
HOW TO KNOW A CONVERSATION
WHEN YOU SEE ONE:
DISCOURSE STRUCTURE IN AMERICAN
SIGN LANGUAGE CONVERSATIONS

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Previous research on American Sign Language (ASL) has concentrated almost entirely on the structural characteristics of signs and their combinations into sentence-sized units (see Wilbur, 1979, for review). Even those investigators who addressed aspects of the macrostructure of discourse (Baker, 1976, 1977; Baker and Padden, 1978; Covington, 1973) focused on features which concern utterance boundaries and turn-taking. Recent discussions of topic (Friedman, 1976; Coulter, 1979) have focused entirely on the grammatical debate of subject vs. topic prominent language typology, and not on the discourse realm. No characterization of the "conversational contract" between native signers has yet been provided. The information concerning the structure of ASL which has become available in the last ten years now allows us to attempt a description of the "conversational contract" in ASL, that is, the topic flow and the grammatical devices used to initiate, maintain, and terminate topics within a conversation. The implications of such a description for understanding communication between native and non-native signers, between ASL-signing parents and their children, and finally between deaf children and educational and language specialists can now be examined.

Recent pragmatic research on units larger than sentences have provided frameworks for describing stories (Mandler, 1978; Stein and Glenn, 1979), texts (Kintsch, 1977; Rumelhart, 1977) and general comprehension of

prose (Clark, 1977; Kintsch and Kozminsky, 1977; Meyer, 1975; Just and Carpenter, 1977). Such descriptions include units the size of episodes, with subparts such as settings, beginnings or initiating events, reactions, attempts, outcomes, and endings. These frameworks are useful for analyzing conversations insofar as conversations may contain identifiable episodes (e.g., "Let me tell you what happened to John last week. . ."). To the extent that conversations involve less narrative and more turn-taking, story or text grammars must be supplemented by more fine-grained analyses. Various aspects of conversational structure have been dealt with by Haviland and Clark (1974), Gordon and Lakoff (1971), Grice (1968), Searle (1969), Sacks, Schegloff, and Jefferson (1974), Keenan (1977), Keenan and Schieffelin (1976), and Ochs and Schieffelin (1979). These aspects include the Given-New contract, conversational postulates (sincerity, reasonableness, etc.), routines for establishing and changing the topic, "repairs" (hesitations, self-corrections, misunderstandings), and incorporating non-linguistic context into the conversation (eye gaze, pointing, reaching, handing, showing, etc.). Adherence to the Given-New contract in consideration of the listener's efforts to follow the sender has been described by Haviland and Clark (1974). The importance of the distinction between Given and New information has resulted in the inclusion of discussions of such structures as anaphoric and deictic pronominalization, determiner use, ellipsis, topicalization, and various forms of clefting.

Keenan and Schieffelin (1976) describe the procedures by which two partners establish, maintain, and change conversation, or discourse, topics. They consider a discourse to be "any sequence of two or more utterances produced by a single speaker or by two or more speakers interacting with one another" (p. 340). A discourse may contain several linked discourse topics. Linking may be accomplished by "topic collaborating," where a topic exactly matches that of the immediately preceding utterance, or "topic incorporating," where a claim or presupposition of a preceding utterance becomes the new discourse topic. If the topic is not maintained through collaboration or incorporation, a new topic may be introduced or a previous topic may be reintroduced. Various techniques are available for establishing each of these topics. For example, topic collaborating may be accomplished by exactly repeating the topic from the preceding utterance; topic reintroduction is generally preceded by stock phrases of the type "getting back to . . ."; new topics may be introduced by phrases such as "not to change the topic but . . ." or "that reminds me. . ."

The mechanisms by which the turns themselves are regulated have been described in considerable detail (Goffman, 1964; Kendon, 1967; Duncan, 1972; 1973; Condon and Ogston, 1966, 1967; Ekman and Friesen, 1969; Weiner, Devoe, Rubinow, and Geller, 1972). Conversational partners provide each other with cues as to whether the turn will be

continued or the floor will be yielded. Kendon (1976) reports that the speaker may give the floor to the listener by sustaining eye gaze, and that the listener may then look away as he begins his turn. Similarly, Duncan (1973) reports that the speaker's gestures can indicate to the listener that an interruption is not welcome. Duncan (1972) identified several cues which the speaker gives to signal the end of a turn. These include the end of a gesture, rising or falling intonation, and increased duration of the last syllable. Duncan (1973) also described the appropriate form and timing of listener back channel cues which serve to indicate to the speaker that the listener is following the conversation and that the speaker may continue.

