repeated NSP's messages through vocal reformulation. Paraphrases and summaries were far less frequently used. There was one exception. The speaking partner in Dyad #6 used restatements proportionally less frequently than her peers (although RBCs remained the most frequently used back-channel signal). Additionally, her RBCs were most typically produced as message summaries and paraphrases and not as message repetitions. The organization of message co-construction (i.e., the internal structure of the main-channel/back-channel relationship) was the same across all six dyads. However, the particular content of the main-channel/back-channel slots was largely determined by the interactants themselves (i.e., individual choices of content filled the structural junctures).

As described in detail throughout this study, SP's back-channel forms were occasioned by NSP's preceding main-channel messages. The conversational pull for an auditor back-channel came from the back-channel opportunity "cue" which preceded it. The situational pull for the back-channel arose from the modality in which the main-channel message was encoded (vocal or nonvocal), the size of the main-channel message exchanged (i.e., message element(s) or complete message unit) and the sequential location of the main-channel element in relation to message unit completion (i.e., location within the co-construction process). The conversational pull set the stage for the auditor signal. The situational pull influenced the form in which the back-channel was encoded (i.e., the specific back-channel type used by the auditor).

NSP #6 typically transmitted more complete forms of main-channel information prior to SP's back-channel reformulation. That is, instead of typically transmitting single letters followed by single letter reformulations by SP, NSP #6 typically spelled out an entire word within one turn at talk while his partner back-channeled the summarized (synthesized) form at the word boundary. An example follows:

Example D10 (Dyad #6)

note: Hyphens (-) between capital letters reflect letters which have been explicitly selected within a single turn at talk.

		NSP	(T-H-I-S)
SUMMARY	RBC	SP	this
		NSP	(G-I-V-E-S)
SUMMARY	RBC	SP	gives
		NSP	/mi/ (phonetic transcription)
	ABC	SP	((SP HEAD-NOD))
		NSP	(T-H-E)
SUMMARY	RBC	SP	the
		NSP	(H-U-M-A-)
	EBC	SP	human
	BBC	NSP	/ɛ/ ((HEAD-NOD/FACE-SMILE))
		NSP	/wɪʔɪ/ (phonetic transcription)
	QBC	SP	the human.....
	BBC	NSP	(F-E-E-L-)
	EBC	SP	feeling ((NODDING))
	BBC	NSP	/ɛ/ ((HEAD-NOD/VOC))
		NSP*	(THIS GIVES ME THE HUMAN FEELING)

Three main-channel contributions by NSP, (T-H-I-S), (G-I-V-E-S) and (T-H-E), were completedly formulated within single turns. Concomitantly, SP's RBCs were produced as summaries which reflected the synthesis and vocal reproduction of these words. This NSP's motor ability (i.e., his pointing skills) certainly facilitated his production of successive main-channel forms. Yet this style appeared to be more strongly influenced by the effectiveness and efficiency of main-channeling and back-channeling larger units of information across speaking turns. Its format was co-constructed by both interactants. No other dyad used this particular interaction style for message co-construction. The other five nonspeakers transmitted single main-channel elements within each component contribution. This typically entailed a single letter which was then followed by a vocal repetition by SP. Summaries and paraphrases were back-channeled at word, phrase, or sentence boundaries. For example:

Example D11 (Dyad #3)

		NSP		(I)
REPTN	RBC	SP	I	
		NSP		(M)
REPTN	RBC	SP	M	
		NSP		(I)
REPTN	RBC	SP	I	
		NSP		(S)
REPTN	RBC	SP	S	
		NSP		(S)
REPTN	RBC	SP	S	
		NSP		(E)
REPTN	RBC	SP	E	
		NSP		(D)
SUMMARY	RBC	SP	I missed	
		NSP		(B)
REPTN	RBC	SP	B	
		NSP		(Y)
REPTN	RBC	SP	Y	
		NSP		(1)
REPTN	RBC	SP	1	
		NSP		(1)
SUMMARY	RBC	SP	11	
	BBC	NSP		(YES)

PARPHS	RBC	SP	You missed by eleven.
	BBC	NSP	(YES)
		NSP*	(I MISSED BY ELEVEN)

Since four of the nonspeaker's (NSP #1,2,4 and 5) had a large number of words as well as the alphabet on their boards, transmitting a complete word within one turn at talk was possible. However, this still involved one main-channel message per turn as pointing to a single word required the same motor effort as pointing to a single letter. Example D2 (discussed in an earlier section of this chapter) is a prototypical example of the message transmission style used by the other four dyads.

Message Completion as a Reflection of Dyad Variability

Expansion Back-Channels were produced relatively infrequently by the speaking partners. Dyad #6, used this back-channel form far more often than the others. As described above, NSP #6 typically spelled-out complete words within one turn at talk prior to SP's vocal reformulation. This was mutually co-constructed by the placement of the back-channel opportunity signal by NSP and the subsequent back-channel form supplied by SP. This format was supportive of formulating and back-channeling larger pieces of information. During the spelling process, before the turn's completion, SP frequently reformulated the word being spelled in the vocal mode. In fact, 27% of SP #6's back-channels were produced in this way (as expansion Back-Channels). A <u>second look</u> at example D10 is warranted.

<u>Example D10</u> (Dyad #6)

note: Hyphens (-) between capital letters reflect letters which have been explicitly selected within a single turn at talk.

		NSP	(T-H-I-S)
	RBC	SP	this
		NSP	(G-I-V-E-S)
	RBC	SP	gives
		NSP	/mi/ (phonetic transcription)
	ABC	SP	((SP HEAD-NOD))
		NSP	(T-H-E)
	RBC	SP	the
		NSP	(H-U-M-A-)
<u>COMPLTN</u>	EBC	SP	human
	BBC	NSP	/ɛ/ ((HEAD-NOD/FACE-SMILE))
		NSP	/wɪʔɪ/ (phonetic transcription)
	QBC	SP	the human.....
	BBC	NSP	(F-E-E-L-)
<u>COMPLTN</u>	EBC	SP	feeling ((NODDING))
	BBC	NSP	/ɛ/ ((HEAD-NOD/VOC))
		NSP*	(THIS GIVES ME THE HUMAN FEELING)

These EBCs might be considered "early" back-channel forms, as back-channel opportunity spaces were more clearly defined after all the letters were selected by NSP. (Multiple back-channel opportunity signals were conveyed at word boundaries so the conversational pull for an auditor back-channel was considered extremely high following a complete word formulation). NSP #6, however, did monitor SP for early word reformulations. Given the high frequency with which these expansions were accurate, their use served both as an acknowledgment of NSP's message as well as an efficiency strategy. NSP #6 frequently produced speaker back-channel signals (BBC), following SP's EBC, to confirm the expansion (while not an obligatory response, clear evidence of mutual monitoring).

The notion of early back-channel is not synonymous with word/message completion. For the other five dyads, Expansion Back-Channels typically were produced following a back-channel opportunity signal when conversational pull for feedback was high. The situational pull (including the linguistic context which preceded the main-channel message and the knowledge shared by the interactants) influenced the SP's decision to offer a complete word/message in the back-channel in lieu of message restatement. Examples follow:

<u>Example D12</u> (Dyad #4)

		SP	Yes to which question?
		NSP	(N)
	RBC	SP	N
		NSP	(U)
	RBC	SP	U
		NSP	(M)
	RBC	SP	M
		NSP	(B)
<u>CMPLTN</u>	EBC	SP	Number
		NSP*	(NUMBER)

<u>Example D13</u> (Dyad #1)

	NSP	(M)
RBC	SP	M
	NSP	(E)
RBC	SP	E
	NSP	(A)

EXTNSN	EBC	SP	Mean Joe Green!
	BBC	NSP	((HEAD-NOD/EYE CONTACT))
		NSP	(MEAN JOE GREEN)

In both of these examples, the slot was available for an SP back-channel. SP, however, elected to fill the slot with word or message completion instead of message element reformulation.

Query Back-Channel Variability: Influence of Dyadic Style

All six dyads used QBCs most typically as a back-channel confirmation check of some prior main-channel element. SP #6, however,used proportionally fewer QBCs than her speaking peers. Once again, the partners in dyad #6 filled their main-channel/back-channel slots differently. Confirmation queries most often reflected expansion and restatement back-channels produced with a rising tone. In terms of back-channel subtype, word completions, message extensions and summary reformulations were typically produced with confirmational tone by SPs #1-5. Expansions and summaries, however, were typically produced assertively by SP #6, i.e., without a modulated tone. At first examination, this appears surprising. Modulated forms of listener completions conform to the ritual constraints of conversational organization. (See "Modulated Forms of Reformulation" above). Since NSP was message author during message co-construction, the message completions offered by the listener were most appropriately produced as queries. The partners within Dyad #6, however, did not conform to this social convention. Yet, NSP's authorship status did not appear challenged. Nor was there any observable breach in the ritual equilibrium. Careful examination of the dyads' use of these forms provided an explanation.

For Dyads #1-5, as described above, expansions and summaries were typically produced in a back-channel slot which was available for simple letter repetition (or immediately following letter repetition). Their use was influenced by the situational pull for message completion and synthesis. In contrast to Dyad #6, Dyads #1-5 used a single message per turn format. NSP #6 typically exchanged multiple main-channel message elements per turn, followed by SP's summarization or completion in the back-channel. These summaries and completions were rarely produced in a modulated tone but <u>were an acceptable component of the interaction style set up by both partners</u> (see example D10 above). This format was established as an effective and efficient method for facilitating NSP's conversational contributions.

Expansions, summaries and paraphrases were most frequently produced <u>at message boundaries</u> by SPs #1-5. They were nearly always produced in a modulated tone.

Several examples follow:

Example D14 (Dyad #5)

		SP	They're going somewhere special↗
		NSP	(N)
	RBC	SP	N
		NSP	(E)
	RBC	SP	E
		NSP	(W)
	RBC	SP	W
		NSP	(J)
	RBC	SP	J
		NSP	(E)
	RBC	SP	E
CNFRM/RQ	QBC	SP	New Jersey↗
	BBC	NSP	(YES)
		NSP*	(NEW JERSEY)

Example D15 (Dyad #1)

		NSP	(I)
	RBC	SP	I
		NSP	(love)
	RBC	SP	love
		NSP	(the)
	RBC	SP	the
		NSP	(S)
CNFRM/RQ	QBC	SP	Steelers↗
	BBC	NSP	((HEAD-NOD/EYE CONTACT))
		NSP*	(I LOVE THE STEELERS)

Example D16 (Dyad #3)

		NSP	(W)
	RBC	SP	W
		NSP	(H)
	RBC	SP	H
		NSP	(Y)
	RBC	SP	Y
CNFRM/RQ	QBC	SP	Why↗
	BBC	NSP	((FACE-SMILE))
		NSP*	(WHY?)

