Learning to be Deaf: Conflicts Between Hearing and Deaf Cultures*

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Introduction

In most social groups, membership is a result of being born into a particular family. The deaf community represents a unique situation in that, at most, ten per cent of all deaf children have parents who are themselves deaf (Mindel & Vernon, 1971). Other deaf children are socialized into the deaf community outside of the home and at different periods in their lives when they enter schools and meet other deaf people (Meadow, 1972). The experimental group under investigation here consists of 21 young deaf adults who entered Gallaudet College, a college for deaf students as first-year students. Although 15 of our subjects had hearing impairments either at birth or before the age of two, at the time of their enrollment at Gallaudet, most had never met or socialized with other deaf people. Additionally, the primary means of communication among deaf people on campus -- sign language -- was a foreign language for our subjects. The subjects' arrival on the Gallaudet campus represented a sudden transposition to an alien culture of whose existence they had been mostly unaware until that time. At the time of this report, all subjects had had at least six months of contact with other deaf students at Gallaudet College.

Predictably, this complete immersion had effected a change in their self-perception and how they view their social identity. Realizing that these adjustments and changes are likely to continue over a period of several years, we report here on the more immediate consequences of these changes as experienced by our subjec's.

The experimental group

Our observations of cultural conflicts are based on a group of hearing-impaired Gallaudet College students who were socialized in the hearing society. The experimental group was selected on the basis of their unfamiliarity with deaf culture. Included in the study were students who met these criteria and who enrolled at Gallaudet for the first time either during the summer or the fall. We eliminated from the experimental group foreign students who would introduce other conflicting cultural patterns.

This selection yielded 21 subjects, 14 females and 7 males.

1. Fifteen of the subjects suffered hearing losses either at birth or at/before age of two (10 females, 5 males).
2. Eight of these subjects had been enrolled in a postsecondary program prior to their entrance at Gallaudet. Length of enrollment ranged from one semester to two years. None of these postsecondary institutions had special programs for the hearing-impaired. All 8 subjects reported severe difficulties in the college classroom which had influenced their decisions to seek out other educational opportunities.
3. Eight subjects were 20 years old or older and encountered some initial problems in forming peer relations with their preparatory and freshman classmates.

Interviews and Observations

The methodology of investigation consisted largely of individual interviews, usually of one hour duration or longer. The interviews were conducted in spoken English, a mode of communication in which our subjects do not have great difficulty in a face-to-face situation.

Interviews usually started with general questions about the subject's age, where he/she lived, type of school attended, and how the subject judged the extent of the hearing loss.

The informal interview was then steered toward a more in-depth discussion of the subject's parental and educational background, how he/she was introduced to Gallaudet, reactions from family and friends to the decision to attend Gallaudet, and eventually, reflections on how his or her present Gallaudet life-style differed from his/her life-style elsewhere.

Seven subjects proved to be particularly informative about their experiences and were asked to return for further interviews.

For all of our subjects, we have compiled case histories detailing their family and educational backgrounds as well as their own reflections on the progress of their socialization into the deaf culture through their association with the deaf community at Gallaudet.

Additionally, upon the students' arrival at Gallaudet, they were placed in sign language classes and for the first time, encountered a deaf person as their teacher. From our observations of subjects in their sign language classes, we were able to obtain information on how the subjects interacted with each other and with the teacher.

Deaf culture

At this point, a question may be raised: How does one determine that a deaf culture exists, separate from the culture of the hearing people around them? There have been numerous studies of the deaf person as individual, but with the introduction of work by Boese (1964), Vernon and Makowsky (1969), Reich and Reich (1974), and Schein (1968), it was noted that deaf individuals form cohesive groups in which they carry out social obligations to each other. In a first definition, Schein (1968) labels this group of deaf individuals as a *deaf community* and defines certain criteria for inclusion in the community, one of which is an audiological impairment. In addition to those members who have severely limited audiological capabilities, a smaller number of individuals whose hearing loss is "sufficient to interfere with, but not necessarily to preclude, the normal reception of speech" are also considered to be members of the deaf community. This subgroup is referred to as *socially deaf* persons. However, a strictly audiological definition of the deaf cultural group cannot be applied, since the group of students we are investigating meet the audiological criteria for membership without, however, being accepted as members by other deaf people.