The degree to which turn-taking regulators and conversational structure may be modified by modality differences in ASL is of interest. Baker (1977) describes in detail devices which control turn-taking procedures in ASL. Using the classification system developed by Weiner and Devoe (1974) for spoken language dyadic conversations, Baker analyzed conversations between two sets of deaf signers. Weiner and Devoe identified four conversational regulator sets: initiation, continuation, shifting turns, and termination. Within these sets, the devices used by sender and addressee may be different. Baker observed that a signer would initiate a turn by raising the hands into the signing space, followed by various optional methods of obtaining the receiver's attention (pointing, touching, waving a hand in front of the face) (also described in Stokoe, Casterline, and Croneberg, 1965). The initiation of a turn might be accompanied by leaning forward, and looking away from the receiver (except in the case of questions). The receiver must continue to look at the signer as a signal that the signer may continue signing. To indicate that signing will continue, even after a proposition is completed or a pause, the signer may avoid eye contact, increase the rate of signing, and keep the hands in the signing space. The receiver indicates that continuation may proceed by maintaining eye gaze toward the signer, headnodding, smiling, and other minor back channel signals, and occasionally by short repetitions of some of the signer's signs. To shift turns, signers may signal with eye gaze, a decrease in signing speed, pointing to the receiver, holding and/or raising the last sign, using question intonation (facial expression or body posture), and returning the hands to rest position outside the signing space. The receiver may signal a desire for the floor by raising the hands into the signing space, increasing size and quantity of head nodding, averting eye gaze, leaning forward, or actually beginning to sign until the signer has stopped or has successfully resisted interruption.

Whereas the focus of the Baker study was turntaking, the present study further investigates the topic structure as it flows through the conversation. In particular, we provide a description of the flow of discourse topics, and a description of devices which are used to accomplish the initiation, maintenance and termination of topics within an ASL conversation.

METHOD

Data Collection

Two signers Ned and Edith, who knew each other well, were videotaped as they were engaged in casual conversation. Two cameras were used, one focused on each signer, with a special effects generator to render a split-screen image. Food and drink were available and there was every indication that the signers were intently focused on the topics of their discussion. The data described here is part of a large corpus (nearly three hours) of signed conversations between several sets of native signers. The signers knew they were being recorded, and, to encourage natural signing, were told that the tapes would be used as a final exam to determine whether students in the advanced ASL class were in fact able to understand "real" ASL conversations.

Tape Transcription

Extensive procedures were followed to ensure that all information in the signer's utterances were fully represented in the transcript. All grammatical information was recorded, with special attention paid to such salient devices as head and body movement, use of space, eye gaze (sight line) information, brow and facial movements, etc. Semantic-syntactic units, or utterances, were parsed from examination of the signer's own rhythmic clustering of signs, placement and duration of the signer's pauses, use of linguistic devices (e.g., head and body shifts, eye gaze, etc.), semantic and syntactic information, and placement of the receiver's nods and interruptions.

In the examples from the transcripts which are given below, pointing signs are indicated with the abbreviation Pt. followed by the person or thing referred to by the point. For example, Pt: PRO .I means that a pointing sign was made by the signer to refer to himself (the pronoun has 1st person reference). This sign is often glossed in other sign language studies as I or ME depending on the context.

Coding

The utterances were coded for their role in the discourse topic flow and for their role in turn-taking. Using the Keenan and Schieffelin model (1976), individual utterances were determined to be either continuous or discontinuous discourse sequences. Continuous discourse sequences were either Topic Collaborating (sender and receiver communicate about the same topic over two or more utterances), or Topic Incorporating (information from an immediately preceding topic is integrated to introduce

a new discourse topic). Discontinuous sequences were either a reintroduction of a previous (earlier) discourse topic, or the introduction of a totally new discourse topic. Decisions were made using the previous utterance to determine Incorporating or Collaborating, after which a review for consistency was done, based on longer sequences.