These confirmational queries set the stage for an obligatory back-back-channel response by NSP. This QBC/BBC sequence, when produced at message boundaries, was the most typical format for completing composite act co-construction for dyads #1-5 . For Dyad #6, composite act boundaries were more often marked by the EBC/BBC or RBC/BBC pair. QBC/BBC sequences, when providing closure at composite act junctures, structurally facilitated turn/floor transfer back to the speaking partner.

CBC Variability: Didactic Style Shift within Dyad Pairs.

Much detail has already been given regarding the didactic accountability style which was used within two of the dyad pairs (Dyads #2 and 4). Despite the "task instruction" (as designed methodologically by the data collection procedure) for participants to exchange in conversation, the educational mode of teacher/student talk permeated the conversations of the teacher/student pairs. Dyad #2 presented an extreme example of teaching/student accountability work. Examples follow:

Example D17 (Dyad #2)

		SP	Are you having company?
		NSP	/ʒɛ/ ((VOC/HEAD-NOD))
MOD/EVAL	CBC	SP	The board!
	BBC	NSP	(My)
	QBC	SP	Your↗
	BBC	NSP	(My)
	RBC	SP	My

		NSP	(A)
	RBC	SP	A
		NSP	(U)
	RBC	SP	U
		NSP	(T)
<u>SPL/EVAL</u>	CBC	SP	N ((CORRECTING))
<u>SPL/EVAL</u>	CBC	SP	N
	BBC	NSP	(N)
	RBC	SP	N
		NSP	(T)
	RBC	SP	T
	RBC	SP	Your aunt is coming over.
	BBC	NSP	/ɛ/ ((VOC/FACE-SMILE))

NSP*	(MY AUNT)

In example D17, the spelling correction was produced <u>within</u> the co-construction of NSP's composite C-act. Most typically, didactic sequences were exchanged <u>after</u> the composite act's completion (i.e., across the whole act context). Shifting the focus of the whole act context from casual conversation to teacher/student talk, served as an identifying feature of didactic interaction styles.

<u>Example D18</u> (Dyad #2)

	SP	Who else is coming?
	NSP	(My)
RBC	SP	My
	NSP	(C)
RBC	SP	C
	NSP	(U)
QBC	SP	((HEAD-SHAKE))
QBC	SP	C-U↗
	NSP	(S)
RBC	SP	S
	NSP	(I)
RBC	SP	I
	NSP	(N)
RBC	SP	N
	SP	N
	SP	Go ahead

	QBC	SP	Your cousin↗
	BBC	NSP	/ʌn/ ((VOC/HEAD-NOD))
		NSP*	(MY COUSIN)
<u>SPL/EVAL</u>	CBC	SP	Cousin is C-O-U
	BBC	NSP	(C)
	RBC	SP	C
		SP	Go ahead
	BBC	NSP	(O)
	RBC	SP	O
	BBC	NSP	(U)
	RBC	SP	U
<u>SPL/EVAL</u>	CBC	SP	S
	BBC	NSP	(S)
<u>SPL/EVAL</u>	CBC	SP	I
	BBC	NSP	(I)
<u>SPL/EVAL</u>	CBC	SP	N
	BBC	NSP	(N)

The partners within Dyad #4 also shifted from casual talk to teacher/student talk. The shift involved accountability sequences in which the telegraphic form of NSP's messages were evaluated as unacceptable, <u>despite the interpretability of the content</u>. An example follows:

<u>Example 19</u> (Dyad #4)

SP	Did any team member impress you?
NSP	(YES)

		NSP	(9)
	RBC	SP	9
		NSP	(9)
	RBC	SP	9
			((PAUSE 3 SECONDS))
	BBC	NSP	/ɛ/ ((VOC/EYE CONTACT))

		NSP*	(NINETY-NINE)

<u>REF/EVAL</u>	CBC	SP	Ninety-Nine doesn't tell me much.
	QBC	SP	Ninety-nine percent of the rookies↗
	QBC	SP	Or number ninety-nine impressed you↗
	BBC	NSP	(YES)
	RBC	SP	Yes
	QBC	SP	Yes to which question?
	BBC	NSP	(N)
	RBC	SP	N
		NSP	(U)
	RBC	SP	U
		NSP	(M)
	RBC	SP	M
		NSP	(B)
	EBC	SP	Number

		NSP*	(NUMBER)

	ABC	SP	OK
<u>REF/EVAL</u>	CBC	SP	But you haven't made a complete sentence yet!

Corrections were rarely identified across the remaining four dyads. None reflected the extreme didactic focus of Dyads #2 and 4.

<u>Individual Variability within SP's Short Auditor Signals</u>

As described in the results, 11% of all back-channels produced by the speaking partner were short auditor signals. SP #6, however, produced twice as many simple acknowledgment signals as her peers (23% of all her back-channels). In fact, SP #6 was the only speaking partner who produced a sizable number of ABCs throughout both the co-construction and whole act contexts. (ABC use within C-act co-construction was extremely rare for Dyads #1-5). Two particular contexts facilitated these short auditor signals for Dyad #6. During C-act co-construction, NSP occasionally vocally transmitted personal pronouns (specifically, "I" and "me") and short function words (e.g., "A"). These vocalizations were produced within a single main-channel turn and occasioned SP's back-channel response. SP acknowledged message reception with traditional ABC signals. (Vocal attempts at transmitting other relational words, e.g., "feeling", were followed by either message restatement by SP or repair initiation.) Example D10, as described earlier, clearly illustrates these points.

"Mhm" signals were also frequently produced by SP #6 following NSP's first main-channel message during composite act co-construction. These signals acknowledged main-channel message reception as well as SP's commitment to "hearing out" her partner ("Acknowledgment/Attentional" signals).

SP #6 also frequently produced short auditor signals at the juncture following NSP's composite act. These signals served to acknowledge SP's interest and attention to NSP's composite act contribution without interrupting

NSP's narrative production (i.e., NSP maintained the speaking floor and continued with his next complex composite act). As discussed earlier in this chapter (see example D5), NSP #6 was the only nonspeaker to produce successive complex C-acts. (Thereby illustrating that narrative production was an option <u>if</u> the dyadic members allowed for it, i.e., were organized in terms of this format). SP's use of short auditor signals appeared to facilitate NSP's narrative exchange. Example D20 below, illustrates the three locations of SP #6's short auditor signals: following NSP's initial main-channel contribution to his co-constructed composite act, following NSP's vocal pronominal reference, and following the juncture of the composite conversational act.

<u>Example D20</u> (Dyad #6)

		NSP	(W-I-T-H)
<u>ACKNOW/ATTN</u>	ABC	SP	Mhm ((HEAD-NOD))
		NSP	(P-E-O-)
	EBC	SP	people
		NSP	(W-H-O)
	RBC	SP	who
		NSP	(D-O-)
	QBC	SP	don't know you↗
	BBC	NSP	((HEAD-NOD))
		NSP	/aɪ/ ((POINTS TO SELF))
<u>ACKNOW</u>	ABC	SP	((HEAD-NOD))
		NSP	(U-S-E)
	RBC	SP	use
		NSP	(T-H-E)
	EBC	SP	the board
	BBC	NSP	/ɛ/ ((HEAD-NOD))
	EBC	SP	more
	BBC	NSP	/ɛ/ ((HEAD-NOD))

NSP* (WITH PEOPLE WHO DON'T KNOW ME
I USE THE BOARD MORE)

ACKNOW/ATTN ABC SP ((HEAD-NOD))

NSP (O-N) etc. etc.

Individual Variability within NSP's Short Auditor Signals

The relatively small proportion of ABCs produced by the NSP's reflected the low conversational pull for them. (See "Back-Channels as Attentional/Reception Signals" earlier in this chapter). Individual variability among the dyads reflected two distinct patterns. NSP #1,3,4,5 and 6 produced ABCs. NSP #2 produced virtually no ABCs.

Interactional dynamics influenced the conversational pull for auditor back-channels. ABC variability reflected the variability in back-channel opportunities presented to the nonspeakers.

The speaking partners within the former group contributed self-initiated information across whole act contexts. That is, when not focued on message co-construction, they offered their views about topics raised by the nonspeakers. This information was, at times, produced as narrative, in which SP produced successive main-channel contributions. During these "narratives", SP produced back-channel opportunity cues (i.e., turning their heads toward the nonspeakers at particular C-act boundaries) which set the stage for auditor back-channel responses. The nonspeakers produced ABCs at these appropriate junctures.

SP #2 rarely provided opportunities for acknowledgment signaling by NSP. Her main-channel contributions were typically interrogatives, through which she attempted to "draw out" her nonspeaking partner. (Concomitantly NSP #2 produced only one self-initiated conversational act!) As discussed earlier, the dialog of Dyad #2 was heavily laced with didactic accountability sequences. This teacher/student talk (Goffman, 1976/81), in which the teacher asks questions, the student answers, and the teacher evaluates, did not provide NSP with opportunities to back-channel SP's independent contributions. In fact, the only time SP produced a sequence of conversational acts which were not focused on drawing out NSP, was at the end of the interaction. During this narrative sequence, a back-channel opportunity space was available to NSP. At this point in the interaction, however, NSP had covered her face and was avoiding eye contact with SP, affectively conveying her uncomfortability with the interaction through nonverbal expression (c.f. Scheflen and Scheflen, 1972).

Individual Variability in Back-Back-Channel Use.

Nearly 60% of all Back-Back Channel signals were produced in highly obligatory contexts. ("Obligatory context" refers to BBC production in response to Query or Corrections Back-Channels). Individual variability was very pronounced. For four dyads (#1,2,4 and 5) obligatory feedback signaling was quite a bit higher than the mean proportion (with percentages of 71%, 76%, 68% and 72%, respectively). This extensive use of obligatory responses was tied to the large numbers of Query and Correction

Back-Channels produced by SPs #1,2,4 and 5 which summoned the BBC response. While didactic sequences were identified only across two of these dyads (Dyad #2 and 4), a high proportion of feedback activity for NSP #1 and 5 was produced in response to SP confirmational queries. The two remaining dyads (#3 and 6) produced far fewer BBCs within obligatory contexts than the mean (with percentages of 46% and 27%, respectively).