Schlesinger and Meadow (1972) note other criteria that determine group membership. Their criteria for social group identification specify that the deaf community is essentially one defined by the language it uses. In reference to other social groups, it has been observed that "language has unifying effects upon a community. A common language, especially a language of a minority group, may foster a sense of togetherness and corporate identity" (Aceves, 1974). Although we agree that language acts as a powerful cohesive force, we suggest that language is only part of the cultural characteristics shared by its members. The conflicts our subjects experienced involved differences in not only language but behavior and manner associated with being a member of the deaf ethnic group. Their experiences corroborate recent anthropological studies in which an independent value system and set of behaviors associated with the Deaf[1] cultural group have been identified (Padden, 1980; Baker & Cokely, 1980; Erting, 1977).

[1] Throughout the remainder of this article, we shall use the convention of capitalizing the first letter of the word "Deaf" when we are referring to the ethnic group, its culture, or its membership. We shall continue to write "deaf" without capitalization to indicate an audiological condition of deafness.

The approach taken in this article follows that of Barth in which we define ethnic membership as a result of ascription -- or if one identifies with an ethnic group and is identified by others as a member of that group, then he is a member of the said group. Membership is determined by those particular physical and cultural characteristics considered to be significant by members and outsiders, ". . . . often such features as language. . . .general style of life, and basic value orientations. . . ." (Barth, 1969). Consequently, membership in the ethnic group is not solely conditioned by the degree of hearing loss, whereas the use of American Sign Language and display of appropriate social behavior are necessary social requirements, thus indicating cultural characteristics shared by the members.

The traits which mark membership in a social group are specified by a basic identity shared by the members. Implied in this basic identity is a commonality of experiences and values which can be expressed in a mutually understandable language. Two individuals who recognize each other as members of the same group know that they are likely to share similar criteria for judgments of values and evaluation of performance. On the other hand, members of different groups know that such a shared understanding of values and performance cannot be assumed and that interaction may be limited to areas of mutual interest (Barth, 1969). Thus, interaction within a group is generally easier and more extensive than with outsiders. This differentiation between members and nonmembers determines a boundary which serves to maintain the group's self-identity.

Interviews with our subjects illustrate this definition of membership and exclusion with repeated references to "the Deaf people, the ones who attended schools for the deaf all their lives." Residential schools for deaf students serve as a powerful socializing force since they group together deaf students on a regular basis and expose them to contact with other deaf adults.

For most subjects, the reality of their deafness was accepted by themselves before arriving at Gallaudet. When asked whether they differ from the other students at Gallaudet, they answered that there is no difference. "We all have hearing losses." However, during the same interview they stated that other Deaf students behave differently, that they are "immature" or they "lack manners." The kinds of acceptable social behaviors they observed in other Deaf people struck them as very different from those of hearing people. Their value judgements in this respect are similar to those of early missionaries who reported South Pacific islander behavior as "childlike" or "irrational."

An almost universal reaction from our subjects upon their arrival at Gallaudet was one of surprise. For them, deafness was conceived solely as a hearing loss, a physical handicap with social consequences which affect relations with hearing people. None of the subjects were prepared to find a minority with its own culture and its own language. They expected to be among others like themselves. Instead they found that they could not interact easily with other students. The first barrier they encountered, of course, was that of language, but behavioral differences struck them immediately as well. For example, within less than forty-eight hours of his arrival on campus, one subject was tapped on the shoulder by another student, a perfect stranger, who

ordered him to stop using his voice. As he was to learn quickly, the valued mode of communication among Deaf people is not speech, but use of the visual-manual mode of sign language.

These feelings of being outsiders experienced by our experimental group often resulted from their contacts with the Deaf fellow students. One subject was baffled by an incident involving a Deaf student she had never seen before. He approached her and informed her that she did not belong at Gallaudet, that she should attend a hearing college. Our subjects realized quickly that a boundary exists between themselves and Deaf students at Gallaudet. This distinction of member and non-member is well exemplified by the number of pejorative vocabulary reserved specifically for reference to those deaf students outside the group. For example, the sign ORAL is a play on a sign meaning exaggerated mouth movements.

Acceptance, as one subject explained, involves:

Subject: "1) Communication easier.
2) Start thinking in the same way as a Deaf person: vocabulary, ideas, how you act, everything."

Interviewer: "How do you 'act' like a Deaf person?"