Turns were either naturally terminated by the sender or terminated as a result of an interruption by the receiver. Interruptions by the receiver were determined to be either attempts to take the floor (both successfully or unsuccessfully) or utterances interjected with no apparent intent to take the floor. Specific methods used by the receiver to interrupt and any attempt by the sender to resist an interruption were also noted in the transcript. The precise onset times of interruptions were determined by using the slow motion speed-control on the video recorder and a stop watch.

RESULTS

Description of Topic Flow

There were eight different discourse topics and two reintroductions of previously discussed topics for a total of nine topic shifts. There were approximately 25 utterances per topic. The topics all revolve around Ned's baby daughter, who is eight months old. The topic flow proceeded as follows:

- A. The procedures and advisability of hearing tests (topic 1) (the tape starts with Topic 1 in progress)
- B. Whether the baby is deaf or hearing (topic 2)
- C. How the baby's hearing helps her deaf parents (topic 3)
- D. The advisability of hearing tests (reintroduction of topic 1)
- E. The baby reaches and eats everything (topic 4)
- F. The development of language and speech in the baby (topic 5)
- G. Children's education TV (topic 6)
- H. Language development in the baby (reintroduction of topic 5)
- I. The baby's dependence on her mother (topic 7)
- J. Ned's wife's sickness and the discontinuation of breast feeding (topic 8)

In terms of Keenan's and Schieffelin's (1976) dichotomy of topic incorporating and topic collaborating, we observed that as predicted all new topics were established through an incorporating procedure. The following example illustrates the shift from topic 1, hearing tests, to topic 2, knowing that the baby is hearing (without the need for hearing tests). Edith accomplishes this shift by incorporating the topic of hearing tests into the new topic of how she knew her baby was hearing with the sequence [MY DAUGHTER BORN TEST NEVER] "When my daughter was born, she was never tested," [(Pt.:PRO.1) CAN HEARING] "I could tell she was hearing," . . .

Setting: Ned has been describing the hearing test, and indicates to Edith that there is only one more to go. Ned indicates that his motive is to get a certificate to attest to the child's status for school purposes.

Turn information:

Ned has the floor

N: [NEG]
[THIS SAY HEARING, THIS]
(I can't say "no" because the paper will prove that she is hearing.)

Edith takes the floor

E: [BUT, BUT KNOW MEAN]
(But I know what you mean.)
E: [MY DAUGHTER BORN TEST NEVER]
(When my daughter was born, I wouldn't let her be tested (she was never tested))
E: [(PL, PRO, I) CAN HEARING]
(I could tell she was hearing.)
-D
E: [BABY KISS-AIR, BABY BLINK]
(When I held her in my arms and "kissed" at her, she would blink (with surprise))
E: [KNOW HEARING][FINISH]-
(I know she was hearing, that's all there was to it.)

Ned interrupts, Edith finishes and yields

N: [RIGHT, RIGHT]
(Right, I know what you mean.)
N: [(PL, PRO, I) SAME]
(It was the same for me.)
N: [FIRST DAY BORN, BORN FINISH, NOISE DROP]
(The first day my baby was born, something dropped and made a noise.)
N: [THINK (PL, PRO, I) DROP SOMETHING, (PL, PRO, I) DROP]
(I think I dropped something.)
N: [BLINK]
(The baby blinked (with surprise))
N: [(PL, PRO, I) FREEZE] (pause) [FINISH!]
(I just froze . . . That was it! I know!)

The preceding example is representative of the incorporating topic shifts. The reintroduction of topics 1 and 5 utilized a discontinuous procedure. In the next example, the reintroduction of topic 1, Edith begins the

utterance which shifts the topic back with the sign THEN, used in the sense that everything which they have discussed so far leads to the conclusion which she then presents, namely that a hearing test is not necessary (topic 1).

Setting: After an extensive discussion of how the baby's hearing helps Ned, Edith brings up the hearing test issue again.

Turn information:

Ned has the floor	N: [(Pro: baby) CAN HEAR FOOTSTEPS] (But the baby can hear the footsteps.)
	N: [MANY] (She helps) in many ways.)
	+D
Edith takes the floor and shifts the topic	E: [THEN SAY NO TO WANT TEST] (Then say no to wanting the baby tested.)
	NEG
	E: [GO AWAY][BOTHER] (Tell the doctor to) go away. Don't bother with it.)
Ned takes the floor and takes up the topic	N: [[TIME PAST 3-MONTHS][YOUNG, (Pro: be) WANT]] (Three months ago, when the baby was young, he wanted its test her). . .)