In discussing these differences, it should be noted that reporting proportional scores is much more valuable than simply reporting frequencies. Proportions, reflect the use of a particular variable in comparison with other possible choices. For example, the total number of BBCs used in response to QBCs might be the same for two different dyads. Yet, the proportion of BBC use within obligatory contexts may be very different. This, of course, will depend upon the number of BBCs used by each dyad for nonobligatory purposes.

NSP #3 and 6 produced a large number of BBCs in nonobligatory contexts. These were the only two nonspeakers whose communication aids were primarily alphabet boards. While the words, "Yes" and "No", appeared on their boards and a select few other items (for NSP #3 the phrase "I made a mistake/Staring over" and for NSP #6, punctuation markers) nonspeech message formulation relied upon spelling out messages. (The other four nonspeakers (#1,2,4 and 5) had a range of words accompanying their alphabets on their communication displays). As such these two nonspeakers appeared to use their back-back-channels more frequently for confirming words summarized by their speaking partners. The partners within Dyad #6 have been described in much detail throughout this discussion. These partners utilized a main-channel/back-channel style which fostered larger chunks of information exchange per turn. NSP spelled entire words within a single main-channel act and SP synthesized the letters into a vocal whole. A relatively high proportion of SP's back-channeling, however, was used in completing NSP's word before the final letter(s) had been formulated by NSP. Word completions were typically <u>not</u> produced in modulated tones. None the less, NSP frequently confirmed the status of these completions in the Back-Back-Channel. These BBCs, then, were not obligatory responses.

NSP#3 also produced many nonobligatory BBCs. The partners within Dyad #3 did not use a similar efficiency strategy as did dyad #6. NSP pointed to individual letters, which SP repeated, summarized and completed when the linguistic context provided enough information to facilitate word completion. Only one message element was conveyed by NSP per speaking turn. However, NSP #3 used BBCs both to acknowledge accurate summaries throughout message co-construction (in addition to its typical use at message boundaries) and, at times, to signal <u>word boundaries</u>. That is, after all the letters of a word had been selected and reformulated across multiple turns, NSP #3 produced a Back-Back-Channel confirmation (without prior query) to signal to SP that a summarization was now due. This strategy was also used to prepare SP for the spelling of the next word. In the example below, the first three of NSP's BBCs were produced in these nonobligatory contexts. The fourth reflects the typical Query/Back-Back Channel sequence produced at message bounadries.

Example D21 (Dyad #3)

		NSP		(I)
	RBC	SP	I	
		NSP		(T)
	RBC	SP	T	
CNFRM/WB	BBC	NSP		(YES)
	RBC	SP	It	
		NSP		(I)
	RBC	SP	I	
		NSP		(S)
	RBC	SP	is	
		NSP		(A)
	RBC	SP	A	
CNFRM/WB	BBC	NSP		(YES)
		NSP		(F)
	RBC	SP	fact	
CNFRM	BBC	NSP		(YES)
	QBC	SP	is a fact↗	
CNFRM/RS	BBC	NSP		(YES)

NSP* (IT IS A FACT)

It is also interesting to view the individual variability found across the dyads in relation to the mean proportion of BBCs used for negation/correction purposes (i.e., for initiating and repairing SP's back-channel repairables). The mean percentage reported was 15%. Dyads

#3 and 6 held percentages quite similar to the mean (14% and 17%, respectively). The remaining four dyads (#1,2,4 and 5) had more variability in their performances.

The NSPs within Dyads #2 and 4 rarely produced negation/correction BBCs (4% and 0% of their respective BBC use). Although SP #2 and 4 consistently held their partners accountable for producing messages in "acceptable" forms, the NSPs rarely, if ever, challenged them. One might suspect that these SPs produced very accurate reformulations of their partners' messages and the NSPs had no reason to challenge them. SP's insistence that NSP produce his/her messages in "acceptable" forms (i.e., communicating via the nonspeech mode in lieu of vocalization, accurately spelling messages, and producing complete and not telegraphic messages), while reducing the rate of information exchange, may have enhanced the accuracy of SP reformulations. The absence of NSP challenges, however, may also be interpreted in light of the didactic styles which permeated these conversations. These teacher/student interaction styles influenced the options available to the interactants, marking "student" challenges as improper. The nonspeakers, thereby, gave up their rights to challenge their speaking partners - rights that are typically available to partners engaged in casual conversation. These two nonspeakers more closely match the prototypical "passive" participant described in the literature. They rarely initiated information and affectively were less interactive. One might conclude then, that not only were there fewer reasons for these NSPs to challenge their speaking partners reformulations (from an interpretability domain) but these nonspeakers found it easier to "go along" with their partners interpretations rather than challenge them (from a social domain).

The nonspeakers within Dyads #1 and 5, reflected a different variation in negation/correction production. Their proportional use was higher than the mean (24% and 31%, respectively, mean proportion was 15%). In examining their speaking partners' back-channels which became trouble sources, a high proportion were actually confirmation back-channels (QBCs). As such, NSP had to <u>infirm</u> SP's confirmation request as incorrect (thus signaling repair initiation) prior to repairing the misinterpretation. These repairable QBCs were typically produced during word formulation and as such a proportionally large number of BBCs were used in respelling these word (prior to repair completion). NSP #1 and 5 held their partners heavily accountable to correctly interpreting their message elements, despite the high obligatory context within which most of their BBCs were produced (i.e., following QBCs). These NSPs were not passive during these interactions and, in fact, initiated a great deal of propositional information throughout these exchanges. For these dyads, partner "<u>co-accountability</u>" was strong, reflecting the mutual balance of casual conversation.

A Continuum of Interaction Styles Across Six NSP/SP Dyads.

Individual variability in back-channel use constituted dyad style. It should be noted, that while the partners of a dyad may have preferred interaction patterns, style shifts are common within ongoing exchange. Several dyads in this corpus maintained distinctive styles throughout their conversations while others shifted styles as the discourse unfolded. Since the interactions were brief, and the content of the exchange predetermined by the methodology, less style shifting was observable. Yet in typical face to face encounters (particularly within casual conversation) shifts of style are common. For interactants with well defined social roles (such as teacher/student pairs), the purpose of the exchange, the familiarity of the partners, and even the physical context in which the exchange takes place, can alter the styles and flexibility of the participants.

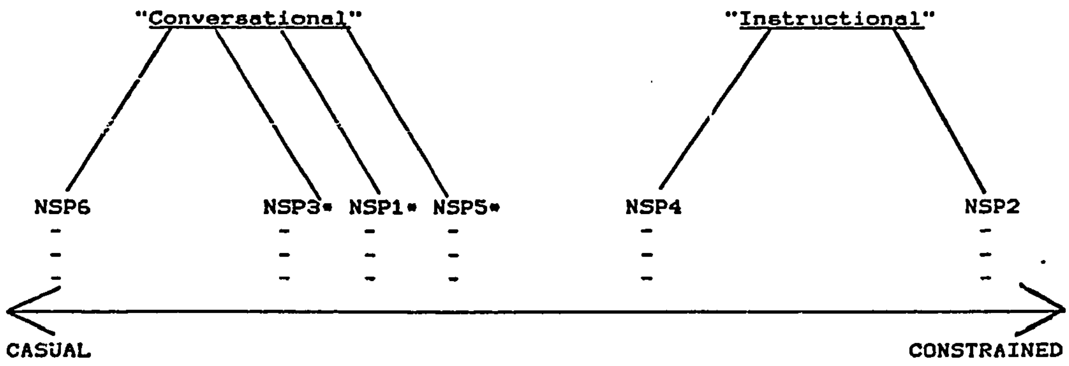
The partners within Dyads #2 and 6 reflected two extremely distinctive interaction styles. They are represented as polar opposites along the interactional continuum listed on Figure D5. Dyads #1,3,4 and 5 reflected varying degrees between these two extremes.

The style used by Dyad #2 was fundamentally didactic. SP held NSP heavily accountable for producing messages in "acceptable" forms. NSP complied by producing these corrections without challenge. A high proportion of Correction Back-Channels and obligatory Back-Back-Channels

FIGURE D5

Continuum of Interaction Styles

Across Nonspeaking/Speaking Dyads



*note: Positions along the continuum for NSP #1, #3 and #5 were fundamentally interchangeable. Minor style shifts were noted across all three dyads.

quantitatively identified this specific interaction pattern. SP organized the discourse flow through heavy interrogative use and teaching sequences.

The partners within Dyad #6 were highly attuned. They negotiated a main-channel/back-channel pattern in which larger chunks of information were exchanged and ratified by the interactants. Turn transfer was smooth and NSP produced successive complex composite acts without "re"negotiating floor ownership. In contrast to Dyad #2, NSP #6 organized the direction of discourse flow through the production of narrative forms. SP supported this narrative production through the use of short auditor signals.

Dyads #1,3,4 and 5 reflected a "middle" ground between these two distinctive interaction patterns. A casual conversational focus was observable for Dyads #1,3 and 5. Both SPs and NSPs contributed to the conversational flow. Successive complex C-acts, however, were not produced by the NSPs. The SPs frequently misinterpreted NSPs' speaker back-channel signals (BBCs) at composite act boundaries as turn/floor yielding signals. Dyad #4 's back-channel type distribution was not statistically different from Dyads #1,3 and 5. Yet, didactic style shifts laced the interaction which were not identified across the other three dyads. Many of these accountability sequences were produced through Query Back-Channel forms.

The distribution of back-channels across whole vs.

co-constructed act contexts provided a quantitative measure for organizing these six dyads into two classifications: casual (i.e., "conversational") and instructional styles. Dyads, 1,3,5 and 6 shared nearly identical proportional distributions, producing nearly five times as many back-channels within co-constructed act contexts than across whole act contexts. Dyads #2 and 4 also shared identical distributions producing twice as many back-channels during message co-construction than across whole act exchanges, revealing a much higher whole act back-channel use. These differences reflected the heavy focus for Dyads #2 and 4 in evaluating and refining NSPs' messages in the back-channel _after_ these messages were already conveyed. The partners in the former group used less explicit back-channeling across whole acts as their focus was on casual conversation and not on message evaluation. It is interesting that despite the individual variability across the six dyad pairs, the whole act/co-constructed act back-channel distributions clearly distinguished the four "conversational" dyads from the two "instructional" dyads. This supports the notion that the organizational distinctions between instructional talk and casual talk may be identifiable through back-channel analysis. While a larger group of dyads are required to further validate this claim, it appears that didactic style shifting may be identified by unusually high _explicit_ back-channel activity across whole conversational acts.