Subject: "I don't know. . . .not like you're above the people here -- equal. Don't walk around, you know, like stuck-up to other people. Act the same. Think of other people as equal -- the same."[2] In a minority culture where its language and values are disparaged in favor of those of the majority group, there is fierce protection of group identity and behavior within the boundaries of the minority group. By persisting in use of hearing group behaviors around other Deaf students, our subjects found themselves judged severely for their behavior.

We must stress again that the degree of hearing loss is not a consideration since the range of hearing impairment of the subjects is similar to that of other Gallaudet students.

Speaking is one of the first noticeable characteristics by which a Deaf student identifies outsiders. Our subjects found talking and accompanying behavior crucial in surviving as members of their hearing communities. In the process of their socialization in the hearing community, they were encouraged to function as hearing members, which also meant displaying normal speaking behavior when possible. As we observed in their first few sign language classes, some subjects risked miscommunication by exhibiting conversing behavior they associated with that of a normal hearing person. They engaged in rapid talking, little eye-to-eye contact, and limited the use of their hands. Their concern that they appear as "hearing" as possible dominated their need for effective communication.

However, when in the presence of other Deaf individuals, the subjects' talking behavior did not allow them to be accepted into activities among Deaf people. For

many Deaf students, speaking has negative connotations: it represents attempts by the majority culture to replace sign language with speech, and to deny the value of sign language as a preferred means of communication.

Some subjects have quickly assessed the effects of this behavior and have confined their talking to certain individuals at certain times. Others, from long-time associations with their more familiar culture, find it difficult to make drastic changes in their behavior, including the manner in which they converse with others.

In contrast to their difficult position as outsiders when they arrive on campus, a number of our subjects found themselves cast in a respected status position as cultural brokers. Since they are seen by other Deaf students as members of the dominant hearing community, they are often asked to provide information about its culture to their fellow Deaf students. Some alumni of residential schools for deaf students view our subjects as wise in the ways of the world, and consequently, several have become counselors for their dormitory mates. One of these subjects remarked that the same girls who seek her advice ignore her when they see her outside of her dormitory room. This apparent contradiction can be understood when viewed in terms of interactions across ethnic boundaries, as suggested earlier (Barth, 1969). The cross-cultural interactions made possible by the roles of counselor and cultural broker are structured in that these roles are limited as to where interactions can take place and to certain areas of common interest.

Socialization in a second culture

Research in second language learning shows that success in learning a new language correlates inversely with the strength of the learner's ethnocentric views or his negative attitude toward the new group (Lambert, 1967).

Ethnocentrism alone, however, does not account for one's resistance to a new culture. In a situation where the learner feels insecure about his performance, he may revert to accustomed behavior when interacting with members of the unfamiliar culture. Occasionally, on the basis of an initial encounter an individual may pass for a member of a group, only to be exposed later by further interaction (Goffman, 1963). Fear of public embarrassment ensuing from incorrect performance or inappropriate behavior may cause an individual to adhere purposely to older behavior, thus marking his status as an outsider.

We have on record a subject's detailed description of her first excursion into behaving like a Deaf person. During a three-day vacation to New York City with some Deaf friends, she modified her usual behavior to indicate clearly her deafness to others around her. The change in her behavior received immediate notice and surprise from her Deaf friends. However, their support for her new behavior could not persuade her to continue upon her return to Gallaudet. Her reluctance to use new learned behavior stems from her fear of being held up to ridicule and embarrassment by other Deaf students should she accidently display inappropriate behavior.

". . . .if I do something wrong, I would feel more embarrassed than not doing anything. . . .I'm not one who likes to change a lot quickly. You know -- if they knew me before,

and saw me before -- and then change, you know -- think, "What's wrong? 'What happened?'"

The transition from one social group to another can be characterized as a gradual process during which new ways of behaving, both social and linguistic, are learned and tested. Old behavioral patterns cannot be abandoned entirely until the individual has adequately mastered the new patterns in order to function as a member of the new group.

Language variation and community structure

Sociolinguists have presented the theory of language variation as an attempt to describe actual language usage within a community. Linguists have recognized that for spoken languages, "there are no single-style speakers" (Labov, 1970), since different social situations and topics of conversations require different styles of language (Gumperz, 1972).

Research studies since 1960 have recognized American Sign Language (ASL) as a language distinct from English, with its own vocabulary, and grammar and with a set of complex rules for their appropriate use in the Deaf community (Stokoe, 1970).