In the other example of discontinuous topic shift, the break in topic flow is signalled by the lexical item BUT as Ned tries to counter Edith by telling her how much the baby already understands:

Setting: Edith is still telling Ned the baby will learn from the TV and that by 8 or 9 months, the baby will understand more.

Turn information:

Edith has the floor	E: [[LEARN, LISTEN][FEEL 8, 9, MIND-WILL-EXPAND] + [UNDERSTAND WILL]] (With the TV, the child will listen and learn. I feel that by 8 or 9 months, the child's mind will expand and it will understand more.)
Ned takes the floor and shifts back to his daughter.	N: [[BUT NOW 8 MONTH][BUT ANSWER MUCH]] (But now she's 8 months old and already she is responding to a lot.)

Ned then continues to give a long explanation of what the baby already understands.

Initiating, Maintaining, and Terminating

At this point, turntaking interacts with topic flow. A total of 83 turns were analyzed, 42 for Ned and 41 for Edith. Devices which are used to initiate, maintain, and terminate a turn are also used to initiate and maintain a topic. Topics do not appear to be formally terminated, they merely fade into other topics through incorporation or are dropped when a discontinuous topic shift occurs. In the discussion which follows, each of the devices will be looked at for its role in the topic structure.

Topic initiation

A frequent technique for introducing a new topic is to accompany a declarative statement with an affirmative nod. This indicates approval or agreement with the preceding information, followed by new information which allows a shift in topic. This technique was used at the start of topics 4, 6, 7, and 8.

Another technique for introducing a new topic is negative nod. A declarative statement may be accompanied by a negation nod to introduce a topic, as was observed in topic 5. At the end of topic 4, Ned comments that the baby cannot yet communicate, that she doesn't understand yet, she's

NEG

only 8 months old. As Ned signs UNDERSTAND 'NOT YET', Edith be-

NEG

gins her signing of 'NOT YET' BABY NOW EIGHT . . . MONTH. As she reaches the middle of her utterance, Ned realizes that Edith is talking about the baby's age and signs EIGHT, which Edith acknowledges and then continues into her discussion of how the baby is old enough to be taught to speak and how her daughter began talking at six months (topic 5). (Note the lexical copying of 'NOT-YET' and EIGHT between the two signers. This device will be discussed below.)

No head nod appears when topic 1 is reintroduced. The approval or agreement which would be signified by the nod is incompatible with Edith's challenge to Ned that if he has so much evidence that the child is hearing (topic 3), the baby obviously doesn't need a hearing test (as discussed in topic 1). Thus, she states without a head nod what is translated in English as "then say that you don't want the baby tested." Pragmatically, this has the force of a directive.

Another declarative form without a head nod includes the utterance initial BUT, which syntactically and semantically signals that information of some contradictory nature is to follow. At the end of topic 1, Ned indicates that an official document which proves that the baby is hearing will allow him to enroll the child in school. Edith responds [BUT BUT KNOW MEAN][MY DAUGHTER BORN TEST NEVER]. The inclusion of KNOW MEAN "I know what you mean" indicates agreement with Ned, which serves to maintain the conversational contract. However, the remaining content "but, when my daughter born, I never let her be tested" is both a change in topic to how one knows if the baby is hearing or deaf (topic 2) and Edith's implied criticism of Ned's permitting his baby to be tested. Thus, the "I know what you mean" softens the blow and allows Edith to continue the conversation while changing the topic. BUT is also used to reintroduce topic 5 (the baby's comprehension of language). Edith has concluded her turn at the end of topic 6 with her feelings that by 8 or 9 months, the baby's mind expands and comprehension increases. Ned begins the reintroduction of how much the baby already understands by responding [BUT NOW 8 MONTH][BUT ANSWER MUCH] "but now she's 8 months old and already she's responding a lot."

One final device which was observed to introduce a topic is the use of a

QF

yes/no question KNOW THAT "did you know that?". Ned uses this device to introduce topic 3, how the baby's hearing helps deaf parents, by reporting to Edith that he now has a TTY and asking for confirmation from Edith that it is okay to continue with that topic.