CHAPTER VIII

SUMMARY AND CONCLUSIONS

Back-channel communication was found to play a primary role within nonspeech/speech conversations. Two conversational contexts were identified which organized the interactants contributions. The first, the whole act context, reflected single turn (or transmitted composite) propositional exchange (as is typical of vocal conversations). The second, the co-constructed act context, reflected message unit co-construction in which a speaker's complex conversational acts were co-produced with the listener (which is atypical of vocal exchange). The transitions between these two contexts were the points of greatest difficulty for these dyads.

Message reformulation (RBC) was the most frequently used back-channel type. Speakers predominantly vocally restated message elements transmitted by the nonspeakers. This use was strongest within message co-construction. While less dominant across whole act (and completed composite act) messages, it was used more frequently across this latter context than is typically found in vocal conversations.

Query Back-Channels (QBC) were used with the next highest frequency by the speaking partners. The majority of these query forms, however, were not repair related. They were principally used as confirmational forms of message reformulation. Their proportional use was somewhat higher across whole act than co-constructed act contexts.

Expansions (EBC) were typically encoded as word completions. They were used as an efficiency strategy to reduce the conversational space (and time) required for composite act completion. There existed a strong preference for word completion over message extension. As such, this back-channel type was more frequently used within the co-constructed act context.

Correction Back-Channels (CBC) were infrequently used during message co-construction. A relatively high proportion was used by the speakers after the shift to the whole act context was made. Its use within adult casual conversation does not meet the ritual or social conventions of discourse. Didactic interactions are more readily identified when competencies or social roles across partners are uneven, such as within mother/child interaction, employer/employee exchange, or teacher/student talk. Its use within this corpus was primarily restricted to two dyads. These speakers appeared to shift from conversational style to didactic or instructional style. Their dialogs were laced with "teacher/student" talk in which the teacher questions, the student answers and the teacher evaluates. This particular interaction style was not used by the other four dyads and the social roles of the interactants appeared to shape its use.

Simple forms of message acknowledgments (ABC), were rarely produced within co-constructed contexts. The intensive mutual monitoring which defined this context required a more explicit form of back-channeling. A third of each partners' back-channels, however, were produced as short auditor signals across the whole act context. These contexts contained main-channel information contributed by both participants which in turn occasioned back-channel acknowledment. When co-construction was not the focus, less explcit forms of feedback were required.

Speaker Back-Back-Channel signals (BBCs) were produced exclusively by the NSPs as these signals typically follow long back-channel forms (which, in turn, were exclusively produced by the SPs). BBCs were more frequently obligatory responses across whole acts. NSP used speaker feedback for more complex functions during the mutual monitoring of the co-construction process.

Few back-channels resulted in conversational repair. Those that did were most typically some form of expansion back-channel (produced with or without modulated tone). However, the overwhelming majority of expansions (91%) were confirmed as accurate. The familiarity of the partners and their intensive mutual focus seemed to influence this high rate of accurate word completions.

Main-channel/back-channel contingency was the principal mechanism for conversational act co-construction. All of the nonspeakers' complex contributions were co-produced by both partners. The use of back-channel signals by the SPs, during the co-construction processes, facilitated the transmission of NSP's message units. NSP's "ownership" of the conversational floor during message co-construction was never challenged. NSP retained control over message formulation and carefully evaluated SP's feedback. Two-thirds of the information exchanged during the co-constructed act context was produced in the back-channel. Mutual monitoring was pervasive. The interactional sequence of speaker main-channel contribution, auditor back-channel response, explicit or implicit speaker back-channel evaluation and speaker main-channel continuation, was confirmed as the basic interactional unit which organized the participants contributions. The organization of the co-constructed act context was the same for all six dyads, despite extreme differences in interactional style.

The interactional unit appeared to be less hardy following the composite act's completion. Although the main-channel/back-channel/main-channel (MCL/BCL/MCL) unit was identified for SP initiated messages, it was nearly impossible for NSP to produce a statement as a composite act, receive a back-channel response from SP, and continue with the next main-channel contribution once the shift to whole act context was made. Subsequent to composite act completion, SPs' back-channel acknowledgments were typically followed by claims for the speaking floor. (A similar result was found by Buzolich and Wiemann, 1985). The SPs appeared "compelled" to match the propositonal content in the composite act with some propositional contribution of their own. There was, however, a structural determination of this SP gregariousness. The NSPs signaled composite act boundaries in a very explicit manner. These BBCs functioned both to confirm SP's prior back-channel reformulation (which was most typically produced as a QBC at these message boundaries) and signal closure on composite message transmision. The behavioral cues used, to encode these BBCs, were very similar to turn yielding signals. Since these occurred at turn transitional spaces, they were responded to, by the SPs, as opportunities to claim the speaking floor. There was one exception. The partners within Dyad #6 conformed to the interactional sequence of MCL/BCL/MCL both across co-constructed and whole act contexts. Composite acts were typically followed by brief auditor signals following which NSP continued with his next complex transmission. In fact, the nonspeaker produced successive complex acts without an intervening SP back-channel when no back-channel opportunity signal was presented. There was a difference in the behavioral cues used by this NSP at the composite acts junctures, as they were less pronounced. Additionally, he <u>immediately produced speaker continuation signals</u> (most typically a downward head orientation to the board). (All of the SPs always relinquished the floor when

NSP produced these signals. Some of the other NSPs <u>reclaimed</u> the speaking floor in this manner). When appropriate, SP #6 produced short "mhm" back-channels following transmitted composite acts (when produced as statements or responses) thereby not offering extra propositional information which might serve to redirect NSP's communication efforts. It was this dyad that proved the exception to the "structural rule" that yielded the turn to the other five SPs at the end of composite acts. The clear role that conversational structure played in orchestrating these turn transfers, illustrates how conversational structure organizes social interaction.

It appeared that the other five dyads while interacting quite smoothly within co-constructed contexts, had more difficulty at context shifts - i.e., shifting from message co-construction into whole act exchange and from whole act exchange back to message co-construction. Floor ownership was less clearly defined for them at these junctures.

The "passive profile" that has been used to describe nonspeakers as noninitiators who exhibit minimal control over the conversational dynamics within nonspeech/speech interaction (e.g., Harris, 1978; Calculator and Dollaghan, 1982; Culp, 1982), did not describe the majority of nonspeakers in this study. Four of the nonspeakers were extremely active, initiating information and directing the conversational exchange. One nonspeaker (NSP #6), as described above, produced successive complex conversational acts, and, in fact over 70% of his contributions were initiations. Three other nonspeakers (NSP #1,3, and 5), while not as successful in narrative production, successfully reclaimed the speaking floor following their partners' contributions. Approximately 50% of their complex contributions were initiations. For the remaining two nonspeakers (NSP #2 and 4), a more passive interaction style was noted. This passivity, however, appeared to be related to the interaction style used by the partners. Didactic exchanges were frequent and "teacher/student talk" permeated these dialogs. Few initiations were produced by the nonspeakers. The constrained interaction style appeared to influence NSP activity.

Buzolich and Wiemann (1985) have claimed that a potential barrier to effective interaction within the nonspeaking/speaking dyad is the active role listeners' assume during message formulation. They argue that the notion of reciprocal influence is altered and instead of joint participation, the speaking partner tends to dominate the interaction. The present findings suggest that the explicit feedback activity within the co-construction processes does not reflect SP dominance but rather, quite elegantly reveals an organizational structure in which the basic interactional unit is impeccably produced. NSP retains the floor throughout message co-construction with main-channel content shaping back-channel feedback which in turn influences back-back-channel exchange.

This reciprocal balance, however, is shaken during the transition from co-constructed to complete or single unit message exchange, where SP can and does initiate his/her own independent information. Although the amount of explicit feedback signaling is reduced to meet the different organizational requirements of whole act exchange, the SPs match the propositional complexity of NSP's transmitted composite acts, with more complex feedback forms and additional propositional contributions of their own. A structural explanation was offered, in which composite act completion signals shared behavioral cues with turn yielding signals. SPs' claims for the speaking floor, at these junctures, are therefore influenced by the conversational structure itself.

For one dyad, however, this reciprocal balance was not altered by the conversational context. Composite act junctures were less ambiguously encoded for this dyad pair. Additional microanalyses of these contextual junctures are needed to further describe how the conversational organization <u>shapes</u> the participants' contributions. Identifying these structural features, which add or detract from this reciprocal balance, may provide clinical baselines for intervention research.

In conclusion, there appears to be a highly structured conversational mechanism which organizes participants' social encounters. A cross-person interactional unit exists at the main-channel/back-channel level which links successive contributions by a speaker. This basic interactional unit is explicitly produced during conversational act co-construction. It serves to organize the participants' contributions and is impenetrable to interactional style differences. The unit, however, is less hardy at points of context shifts. The particular content of these main-channel/back-channel slots is determined by the participants themselves. Interaction style influences dyadic performance within this organizational structure. Style, as such, is manifested as active negotiation by partners. Social roles provide interactants with a framework for acceptable interaction styles. Styles, however, frequently shift throughout conversational exchange.

Clinical Implications

Several notions discussed throughout this dissertation, have clinical significance in addition to theoretical appeal. Consistent with the suggestions made by Buzolich, 1984 and Light, 1985 nonspeakers need to learn a range of methods for obtaining and retaining the conversational floor during nonspeech/speech conversations. The current study further selects the composite act juncture, as a principal point for examining conversational floor shifts. Distinguishing between conversational contexts (i.e., whole act from co-constructed act contexts), provides a framework for pinpointing the precise features which make floor transfer so compelling to the speaking partners. While analyses with a larger number of subjects are needed to further validate the findings of the present study, it appears that floor ownership issues are tied to the behavioral cues exchanged at composite act junctures. Experimental studies should be done to test out a range of turn continuation signals or messages which the nonspeakers might produce at these junctures and evaluate the impact of their use on their partners claims for the speaking floor.

<u>Possible methods for facilitating NSP's narrative production might include:</u>

1. Encouraging NSP to keep finger, headstick, or indicator in turn continuation position <u>at composite act junctures</u>.

2. Encouraging NSP to quickly shift eye gaze from listener back to communication display following composite act completion.