ASL is not an exception to the phenomenon of language variation. All signers, either native or fluent, vary the formation, vocabulary, and grammatical rules of their signing depending on the participants in the conversation, the subject being discussed, the formality or informality of the setting, and many other social variables (Stokoe, 1970). Language variation in ASL, as in any other language, is rule-governed, that is, social conditions determine what variety is acceptable to use in a particular context.

A frequent example of variation in ASL occurs with younger Deaf signers' use of a more formal variety when conversing with older members of the community. Such dialect switches anticipate that the older Deaf persons may not recognize certain signs used by younger members of the community. This situation is the equivalent of that found in any hearing society, where it can be easily observed that children do not talk in the same way to their parents as they do to their peers.

Not unlike the languages of other minority groups in North America, ASL is greatly influenced by the dominant American English speaking society. One particular type of variation occurring in the Deaf community has been described (Vernon & Makowsky, 1969) as a continuum of varieties extending from *competence in ASL to competence in English*,[3] idealized in the following graphic representation:

Continuum:

ASL ⟷ English

A language variety may vary from the extreme left, where it is most like ASL and least like English, to the middle, which consists of characteristics of both languages, and to the extreme right where the variety shows marked separation from ASL. Thus, in the middle of the continuum, one cannot easily determine what is American Sign Language and what is English. Individuals differ in the range of the continuum they control.

Native signers of ASL who are also fluent in English often incorporate more English elements in their signing, replacing certain elements of ASL vocabulary and grammar. We are also familiar with hearing individuals who, with no competence in ASL, will use a language variety close to English. Often, when a hearing person joins a conversation already in progress among Deaf individuals, the Deaf signers, in order to accommodate a person not fluent in ASL, will switch to a variety closer to English and may begin to use speech as well. The switching to a more appropriate language variety allows the hearing person to interact more comfortably with the Deaf signers. This switching is triggered by a social constraint which requires the use of English with outsiders (Stokoe, 1970).

Hearing people are not given the opportunity to interact in ASL; for the most part, this accounts for the fact that they rarely learn that language. In this respect, our subjects are treated like hearing people by their fellow Deaf students, as the following quotation from an interview illustrates. The subject is referring to her Deaf roommate who is engaged in a conversation with a Deaf girlfriend:

> She was talking to her without voice, you know, using sign language. And when she turned around to talk to me, she used her voice and sign language. I asked her "Why?" She can't help it, it depends on who she's talking to. . . .you know?

As discussed earlier, the presence of language varieties in ASL necessarily corresponds to appropriate rules for the usage of these varieties. A member of the Deaf community is usually capable of switching varieties to accommodate a particular social situation.

Thus, it can be seen that socialization in a second social group involves more than learning the vocabulary and the grammar of its language. An essential condition is the acquisition of the varieties of that language and the rules for their appropriate use.

Although our subjects have been formally taught sign language, their competence in ASL and their understanding of the social situations that determine variation within ASL is minimal. They repeatedly state that their language is not the same as other Deaf students -- describing the latter's signing by comparing it to English. Many interpret these language differences with value judgments. We commonly hear complaints from our subjects that Deaf students at Gallaudet persist in using incomplete English or that they talk only in ideas and concepts, a common misunderstanding about ASL.

The sign language variety a member of the Deaf community uses most often corresponds to his social status in the community. Different varieties of sign language have been described (Stokoe, 1970; Woodward, 1973) and usage has been correlated with variables such as +/- deaf parents,[4] +/- learned ASL after age of six, +/- attended residential school, and +/- attended college (Woodward, 1973).

Limited experience with sign language allows our subjects to make gross decisions about how their use of signs differs from the ASL of Deaf students at Gallaudet. However, most of them cannot yet perceive finer

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[3]Competence is the knowledge of the abstract rules of a language that allows one to produce and comprehend sentences appropriate to that language.

[4]Presence of the variable is indicated by the symbol +; its absence is shown by the symbol -.

distinctions among subgroups' use of a particular identifying variety of ASL. Finding an interacting role in the Deaf community necessarily requires the ability to recognize sociolinguistic patterns of subgroups and the means by which a member can identify the social status of an individual from his use of a particular language variety.

Another intriguing problem faced by our subjects is that of conflicts arising from a specific kind of misinterpretation attributed to facial expressions and other body movements. From our subjects' descriptions, these misinterpretations did not seem to be related to a verbal exchange, but rather to nonverbal behavior.