Maintainers

Topic maintainers involve several classes of devices. First, we will consider those collaborating devices which are used to initiate a turn without changing the topic, question-answer pairs, lexical copying, special lexical items, and the use of back-channel head nods as signals from receiver to sender. These devices are more varied than those observed to introduce new topics. This may be a result of the large number of turns observed (83) compared to the smaller number of topic shifts (9). Interestingly, all of the devices used to start new topics were used at least once as a topic maintainer, suggesting that the devices alone are not sufficient to indicate topic shift, but that a complex of cues, including explicit content, presuppositions, and previous dyadic interaction, are also necessary.

Of those devices already discussed, declaratives accompanied by affirmation nods constituted 37% of all turn initiators which maintained topic. Declaratives with negation nods constituted 8%, and declaratives with no nods constituted 29%. The use of BUT accounted for 3%, including one use of BUT accompanied by an affirmative nod. This nod served the same

purpose as the "I know what you mean" discussed in connection with the introduction of topic 2. Question forms initiated 14.5% of the turns in non-topic changing situations, of which 3% were of the form "did you know that...?"

The remaining devices in topic maintenance situations included the remaining question forms, question/answer pairs, lexical copy, specific lexical items of agreement, and back-channel head nods. The question forms are either yes/no questions or wh-questions. The use of questions directed to the receiver (with subsequent answer by the receiver) represented the most frequent inter-turn strategy for maintaining a topic. This contrasts with question/answer pairs (of which there were only 2) where the sender both asks and answers his own question. For example, during the discussion of topic 3, Ned states that he can tell when someone is approaching by watching where the baby is looking. The person approaching is surprised that Ned is aware of his presence and asks how

QF

Ned knows HOW (Pt:PRO.1) KNOW "How do I know?". Ned answers his report of this question with (Pro: baby) TELL-ME "The baby tells me. (That's how)." In the other instance, Ned asks, "why does the baby depend on her mother?" and then answers his own questions with "after she was born, she was breast-fed for three months."

Lexical copy, specific lexical items of agreement, and back-channel head nods all seem to contribute to reassuring the other partner that communication has been successful. The back-channel head nods, which the signer might stop and look to receive, provide confirmation that the signer is being followed and presumably understood. The lexical items of agreement included RIGHT, SAME, WOW, WELL. By far the most frequent was the use of lexical copying. When the receiver takes the floor and becomes the signer, one or more of the signs from the preceding signer's turn is explicitly incorporated into the current signer's utterances. One illustration previously given was Edith's use of 'NOT-YET' and Ned's use of EIGHT as topic 4 is closed and topic 5 is started. In topic 3, Ned says that he figures that in 6 months from now, his daughter will be bigger, using the expression WILL BIG. Edith maintains this by signing [BIG][UNDERSTAND MORE] "when she's bigger, she'll understand more." It might be objected that it is tautological to say that repetition of lexical items is a device to maintain a topic when the topic is defined in terms of the lexical items. However, the topic, once established, becomes old information and presumably can be talked about through anaphoric or deictic reference, by comments which add new information leaving the topic as presupposed, or other elliptical constructions. That the signers are being explicit in their use of lexical repetition serves the function of reaffirming the present topic as well as indicating agreement between partners. In the first example given above, the topic is changing but the

agreement function is served. In the second example, both the topic confirmation and the agreement functions are served.

Terminators

As indicated at the beginning of this section, topics do not appear to be formally terminated, at least not in the manner that a telephone conversation is terminated (Schegloff and Sacks, 1973). Rather, topics are incorporated into other topics or are dropped when an abrupt topic change or topic reintroduction occurs. Thus, the terminators discussed here are simply turn terminators. Those devices which are being used when a turn is interrupted are not, strictly speaking, a turn terminator since they are not intended to end the turn but are caught at the end by an interruption. Thus, the majority of interrupted turns end in the middle of a declarative statement with the hands held up. Of interest here, then, are only those devices which are intended to end a turn, although this is not synonymous with intending to yield the floor.

There were naturally ending turns and interruptions. Of the total number of turns, 64 or 77%, ended naturally. The most frequent natural turn terminator is a combination of a declarative statement followed by dropping the hands (33% of the total natural turn terminators). Another frequent form is the declarative statement followed by the hands held up. Thus, contrary to previously held notions of ASL discourse, it is not always the case that the hands drop at the end of a natural turn. Question forms are also fairly frequent, followed by hands up (17%) and hands down (8%). Use of lexical items such as WELL, THAT'S ALL, and FINISH were more often followed by hands down (11%) than by hands up (5%). The remaining forms were emphatics (2% hands up, 2% hands down) and turns which consisted solely of head nods (13%).