3. Placing lexical items, in quick access positions, on NSP's boards to signal message continuation (e.g., "AND", "ALSO", or "CONTINUING") which NSP can point to immediately following composite act completion.

<u>When speaking partners can be trained they should be:</u>

4. Encouraged to pause at composite act junctures.

5. Encouraged to produce brief "mhm" signals, of minimal linguistic content, following NSP's statements, to show interest and attention before seizing the conversational floor.

Of particular value is the examination of the interaction patterns of dyads for whom turn transfer and floor ownership are not problematic, thereby revealing how conversational structure and dyadic style facilitate this balance. For example, the partners within dyad #6 used a variety of strategies to facilitate effective and efficient interaction. Within the co-construction context, the nonspeaker used a multiple message/per turn format in which a complete word was spelled prior to SP's back-channel reformulation. Concomitantly SP used more summaries and word completions than exact repetitions during the exchange. SP produced fewer confirmational reformulations, especially at the message boundaries and as such less explicitly signaled BBCs were required of NSP. The BBCs that were produced, were more subtle in form and shared fewer behavioral cues with turn/floor yielding signals. NSP very actively shaped the interaction through the particular main-channel format of his contributions. SP responded to this structure by matching his main-channel acts with the most efficient back-channel forms.

The identification of interaction style, as expressed through back-channel use, is of high clinical interest. "Constrained" styles were quantitatively identified by the increased proportion of explicit back-channels produced by the dyads across whole act (in comparison to co-constructed act) contexts. Using back-channel analysis as a method for distinguishing casual conversation from constrained dialog can provide clinicians with a framework for viewing the interaction formats within which their clients spend much of their time. If most of these interactions are constrained (teacher/student, caregiver/child) it is less likely that free expression will be observed. Notions, such as NSP passivity, should be viewed in light of this framing influence. Clinical intervention and interaction training should encompass a range of interactional styles.

It should be noted that not all "teacher/student" pairs have constrained conversations. Much depends upon the individuals themselves, the purpose of their exchange and, perhaps, the location of their exchange (i.e., at school or at the NSP's home etc.). A teaching context would promote a high degree of "teacher/student talk" but individual differences do exist and flexibility in style (and style shifts) are common. Equally true, didactic styles need not be limited to actual teachers and students. Individuals may exhibit these styles who do not possess different social roles but rather exhibit dramatically different competency levels. At times a constrained style may be indicative of one of the partner's underestimation of the skills of the other (a case not unfamiliar to nonspeakers in their interactions with unfamiliar listeners or even, at times, familiar listeners). These styles may be identifiable by the high proportion of explicit back-channeling (most specifically the frequent use of auditor CBCs and QBCs and obligatory speaker BBCs) produced across whole act contexts.

Examining nonspeech/speech feedback activity for nonspeakers' who augment their speech with electronic communication aids is important. The different output modalities available to the nonspeaker (or the nonspeaker's ability to select from several modalities or use multiple modalities) may have distinctive influences upon conversational organization. Preliminary research (Blau, 1986b) has examined the feedback activity across NSP/SP dyads when electronic aids with LCDs (Liquid Crystal Displays) were used by the nonspeakers. The production of explicit feedback forms was less extreme yet, the interactional unit, as identified in the current research, appeared intact. Results suggest that more explicit forms of back-channel opportunity signaling (typically eye gaze signals) were used by NSP (especially before clearing the words from the 20 character display) to check on auditor reception. This in turn occasioned brief auditor "Mhm" signals from their partners, which were followed by NSP message continuation. Narrative production appeared to be facilitated.

Electronic aids with synthetic speech may have a distinctive impact on conversational organization. Message formulation which results in synthetic speech output facilitates more independent message production from NSP. At times, however, the main-channel back-channel balance and turn taking structure is interrupted. Clinical reports have suggested that during message preparation, listeners have been noted to walk away or initiate their own independent contributions. This appears to be inconsistent with both the system and social requirements of conversation. Examining the main-channel/back-channel interactional unit may provide information regarding the organizational structure of these conversations.

Message reformulation is of particular clinical interest, especially the notion of SP's re-envoicing of the nonspeaker's mesage. In triadic or groups interactions, familiar listeners may be required to take on the "interpreter" role to facilitate NSP's contributions to the conversation. Re-envoicing NSP's messages in the back-channel and not imitating or "speaking for" NSP can influence how the other listeners orient their subsequent messages to the nonspeaker (as opposed to orienting their contributions to the interpreter).

Expansions are also of particular clinical interest. The preference for listeners in this study to use word completions over message extensions also suggests a preference for producing feedback in a minimally interruptive fashion during message co-construction. The nonspeaker, throughout message co-construction, retained the role of message author with the right to veto the acceptability of any SP back-channel form. Word completions when used for the purpose of enhancing communication efficiency can be quite an effective strategy for reducing the amount of conversational (and temporal) space required for messsage unit transmission. Nearly 90%

of these forms were accepted by NSP as accurate. The question remains, however, whether word completions are an effective back-channel form when used by unfamiliar partners. It is suggested that EBC use by a variety of conversational partners be investigated prior to recommending its use as an effective interaction strategy.

The use of Expansion Back-Channels might be viewed quite differently when language teaching is the conversational agenda. Linguistic expansions have traditionally been viewed as the fundamental units for mothers' refinements of childrens' language productions. Linguistic refinements are typically encoded through restatement and expansion back-channel forms. These expansions, however, most typically add some element to the child's preceding main-channel message as opposed to completing a word during formulation. As such, message paraphrasing and message extending are used more frequently than message repeating or completing. (This was also the typical format for RBC and EBC use across the whole act contexts for the NSP/SP dyads in this corpus. Repetitions and completions were most dominant during message co-construction. Paraphrases and message extensions were operative across whole act exchanges). Correction back-channels are also used, during teaching sequences, especially when the child's back-back-channel responses are summoned.

These various feedback units also provide the format for much of clinical intervention. Formal "teacher/student talk" (in which CBC/BBC and QBC/BBC back-channel units are used) has a substantive role in intervention. However, a less formal style is also used in which linguistic expansion (through RBC and EBC use) provides models of target language forms (as refinements of the clients preceding main-channel production) without demanding revisions or immediate reproduction on the part of the client. A look at the role these various feedback forms play within language intervention may assist clinicans in distinguishing interaction styles which are more constrained from those which support freer expression from their clients. Shifting between the two styles is often required.

Some Qualifications and Cautions

A discussion of the significance of this study would not be complete without some qualifications. The first qualification involves the methodology used for the data collection. The data used in the current analyses were collected by Wexler, Blau, Leslie & Dore, 1983. While descriptive in design, the Wexler et al. study included certain predetermined contextual constraints. While both speaking and nonspeaking subjects contributed to the conversations, the nonspeaking subjects were asked, prior to these conversations, to be prepared to discuss several topics of their own choosing. The rationale for explicitly suggesting to the nonspeaking subjects to think about the topics they might like to discuss prior to the interaction was based upon both clinical experience and related research (e.g., Harris 1978) which suggested that nonspeakers rarely initiated topics within nonspeech/speech conversations. It was felt that informing the nonspeaking subjects beforehand that introducing topics would be a component of the interaction might facilitate their skills in initiating information. The Wexler et al. study examined the conversational functions expressed by both partners, in an attempt to examine how each partner influenced the conversational options available to the other (the dynamics of these exchanges). While the study remained fundamentally descriptive in design, the predetermined situational context of the nonspeakers' initiating topics did influence the interaction. Often during these exchanges, the speaking partners asked the nonspeakers questions about the topics they were initiating. There was a strong commitment on the part of the participants in facilitating the nonspeakers' initiations. The dialogs, therefore, were influenced by this larger contextual frame. Similarly, this situational context, provided the frame within which the results of the current research were interpreted.

Another methodological limitation in the Wexler et al. study, which influenced the present analyses, involved the selection of speaking subjects. The speaking conversational partners were all familiar with the nonspeakers and with their nonspeech communication systems and were professionally employed within the school, center or hospital where the nonspeaker was a student, client or patient. These professionals were employed as teachers, guidance counselors, occupational therapists, speech therapists and teachers aids. While the list of subject selection criteria was met by all of the speaking subjects, an additional restriction was set for the selection of the speech therapists. Speech therapists who were currently treating the nonspeakers were not eligible to participate in the study (although prior treatment was acceptable). It was hypothesized that their interaction strategies might be qualitatively distinct from those used by their speaking peers. The results of the current analyses points to an additional variable which might have been included in the initial methodological considerations. Teachers currrently working with the nonspeakers might also have been restricted from the speaking subject pool (i.e., only teachers who were not responsible for the nonspeakers education might have been included as subjects). The two teacher/student pairs, as analyzed in this study, had very different interactive styles than the other four dyads examined. A strong didactic interaction emerged (in which the speaking partners frequently held the nonspeakers accountable for acceptable forms of communication). It appears that despite the instruction to converse in these interactions, the teachers could not stop teaching and correcting their nonspeaking students. While similar eligibility criteria as placed upon the speech pathologists might have eliminated this phenomenon (and perhaps, provided a more homogeneous grouping of speaking partners), the clearly defined style distinctions which did emerge ultimately proved useful in identifying specific interaction styles used by the subjects.

One should be cautioned against generalizing information gleaned from the current analyses to other nonspeaking populations. In fact, as discussed in Chapter II, few of the studies which currently have been published in the area of nonspeech/speech interaction, can be directly compared with one another. Too many distinctive variables separate one study from the next. The nonspeaking population is comprised of a very diverse group of individuals. People for whom vocal speech is not adequate to meet their communication needs can have very little in common besides an "insider's view" of the difficulty of interacting in a nonspeech mode. For example, the subjects in the present study were nonspeakers since birth due to cerebral palsy. They shared little in common with the nonspeakers studied by Beukelman and Yorkston (1980) who had acquired their nonspeaking conditions as adults. Additionally, since the nonspeakers in the present corpus used alphabet/word boards as their primary augmentative systems, the conversational structure which organized the participants' contributions might not be identical to the structure of nonspeech/speech interaction in which the nonspeaker's use electronic communication aids (with graphic or synthetic speech output). It is hypothesized that the conversational organization, as expressed by the main-channel/back-channel interactional unit, while less extreme, would operate across these exchanges as well. Definitive statements, however, cannot be made prior to additional research with a variety of dedicated communication aids users.