Nineteen or 23% of the turns were ended by interruption. (Not all interruptions are intended to gain the floor. Some interruptions merely intend to comment or ask questions, but not to take the floor, and the turn ends naturally.) Interrupted turns were followed by hands held up in 90% of the cases and by hands down in the remaining 10%. Presumably, hands held up is a cue to the interruptor that the original signer would like to maintain or regain the floor. After varying amounts of interruptor signing, the interrupted signer either 1) gives up and drops his hands, or 2) regains the floor when the interruptor yields, or 3) regains the floor by interrupting the interruptor. The devices used to interrupt included those identified by Baker (1977): raising hands into the signing space, increasing the size and quantity of head nodding, averting eye gaze, and actually beginning to sign.

Of interest here are the devices which were used to resist the interruption. The signer may often resist an attempt to take the floor by holding

the hands up, allowing a brief comment or question by the receiver, and then re-taking the floor. In the following sequence, another resistance device, averted eye gaze, is also illustrated.

Setting: Edith is listing the daily educational programs that are on TV for children

Turn information:

- | | |
|--|---|
| Edith has the floor | E: [THEN, R-O-M-P-E-R ROOM
[hands remain up]
SECOND- /]
(. . . then, second is Romper Room- /
+ QF |
| Ned interrupts (1) | N: [NEG (pt.:ear) R-O-M-P-E-R - /]
(I never heard of Romper- / |
| Edith indicates that she will continue to hold the floor (Hands remain up) | E: [TEACH SCHOOL CHILDREN]
(It teaches school to children) |
| Ned interrupts (2) | N: [CLASS]

E: (E immediately averts eye gaze) |
| Edith indicates that she wishes to hold the floor (averts eye gaze) | E: [THINK MORNING THINK FEEL AFTER
CAPTAIN KA. . .] |

Another resistance device is to continue to sign, with or without looking away to break eye contact.

Setting: Edith is describing some home safety devices that he should use to prevent his baby from harming herself.

Turn information:

- | | |
|---------------------|--|
| Edith has the floor | E: [[PLUG HAVE NEW (class: round)][PUT
'PUSH-IN']

NEG
[FINGERS-IN SHOCK 'CAN'T][EVERY-
THING SAFE]]
(There is a new plastic device that can be pushed into the wall socket that prohibits the baby from putting her fingers into it. It makes everything safe.) |
|---------------------|--|

Ned unsuccessfully
tries to take the floor

N: [NODS (class: round) HAVE-:]
(Yes, that device I have-)

Edith continues to
hold the floor

E: [BABY LOVE 'PUT-IN-MOUTH']...

In addition to averted eye glaze, hands held up, and continuing to sign, leaning forward in a tensed position with the hands down was also observed as a means of informing the interruptor that the interruption was being resisted.

DISCUSSION AND IMPLICATIONS

The most obvious statement which can be made as a conclusion from the results obtained in this study is that American Sign Language conversations are structured in ways which parallel those reported for spoken languages. There appears to be a conversational contract between the signer and receiver as to the establishment and maintenance of topics in the discourse, the yielding of the floor, and the regulation of turns. Multiple cues are used to accomplish the orderly sequencing of turn-taking. Further, there appears to be no confusion resulting from the fact that the "back-channel" regulators are in the same visual modality as the primary linguistic communication system. That modality is not relevant to the description of the topic flow should not be surprising since topic flow is concerned primarily with semantic content.

Since we did not expect to find a linguistic or modality effect, why did we undertake the study? The question can be raised as to whether the topic incorporating/collaborating categorization system described by Keenan and Schieffelin (1976) is valid and appropriate for studying discourse structure. For the most part, the distinctions identified by Keenan and Schieffelin were applied consistently in the present study. There were several cases, however, in which consistent application produced inconsistent results. In particular, topic incorporating is supposed to be a procedure for moving from one topic to another, but in several instances, topic incorporating occurred but the topic did not shift. The reason for this discrepancy may be found in another framework, utilized by Shumway and Byrne (1980). They noted that topic initiation and topic establishment are separate procedures. Thus, one partner may try to initiate a new topic (through topic incorporation) but topic change will not occur unless the other partner helps establish the new topic ("establishment" is defined as "one comment . . . uttered by each conversational partner relevant to the same topic"). Thus, future conversational analyses should separate *attempts* at topic shift from *successful* topic shift. Another problem which requires attention is the apparent hierarchy of topics within a

conversation. The main one here is deafness, which is never shifted. The shifts which do occur are between subtopics within the main topic.

The acquisition of topic handling abilities in hearing children has been studied by a number of researchers (Keenan, 1977; Keenan and Klein, 1975; Keenan and Schieffelin, 1976; Ochs and Schieffelin, 1979). A more recent study of topic establishment and maintenance in mother-child discourse by Shumway and Byrne (1980) reported several interesting findings. Preschool aged children (3-10 and 5-11) engaged in conversations with their mothers maintained topics for an average of five to seven comments per topic, as compared to the average of twenty-five for the adult signers in the present study. The authors reported that the children maintained topics "with equal facility regardless of whether the mother or child initiated the topic." Further, the mothers did not tend to control topic initiation, maintenance, or termination. Shumway and Byrne did not find evidence of developmental stages associated with age or linguistic maturity, indicating that the conversational skills which were measured in their study were fully developed in hearing children before age 4. Comparable studies of the interaction of deaf children with their parents, peers, and classroom teachers will have to be conducted. The one study so far (Prinz and Prinz, 1980) suggests that deaf children of deaf parents do acquire discourse skills in a manner parallel to hearing children.

It is the characterization of what is normal signing conversation such as the one presented here which allows a clear perspective on what is not a normal conversation. To the extent that the conversation reported on in the present study is representative of other ASL conversations and that the framework used provides valid descriptive results, the present study can serve as a norm against which acquisition of conversational competence by children learning ASL can be compared. Parent-child and teacher-student interaction can also be gauged, as can the competence of deaf individuals whose mental, emotional, intellectual, or sociolinguistic capabilities are in doubt.

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REFERENCES

- BAKER, C. What's not on the other hand in American Sign Language. In Mufwene, S., Walker, C., and Stoevov, S., (eds.) *Papers from the Twelfth Regional Meeting, Chicago Linguistic Society*, Chicago: The University of Chicago Press, 1978.