Another caution in comparing the results of the present research with other studies involves distinctions in the variables defined. All units of analysis developed for this research were based upon the philosophy and perspective of the investigator. As such, definitions of terms and units of analysis may be distinct from definitions used by other investigators in this and related fields. This is quite typical of research studies and care must always be taken in examining the definitions employed by each investigator prior to interpreting the results or comparing them with other studies. For example, the convention used by Light (1985) for segmenting conversational turns is not the same as that used by Wexler et al., 1983 or within the present research (see Chapter IV).

The same argument holds true when comparing the current results with those of Duncan (1975), Duncan and

Fiske (1977) and Buzolich and Wiemann (1985). Back-channels as defined in the current analyses were assigned turn status. Back-channel signals in the aforementioned analyses were not considered turns. Additionally, Buzolich and Wiemann included laughter and gaze within their back-channel classification. These forms were not considered discrete back-channels by Duncan, Duncan and Fiske or in the current research (unless used in combination with another discrete back-channel signal). The use of different behavioral cues within the back-channel classification as well as distinctions in the treatment of component main-channel and back-channel information appears to dramatically alter the conclusions derived by Buzolich and Wiemann in comparison with the current research.

Final Comments

This study can be viewed as a small contribution to a growing body of research dedicated to the identification of <u>a cross-person interactional structure</u> which shapes conversational exchange. The turn taking mechanism (as elegantly described by Sacks, Schegloff and Jefferson, 1974/1978) is the basic framework for organizing participants in dialog. Certain types of utterances (e.g., Questions, Commands etc.) highly determine turn allocation. These sequences contain the content of the conversation. A fundamental requirement for the operation of the conversational system (Goffman, 1974/1981) is back-channel feedback capabilities for informing on reception while it is occurring. Discrete behavioral signals which are embedded within speaking turns (Duncan, 1975), serve to mark units of interaction. The current research identifies back-channel feedback as a system which operates in parallel to main-channel propositional exchange. Auditor back-channels serve as links across a speaker's successive main-channel contributions. Consistent with Bateson's (1972) view of cynbernetic principles, no one part of an internally interactive system can have unilateral control over the remaining parts or of the system as a whole. Feedback links within conversational structure facilitate ongoing adjustments across persons. Their explicit role within nonspeech/speech interaction shape these social encounters.

Several notions have been raised which merit additional study. Back-channel signals have been viewed within a turn taking framework, a perspective which has not been taken until now. Whether this framework is restricted to nonspeech/speech interactions or will be validated across vocal face to face exchange is yet undetermined.

The interdependence between the sequential structure of conversation and its topical content may be tied to the cross-person feedback mechanism. Examining this interdependency of systems will require elaborate research efforts. Frame by frame microanalyses, including measures of the precise temporal synchronicity of conversational moves across participants, will demand sophisticated instrumentation and rigorous detail. The current study is a step toward unraveling the intricacies of conversational structure.

This work is not seen as a final step in examining the role of cross-person feedback in nonspeech/speech interaction. Rather, it is seen as a first attempt at uncovering the deep texture which provides the cohesive links across nonspeaking/speaking partners committed to dialog.

APPENDICES

A. Participant Consent Forms

B. Conversational Act Coding Methodology
Wexler, Blau, Leslie and Dore 1983

R1. Raw Data - Back-Channel Frequency

R2. Number of C-acts Produced in Relation to
Auditor and Speaker Feedback (per Dyad)

R3. RBC, EBC, QBC Subtype Distribution (Dyad)

R4. Distribution of Contingent BBC Signals

R5. Trouble Source Back-Channels per Dyad

R6. Composite Act Sequences per Dyad:
Back-Channels/Total C-Acts Produced

R7. Back-Channel Distribution per Dyad Across
Whole and Co-Constructed Contexts

R8. Dyad Back-Channel Frequency Distribution
Whole and Co-Constructed Contexts

APPENDIX A

Helen Hayes Hospital

West Haverstraw, New York 10993

INFORMED CONSENT

CLIENTS

I agree to take part in a study evaluating the use of augmentative communication aids for individuals with difficulty in speaking. I understand that I will be videotaped during a conversation lasting approximately 1/2 hour with an individual who is familiar with me, for part of the session with my communication board and for part of the time without it.

I agree to permit the investigators to use the data and videotapes from the study for scientific and educational purposes without use of my name.

I am aware that I may discontinue participation at any time.

DATE ______________________ SIGNATURE OF SUBJECT OR LEGAL REPRESENTATIVE ______________________

SIGNATURE OF WITNESS ______________________

SIGNATURE OF WITNESS ______________________

STAFF

I agree to take part in a study evaluating the use of augmentative means of communication for individuals with difficulty in speaking. I understand that I will be videotaped during a conversation with an individual who has an augmentative communication aid.

I agree to permit the investigators to use the data and videotapes from the study for scientific and educational purposes without use of my name.

I am aware that I may discontinue participation at any time.

DATE ______________________ SIGNATURE OF SUBJECT ______________________

SIGNATURE OF WITNESS ______________________

SIGNATURE OF WITNESS ______________________

APPENDIX A (continued)

New York State Department of Health

Office Of Public Health

Participant Consent Form

Project Title	
Name of Principal Investigator	
Name of Participant	Telephone
Address of Participant	

I do hereby consent to participate in the above identified research project and do hereby acknowledge that I have received:

1. an explanation of the procedures to be followed, and their purposes, including identification of any procedures which are experimental;
2. a description of any attendant discomforts and risks reasonably to be expected;
3. a description of any benefits reasonably to be expected;
4. a disclosure of any appropriate alternative procedures that might be advantageous;
5. an offer to answer any inquiries concerning the procedures;
6. an instruction that I am free to withdraw my consent and to discontinue participation in the project or activity at any time without prejudice; and
7. an assurance that any information provided by me shall remain confidential and only be used for medical and research purposes, that my name will not be used and reports utilizing this research will use statistical information only.

I understand that, in the event of physical injury resulting from the research procedures, financial compensation is not available but acute emergency medical care is available at a facility operated by the New York State Department of Health, namely, Roswell Park Memorial Institute, the Helen Hayes Hospital or the New York State Home for Veterans and their dependents at Oxford.

Signature of Participant
or Legal Representative: ______________________ Date: __________

Signature of Auditor Witness: ______________________ Date: __________

Relationship: ______________________

This is to affirm that the basic elements of informed consent as described above have been presented orally to the subject or his legally authorized representatives and in accordance with the approved summary of what was said as set forth on the reverse side hereto.

Signature of Official
Obtaining Consent ______________________ Date: __________

OPH211 (2/79)

APPENDIX B

Conversational Act Analysis Of Nonspeaking/Speaking Dyads

Coding Scheme: Wexler, Blau, Leslie And Dore 1983

C-Act Class:	Conversational Act Class Definition:
REQUEST	-solicit information, action or acknowledgment
RESPONSE	-provide information directly complementing prior request
STATEMENT	-express facts, rules, attitudes, feelings or beliefs
ACKNOWLEDGMENT	-recognize and evaluate responses and nonrequestives
ORGANIZATIONAL DEVICE	-regulate contact and conversation
MISCELLANEOUS	

Specific C-Act Types:	C-act Code:	Specific C-Act Types:	C-act Code:
REQUESTS		RESPONSES	
Yes/No Requests	RQYN	Yes/No Responses	RSYN
Choice Requests	RQCH	Choice Responses	RSCH
Product Requests	RQPR	Product Responses	RSPR
Process Requests	RQPC	Process Responses	RSPC
Action Requests	RQAC	Compliances	RSCO
		Contingent Query Responses	RSCQ
STATEMENTS		ACKNOWLEDGMENTS	
Identifications	STID	Acceptances/Agreements	ACAC
Descriptions	STDC	Repetitions	ACRP
Procedurals	STPR	Summaries	ACSM
Evaluations	STEV	Expansions	ACEX
Internals	STIN	Guesses	ACGS
Explanations	STEX		
ORGANIZATIONAL DEVICES		MISCELLANEOUS	
Boundary Markers	ODBM	Uninterpretables	UNTP
Contingent Queries	ODCQ		
Rhetorical Questions	ODRQ		
Politeness Markers	ODPM		
Recalls	ODRE		

Code Tag: CK = acknowledgment check (encoded vocally through rising tone)
VOC = Vocalization — GEST = Gesture
VOC-L = Laugh — POST = Postural shift
HEAD-N = Head Nod — FACE-S = Smile — EEC = Establishes Eye Contact
HEAD-SH = Head Shake — FACE-F = Frown — REC = Removes Eye Contact

APPENDIX R1

Raw Data: Back-Channel Frequencies

SP1		NSP1	
Auditor Back-Channels			
103	RBC	0	RBC
8	EBC	0	EBC
47	QBC	0	QBC
0	CBC	0	CBC
17	ABC	13	ABC
Speaker Back-Channels			
0	BBC	49	BBC

SP2		NSP2	
Auditor Back-Channels			
113	RBC	0	RBC
5	EBC	0	EBC
47	QBC	0	QBC
35	CBC	0	CBC
12	ABC	0	ABC
Speaker Back-Channels			
0	BBC	72	BBC

SP3		NSP3	
Auditor Back-Channels			
188	RBC	0	RBC
21	EBC	0	EBC
42	QBC	0	QBC
1	CBC	0	CBC
26	ABC	7	ABC
Speaker Back-Channels			
0	BBC	65	BBC

APPENDIX R1 continued

SP4		NSP4		
Auditor Back-Channels				
70	RBC	0	RBC	*note: Dyad 4 produced fewer C-acts than the other dyads.
4	EBC	0	EBC	
17	QBC	0	QBC	
3	CBC	0	CBC	
8	ABC	8	ABC	
Speaker Back-Channels				
0	BBC	19	BBC	

SP5		NSP5	
Auditor Back-Channels			
139	RBC	0	RBC
9	EBC	0	EBC
34	QBC	0	QBC
1	CBC	0	CBC
24	ABC	4	ABC
Speaker Back-Channels			
0	BBC	36	BBC

SP6		NSP6		
Auditor Back-Channels				
68	RBC	0	RBC	*note: One-half of SP's ABCs were produced within co-constructed NSP utterances. This was related to transmission style of NSP.
47	EBC	0	EBC	
15	QBC	0	QBC	
2	CBC	0	CBC	
40	ABC*	7	ABC	
Speaker Back-Channels				
0	BBC	54	BBC	

APPENDIX R2

Number Of C-Acts Produced By Each Dyad

In Relation To Auditor And Speaker Back-Channels:

NSP1

total C-acts produced by dyad (whole and component)	455
total composite C-acts produced	21
total C-acts within composite C-acts	310
total back-channels produced by dyad	237
total back-channels produced by SP	175
total back-channels produced by NSP	62
total auditor back-channels SP produced	175
total speaker back-channels SP produced	0
total auditor back-channels NSP produced	13
total speaker back-channels NSP produced	49

NSP2

total C-acts produced by dyad (whole and component)	475
total composite C-acts produced	15
total C-acts within composite C-acts	299
total back-channels produced by dyad	284
total back-channels produced by SP	212
total back-channels produced by NSP	72
total auditor back-channels SP produced	212
total speaker back-channels SP produced	0
total auditor back-channels NSP produced	0
total speaker back-channels NSP produced	72

NSP3

total C-acts produced by dyad (whole and component)	603
total composite C-acts produced	15
total C-acts within composite C-acts	451
total back-channels produced by dyad	350
total back-channels produced by SP	278
total back-channels produced by NSP	72
total auditor back-channels SP produced	278
total speaker back-channels SP produced	0
total auditor back-channels NSP produced	7
total speaker back-channels NSP produced	65

APPENDIX R2 continued

NSP4

total C-acts produced by dyad (whole and component)	245
total composite C-acts produced	12
total C-acts within composite C-acts	148
total back-channels produced by dyad	129
total back-channels produced by SP	102
total back-channels produced by NSP	27
total auditor back-channels SP produced	102
total speaker back-channels SP produced	0
total auditor back-channels NSP produced	8
total speaker back-channels NSP produced	19

NSP5

total C-acts produced by dyad (whole and component)	457
total composite C-acts produced	11
total C-acts within composite C-acts	359
total back-channels produced by dyad	247
total back-channels produced by SP	207
total back-channels produced by NSP	40
total auditor back-channels SP produced	207
total speaker back-channels SP produced	0
total auditor back-channels NSP produced	4
total speaker back-channels NSP produced	36

NSP6

total C-acts produced by dyad (whole and component)	378
total composite C-acts produced	15
total C-acts within composite C-acts	322
total back-channels produced by dyad	233
total back-channels produced by SP	172
total back-channels produced by NSP	61
total auditor back-channels SP produced	172
total speaker back-channels SP produced	0
total auditor back-channels NSP produced	7
total speaker back-channels NSP produced	54

APPENDIX R3

C-Act Type Distribution Of RBCs, EBCs And QBC By Dyad.

NSP1

RBC

ACRP	88
ACSM	14
ODRE	1
TOTAL	103

EBC

EXTN	1
COMP	7
TOTAL	8

QBC

ACEX-CK	23
ACSM-CK	5
ACRP-CK	4
RQYN	6
ACAC (")	2
ODCQ	2
ODRQ	1
RQPC	1
RQCH	1
ODRE-CK	2
TOTAL	47

NSP2

RBC

ACRP	97
ACSM	14
ODRE	1
ACGS	1
TOTAL	113

EBC

EXTN	3
COMP	2
TOTAL	5

QBC

ACEX-CK	5
ACSM-CK	18
ACRP-CK	8
RQYN	7
ODCQ	3
RQPR	2
RQCH	2
STEX-CK	1
ACGS-CK	1
TOTAL	47

NSP3

RBC

ACRP	132
ACSM	49
ODRE	5
STIN	1
STID	1
TOTAL	188

EBC

EXTN	5
COMP	16
TOTAL	21

QBC

ACEX-CK	7
ACSM-CK	17
ACRP-CK	3
RQYN	7
ACAC (")	2
RQPC	1
RQPR	3
STIN	1
ACGS-CK	1
TOTAL	42

APPENDIX R3 continued

NSP4

RBC

ACRP	57
ACSM	11
ODRE	1
STID	1
TOTAL	70

EBC

EXTN	2
COMP	2
TOTAL	4

QBC

ACEX-CK	8
ACSM-CK	3
ACRP-CK	2
RQYN	1
RQPC	1
RQCH	1
ODRQ	1
TOTAL	17

NSP5

RBC

ACRP	129
ACSM	9
ODRE	1
TOTAL	139

EBC

EXTN	3
COMP	6
TOTAL	9

QBC

ACEX-CK	18
ACSM-CK	5
ACRP-CK	6
RQYN	3
RQPR	2
TOTAL	34

NSP6

RBC

ACRP	23
ACSM	44
STEV	1
TOTAL	68

EBC

EXTN	12
COMP	35
TOTAL	47

QBC

ACEX-CK	8
ACSM-CK	2
ACRP-CK	1
ODCQ	2
ACAC (")	2
TOTAL	15

The four letter C-act codes are from the Wexler, Blau, Leslie and Dore (1983) Coding Scheme (see Appendix B) with the addition of two C-act types (EXTN and COMP) which further specify the ACEX C-act classification. The abbreviations listed stand for the following C-act types:

ACRP = repetition　　ACSM = summary/paraphrase
ODRE = recall/place holder　　ACAC = acknowledgment
RQYN = yes/no request　　RQPC = process request
RQPR = product request　　RQCH = choice request
ACGS = guess　　STEV = evaluation
STID = identification　　STIN = internal state
ODCQ = contingent query　　ODRQ = rhetorical question
CK = check　　EXTN = extension　　COMP = completion

APPENDIX R4

Distribution Of Contingent Back-Back-Channel Signals

NSP1

QBC/BBC*	EBC/BBC	RBC/BBC	CBC/BBC*	ABC/BBC
35	3	10	0	1

TOTAL = 49

NSP2

QBC/BBC*	EBC/BBC	RBC/BBC	CBC/BBC*	ABC/BBC
31	4	12	24	1

TOTAL = 72

NSP3

QBC/BBC*	EBC/BBC	RBC/BBC	CBC/BBC*	ABC/BBC
29	13	22	1	0

TOTAL = 65

NSP4

QBC/BBC*	EBC/BBC	RBC/BBC	CBC/BBC*	ABC/BBC
12	2	4	1	0

TOTAL = 19

NSP5

QBC/BBC*	EBC/BBC	RBC/BBC	CBC/BBC*	ABC/BBC
25	2	6	1	2

TOTAL = 36

NSP6

QBC/BBC*	EBC/BBC	RBC/BBC	CBC/BBC*	ABC/BBC
14	23	14	1	2

TOTAL = 54

Totals Across Six Dyads:

QBC/BBC*	EBC/BBC	RBC/BBC	CBC/BBC*	ABC/BBC
146	47	68	28	6

* = Asterisk Denotes Obligatory Response

APPENDIX R5

Back-Channels Per Dyad Which Became TSE Ror Repair

NSP1

#105	ACSM	SP	Fran	RBC
#126	ACEX-CK	SP	Penn↗	QBC
#162	ACEX-CK	SP	want↗	QBC
#171	ACEX-CK	SP	You won't↗	QBC
#173	ODCQ	SP	You won't what?	QBC
#329	ACEX-CK	SP	the Greens↗	QBC
#418	ACSM	SP	F-I	RBC
#427	ACEX-CK	SP	Mom↗	QBC

Out of 158 Long Back-Channels, 8 (5%) resulted in repair.

NSP2

#2646	ACEX-CK	SP	corn↗	QBC

Out of 196 Long Back-Channels, 1 (.1%) resulted in repair.

NSP3

#987	ACEX-CK	SP	Just a test↗	QBC
#1023	ACSM	SP	Did it	RBC
#1040	ACSM	SP	it	RBC
#1283	ACGS-CK	SP	J↗	QBC
#1353	ACEX	SP	Getting	EBC

Out of 251 Long Back-Channels, 5 (2%) resulted in repair.

NSP4

No SP TSEs exist in this corpus

Out of 94 Long Back-Channels, 0 (0%) resulted in repair.

APPENDIX R5 continued

NSP5

#1444	ACRP	SP	Dot	RBC
#1566	ACEX-CK	SP	party↗	QBC
#1569	RQYN	SP	Is it a special party?	QBC
#1685	ACEX-CK	SP	Two-hundred miles↗	QBC
#1711	ACRP-CK	SP	Ralphie↗	QBC
#1764	ACRP	SP	I	RBC
#1808	ACEX	SP	a friend	EBC
#1904	ACRP-CK	SP	p↗	QBC

Out of 182 Long Back-Channels, 8 (4%) resulted in repair.

NSP6

#2053	ACEX-CK	SP	indirect↗	QBC
#2102	ACSM	SP	must	RBC
#2152	ACEX	SP	other	EBC
#2159	ACEX	SP	they	EBC
#2196	ACSM	SP	with	RBC
#2249	ACRP	SP	when	RBC
#2270	ACEX	SP	game	EBC

Out of 132 Long Back-Channels, 7 (5%) resulted in repair.

APPENDIX R6

Composite Act Sequences Per Dyad
Number Of Back-Channels/Total C-Acts Produced

NSP1

Do you like football? (I)	17 C-acts	9 back-channels
What is your favorite team? (I)	11 C-acts	6 back-channels
I love the steelers. (E)	9 C-acts	5 back-channels
Mean Joe Green. (E)	7 C-acts	4 back-channels
Franco. (I)	19 C-acts	12 back-channels
Pitt. (E)	10 C-acts	7 back-channels
I won ten dollars from Tom. (E)	37 C-acts	28 back-channels
Bad. (R)	6 C-acts	3 back-channels
The Jets. (I)	9 C-acts	5 back-channels
Steelers and Dallas. (R)	15 C-acts	9 back-channels
Throw. (R)	7 C-acts	4 back-channels
Forty five. (R)	5 C-acts	3 back-channels
Passing. (R)	3 C-acts	2 back-channels
The Steelers the greatest players. (I)	55 C-acts	36 back-channels
Money. (I/R)	10 C-acts	5 back-channels
I like to have a lot. (E)	20 C-acts	11 back-channels
From my dad. (R)	19 C-acts	12 back-channels
Bet. (R)	8 C-acts	5 back-channels
On the Yanks. (R)	13 C-acts	7 back-channels
50 dollars. (R)	9 C-acts	6 back-channels
Buy a stereo. (R)	21 C-acts	12 back-channels
TOTALS: 21 composite C-acts with:	310 C-acts	191 back-channels

APPENDIX R6 (continued)

NSP2

We are going to stay home. (R)		
	32 C-acts	19 back-channels
My aunt. (R)		
	17 C-acts	13 back-channels
My cousin. (R)		
	18 C-acts	11 back-channels
Boy. (R)		
	10 C-acts	9 back-channels
Older. (R)		
	10 C-acts	5 back-channels
His name is Craig. (I/E)		
	32 C-acts	22 back-channels
Charlie. (R)		
	28 C-acts	22 back-channels
Older. (R)		
	7 C-acts	6 back-channels
Take a walk. (R)		
	20 C-acts	12 back-channels
Turkey. (R)		
	13 C-acts	7 back-channels
Cranberry. (R)		
	33 C-acts	24 back-channels
Watch football. (R/E)		
	17 C-acts	9 back-channels
The Lions. (R)		
	27 C-acts	18 back-channels
Giants. (R)		
	15 C-acts	9 back-channels
Last night. (R/E)		
	20 C-acts	11 back-channels
TOTALS:		
15 composite C-acts with:	299 C-acts	197 back-channels

NSP3

Last night I got back my midterm. (I)		
	53 C-acts	34 back-channels
I missed by eleven. (R)		
	26 C-acts	15 back-channels
Computer. (R)		
	12 C-acts	8 back-channels
But I am passing physics. (E/I)		
	38 C-acts	24 back-channels
Just test. (E/R)		
	20 C-acts	16 back-channels
Did I tell you my major? (I)		
	67 C-acts	47 back-channels

It is just guessing. (E)	28 C-acts	17 back-channels
Worst. (R)	11 C-acts	6 back-channels
That is a fact. (R)	21 C-acts	13 back-channels
Very cold. (R)	9 C-acts	5 back-channels
Late January. (E)	22 C-acts	14 back-channels
So soon? (I)	40 C-acts	26 back-channels
But I didn't know you were engaged. (E)	81 C-acts	53 back-channels
Why? (E)	9 C-acts	6 back-channels
You should. (E)	14 C-acts	8 back-channels
TOTAL: 15 composite C-acts with:	451 C-acts	292 back-channels

NSP4

Football. (I/E)	8 C-acts	4 back-channels
They were good. (R)	7 C-acts	3 back-channels
Ninety nine. (R)	5 C-acts	2 back-channels
Number. (R)	9 C-acts	6 back-channels
He was hitting hard. (R)	33 C-acts	19 back-channels
He not-made a mistake starting over. (E/I)	13 C-acts	8 back-channels
Change activities. (I)	7 C-acts	4 back-channels
Pirates. (I/R)	13 C-acts	9 back-channels
They are second place.(I/R)	20 C-acts	12 back-channels
Montreal. (R)	10 C-acts	4 back-channels
3, 4 games out. (E/R)	13 C-acts	8 back-channels
You know me. (E)	10 C-acts	6 back-channels
TOTAL: 12 composite C-acts with:	148 C-acts	85 back-channels

NSP5

My friend Chris is staying with me on October 11 to the 12. (I)	52 C-acts	32 back-channels
Eleven months. (R)	18 C-acts	12 back-channels
I arranged to give my parents a vacation. (R)	53 C-acts	33 back-channels
And I will have a vacation (from them). (E)	13 C-acts	7 back-channels
New Jersey. (R)	12 C-acts	7 back-channels
I wanted to send them to the gambling area but it is two hundred dollars. (E/R)	45 C-acts	26 back-channels
Take Nicole and David to the Long Island Game Farm. (R)	50 C-acts	28 back-channels
It is important to have a close friend. (I)	32 C-acts	17 back-channels
I have friends here but they cannot read my board. (E)	27 C-acts	13 back-channels
Just John and Mike. (E)	11 C-acts	6 back-channels
Steve keeps pushing the workshop. (I/R)	46 C-acts	27 back-channels
TOTAL:		
11 composite C-acts with:	359 C-acts	208 back-channels

NSP6

Myself I prefer a communication board as to a machine. (I)	26 C-acts	15 back-channels
I feel it takes away my personality, if you know what I mean. (R)	24 C-acts	14 back-channels
It's like talking to a robot. (E)	15 C-acts	8 back-channels
This gives me the human feeling. (E/R)	16 C-acts	10 back-channels

APPENDIX R6 continued

I can't see myself talking with a woman with a talking machine. (E)		
	30 C-acts	16 back-channels
It's a hinderance for me. (E)		
	21 C-acts	15 back-channels
Many people look at the machine. (E/I)		
	14 C-acts	8 back-channels
With the board they mostly relate to me better. (E)		
	32 C-acts	24 back-channels
With people who don't know me I use the board (more). (E)		
	18 C-acts	11 back-channels
On the outside the board gives me the little help I need without having to use a machine. (E/I)		
	43 C-acts	26 back-channels
People will think it's a game. (E)		
	16 C-acts	10 back-channels
Sometimes. (R)		
	5 C-acts	3 back-channels
But with the machine that would be a gamble. (E)		
	27 C-acts	18 back-channels
People get scared of this, imagine a machine. (E/I)		
	19 C-acts	11 back-channels
The Cannon I will use in certain situations. (R/E)		
	16 C-acts	9 back-channels
TOTALS:		
15 composite C-acts with:	322 C-acts	198 back-channels

The Following Notations Were Used Above:

(I) = C-act initiated new topical information.

(R) = C-act responded to question within ongoing topic.

(E) = C-act expanded upon information within ongoing topic.

APPENDIX R7

Back-Channel Distribution Within Whole Or Composite C-Acts
By Dyad

NSP1

	DYAD	SP	NSP
TOTAL BACK-CHANNELS PRODUCED:	237	175	62
TOTAL WITHIN WHOLE C-ACTS:	46	25	21
TOTAL WITHIN COMPOSITE C-ACTS:	191	150	41

Distribution Within Whole C-acts:

	SP		NSP
ABC	10	ABC	13
RBC	1	BBC	8
QBC	14		
EBC	0		21
CBC	0		
	25		

Distribution Within Composite C-acts:

	SP		NSP
ABC	7	ABC	0
RBC	102	BBC	41
QBC	33		
EBC	8		41
CBC	0		
	150		

NSP2

	DYAD	SP	NSP
TOTAL BACK-CHANNELS PRODUCED:	284	212	72
TOTAL WITHIN WHOLE C-ACTS:	87	56	31
TOTAL WITHIN COMPOSITE C-ACTS:	197	156	41

Distribution Within Whole C-acts:

	SP		NSP
ABC	9	ABC	0
RBC	9	BBC	31
QBC	15		
EBC	2		31
CBC	21		
	56		

Distribution Within Composite C-acts:

	SP		NSP
ABC	3	ABC	0
RBC	104	BBC	41
QBC	32		
EBC	3		41
CBC	14		
	156		

APPENDIX R7 continued

NSP3

	DYAD	SP	NSP
TOTAL BACK-CHANNELS PRODUCED:	350	278	72
TOTAL WITHIN WHOLE C-ACTS:	58	42	16
TOTAL WITHIN COMPOSITE C-ACTS:	292	236	56

Distribution Within Whole C-acts:

	SP		NSP
ABC	12	ABC	7
RBC	16	BBC	9
QBC	12		
EBC	2		16
CBC	0		
	42		

Distribution Within Composite C-acts:

	SP		NSP
ABC	14	ABC	0
RBC	172	BBC	56
QBC	30		
EBC	19		56
CBC	1		
	236		

NSP4

	DYAD	SP	NSP
TOTAL BACK-CHANNELS PRODUCED:	129	102	27
TOTAL WITHIN C-ACTS:	44	29	15
TOTAL WITHIN COMPOSITE C-ACTS:	85	73	12

Distribution Within Whole C-acts:

	SP		NSP
ABC	6	ABC	8
RBC	9	BBC	7
QBC	10		
EBC	1		15
CBC	3		
	29		

Distribution Within Composite C-acts:

	SP		NSP
ABC	2	ABC	0
RBC	61	BBC	12
QBC	7		
EBC	3		12
CBC	0		
	73		

APPENDIX R7 continued

NSP5

	DYAD	SP	NSP
TOTAL BACK-CHANNELS PRODUCED:	247	207	40
TOTAL WITHIN WHOLE C-ACTS:	39	28	11
TOTAL WITHIN COMPOSITE C-ACTS:	208	179	29

Distribution Within Whole C-acts:

	SP		NSP
ABC	17	ABC	4
RBC	6	BBC	7
QBC	5		
EBC	0		11
CBC	0		
	28		

Distribution Within Composite C-acts:

	SP		NSP
ABC	7	ABC	0
RBC	133	BBC	29
QBC	29		
EBC	9		29
CBC	1		
	179		

NSP6

	DYAD	SP	NSP
TOTAL BACK-CHANNELS PRODUCED:	233	172	61
TOTAL WITHIN WHOLE C-ACTS:	35	22	13
TOTAL WITHIN COMPOSITE C-ACTS:	198	150	48

Distribution Within Whole C-acts:

	SP		NSP
ABC	16	ABC	7
RBC	3	BBC	6
QBC	1		
EBC	2		13
CBC	0		
	22		

Distribution Within Composite C-acts:

	SP		NSP
ABC	24	ABC	0
RBC	65	BBC	48
QBC	14		
EBC	45		48
CBC	2		
	150		

APPENDIX R8

Back-Channel Type Frequency Distribution Across Six Dyads

Across Whole Acts (W)
vs.
Co-Constructed Acts (C)

Dyad		SP RBC	SP EBC	SP QBC	SP CBC	SP ABC	NSP ABC	NSP BBC
#1	W	1	0	14	0	10	13	8
#1	C	102	8	33	0	7	0	41
#2	W	9	2	15	21	9	0	31
#2	C	104	3	32	14	3	0	41
#3	W	16	2	12	0	12	7	9
#3	C	172	19	30	1	14	0	56
#4	W	9	1	10	3	6	8	7
#4	C	61	3	7	0	2	0	12
#5	W	6	0	5	0	17	4	7
#5	C	133	9	29	1	7	0	29
#6	W	3	2	1	0	16	7	6
#6	C	65	45	14	2	24	0	48

Totals Across The Six Dyads

#1-6 W	44	7	57	24	70	39	68
#1-6 C	634	87	145	18	57	0	227

Total Back-Channels Produced Per Dyad

Across Whole Acts (W)
vs.
Co-Constructed Acts (C)

	Dyad 1	Dyad 2	Dyad 3	Dyad 4	Dyad 5	Dyad 6
W	46	87	58	44	39	35
C	191	197	292	85	208	198

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