- BAKER, C. Regulators and turn-taking in American Sign Language discourse. In Friedman, L. (ed.) *On the Other Hand: New Perspectives on American Sign Language*. New York: Academic Press, 1977.
- BAKER, C. and PADDEN, C. Focusing on the nonmanual components of American Sign Language. In Siple, P. (ed.) *Understanding language through Sign Language Research*. New York: Academic Press, 1978.
- CONDON, W. and OGDON, W. Sound film analysis of normal and pathological behavior patterns. *Journal of Nervous and Mental Disease*, 1966, 143, 338-384.
- CONDON, W. and OGDON, W. A segmentation of behavior. *Journal of Psychiatric Research*, 1967, 5, 221-235.
- COULTER, G. *American Sign Language Typology*. Unpublished doctoral dissertation, University of California, San Diego, 1979.
- CONINGTON, V. Juncture in American Sign Language. *Sign Language Studies*, 1973, 2, 29-38.
- CLARK, H. Inference in comprehensions. In LaBerge, D. and Samuels, S. (eds.) *Basic Process in Reading: Perception and Comprehension*. Lawrence Erlbaum Associates, Hillsdale, N.J., 1977.
- DUNCAN, S. Jr. Some signals and rules for taking speaking turns in conversation. *Journal of Personality and Social Psychology*, 1972, 23, 283-292.
- DUNCAN, S. Jr. Toward a grammar for dyadic conversation. *Semiotica*, 1973, 9, 28-46.
- ERMAN, P. and FRENCH, W. The repertoire of non-verbal behavior. *Semiotica*, 1969, 1, 1-20.
- FRIEDMAN, L. (1976) The manifestation of subject, object, and topic in American Sign Language. In Li, C. (ed.) *Subject and Topic*. New York: Academic Press, 1978.
- GOFFMAN, E. Discussion. In Selbeck, T., Hayes, A., and Bateson, M. (eds.) *Approaches to Semiotics*. Mouton, The Hague, 1964.
- GORDON, D. and LAKOFF, G. Conversational postulates. In *Papers from the Seventh Regional Meeting, Chicago Linguistic Society*. Chicago Linguistic Society, Chicago, 1971.
- GRICE, H. (1967) William James Lectures, Harvard University. Published in part as "Logic and conversation." In Cole, P. and Morgan, J. (eds.) *Syntax and Semantics, volume 2: Speech Acts*. New York: Seminar Press, 1967.
- HAVILAND, S. and CLARK, H. What's new? Acquiring new information as a process in comprehension. *Journal of Verbal Learning and Verbal Behavior*, 1974, 13, 512-521.
- JUST, M. and CARPENTER, P. (eds.) *Cognitive Processes in Comprehension*. Lawrence Erlbaum Associates, Hillsdale, N.J., 1977.
- KEENAN, E. O. Making it last: Uses of repetition in children's discourse. In Ervin-Tripp, S. and Mitchell-Kernan, C. (eds.) *Child Discourse*. New York: Academic Press, 1977.
- KEENAN, E. O. and KLEIN, E. Coherency in children's discourse. *Journal of Psycholinguistic Research*, 1975, 4, 365-378.
- KEENAN, E. O. and SCHIEFFELIN, B. Topic as discourse notion: A study of topic in the conversations of children and adults. In Li, C. (ed.) *Subject and Topic*. New York: Academic Press, 1976.
- KENDON, A. Some functions of gaze-direction in social interaction. *Acta Psychologica*, 1967, 26, 22-63.
- KENDON, A. The F-formation system: The spatial organization of social encounters. *Man-Environment Systems*, 1976, 6, 291-296.
- KINTSCH, W. On comprehending stories. In Just, M. and Carpenter, P. (eds.) *Cognitive Processes in Comprehension*. Lawrence Erlbaum Associates, Hillsdale, N.J., 1977.
- KINTSCH, W. and KOZMINSKY, E. Summarizing stories after reading and listening. *Journal of Educational Psychology*, 1977, 69, 491-499.
- MANDLER, J. A code in the mode: The use of story scheme in retrieval. *Discourse Processes*, 1978, 1, 14-35.
- MEYER, H. J. F. *The Organization of Prose and its Effects on Memory*. North-Holland Publishing, Amsterdam, 1975.
- OGDS, E. and SCHIEFFELIN, B. *Developmental Pragmatics*. New York: Academic Press, 1979.
- PRINZ, P. and PRINZ, K. Discourse development in American Sign Language. Presented at the National Symposium on Sign Language Research and Teaching, Boston (proceedings to appear), 1980.
- REMLHART, D. Understanding and summarizing brief stories. In LaBerge, D. and Samuels, S.

- S. (eds.) *Basic Processes in Reading: Perception and Comprehension*. Lawrence Erlbaum Associates, Hillsdale, N.J., 1977.
- SACKS, H., SCHEGLOFF, E. and JEFFERSON, G. A simplest systematics for the organization of turn-taking for conversation. *Language*, 1974, 50, 696-733.
- SCHEGLOFF, E. and SACKS, H. Opening up closings. *Semiotica*, 1973, 8, 289-327.
- SEARLE, J. *Speech Acts*. Cambridge: Cambridge University Press, 1969.
- SHUMWAY, E. and BYRNE, M. Topic establishment and topic maintenance in mother-child discourse. Presented at the American Speech-Language-Hearing Association convention, Detroit, 1980.
- STEIN, N. and GLENN, C. An analysis of story comprehension in elementary school children. In Freedle, R. (ed.) *New Directions in Discourse Processing*. Ablex, Hillsdale, N.J., 1979.
- STOKOE, W., CASTERLINE, D. and CRONKURC, C. (1965) *A Dictionary of American Sign Language on Linguistic Principles*. Silver Spring, MD: Reprinted Linstok Press, 1978.
- WEINER, M. and DEVOR, S. Regulators, channels and communication disruption. Research proposal, Clark University, 1974.
- WEINER, M., DEVOR, S., RUBINOW, S. and GELLER, J. (1972) Nonverbal behavior and non-verbal communication. *Psychological Review*, 1972, 79, 145-214.
- WILBUR, E. *American Sign Language and Sign Systems*. Baltimore, MD: University Park Press, 1973.