Nonverbal behavior is distinguished from verbal communication in that nonverbal communication employs the use of signals not directly involved with the language code itself. Thus, one can verbalize, "Why did you do that?" and convey nonverbally, fear, anger, distrust, sympathy by use of posture, face, eyes, body, hands, and other parts of the body.

Literature on nonverbal communication in spoken languages describes how the use of the eyes alone can communicate nonverbal signals (Birdwhistell, 1967). In American Sign Language, however, the eyes are used not only nonverbally, but verbally as well. Eyes have been shown to identify clause boundaries (Stokoe, 1972), as in marking the boundary between subordinate and main clauses and also in determining pronouns (Lacy, 1974). Eye-to-eye contact between native ASL signers is essential in its function both as grammatical determinants and in conveying nonverbal information in a fashion distinct from that of English (Battison, personal communication). Native signers have on occasion complained that nonnative signers move the eyes away from the other signer's face at "the wrong time.

Our subjects report that deaf individuals use certain facial expressions they have never seen used among the American hearing public. Some subjects say that facial expressions of Deaf students are "exaggerated" or "attention-drawing." Not only do subjects recognize that some facial expressions used by Deaf students are different, but the subjects have reported that they could not always understand the meaning of these facial expressions. At the same time, other subjects say that, when in a conversation with Deaf students, the facial expressions which they use at home may either be misinterpreted or not understood by Deaf students.

At this point, we would speculate that some of the confusion and misinterpretation on the part of the subjects and the Deaf students result from cross-linguistic and cross-cultural conflicts since members of the two opposing cultures do not share the same language and appear not to share the same nonverbal codes as well.

Summary

Excluding potential intruders is a mechanism by which an ethnic group seeks to protect its group identity. Deaf people, being surrounded by a larger and dominant Hearing community, allow intimate interaction with their members only if the individual exhibits appropriate behavior and language skills.

This experimental group of students experienced exclusion at the time of their arrival at Gallaudet. If the subjects, in order to gain acceptance, must abandon behavior they previously considered crucial to survival, we can describe that behavior as incompatible with

values shared by Deaf people.

Ethnocentric attitudes and behavior often present serious conflicts when an unaware individual seeks to interact with Deaf people, as evidenced by the conflicts our subjects are experiencing. The process of making adjustments to these conflicts is a long and difficult one. The subjects' anxieties about changing their familiar behavior to accommodate newer, more acceptable behavior must be understood as a reaction toward conflicts arising from two cultures in contact.

This study points to the need to recognize Deaf people as comprising a separate cultural entity, particularly for those who wish to join it as new members, but also for outsiders who deal with Deaf individuals in a professional capacity. By helping outsiders learn more about conflicting values, we can encourage respect and meaningful interaction between Deaf and Hearing people.

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Young Children's Recall of Christmas*

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Recent work in the area of children's memory has begun to focus on naturalistic recall in very young children. Nelson and Ross (in press), for example, examined mothers' diary accounts of their children's spontaneous recollections; Todd and Perlmutter (in press) interviewed young children and asked what past events they could remember. The research reported here addressed similar questions with a somewhat more structured method. Each of a number of young children was asked questions about a single, presumably salient event that had occurred two weeks earlier: Their celebration of Christmas. In addition to determining how much children of different ages would recall, we hoped to clarify the basis of any age differences that might be observed. Why do younger children generally recall past events less adequately than older children?

We chose Christmas as the topic for several reasons. First, it is a salient, infrequent, and child-centered holiday. If young children can recall any autobiographical events at all, they should be able to remember a recent Christmas. Second, Christmas is an event shared by an entire family. This made it possible to use parental accounts of Christmas Day to devise an individual recall protocol for each child. Finally, almost every Christmas celebration has many different aspects that can serve as the subject of recall: Objects (presents, food, decorations); people (visiting neighbors and relatives); and specific incidents (putting cookies out for Santa Claus, tearing ribbons off packages, waking up one's sleepy and all-too-slow-moving parents). We were also interested in determining what children of different ages

would do when they were unable to recall something. Would they produce objects and incidents from other days, or would they simply fail to respond?

Method

Parents of preschoolers attending a campus nursery school at Wellesley College were recruited by letter and telephone. The first author visited eleven parents (of thirteen children) for one-hour interviews in the week after Christmas. The children were not present for these interviews. Parents were asked to relate the events of Christmas Day as well as of the day before, and any other Christmas-related incidents that they thought might come up in the course of interviews with their children.

Individual protocols were prepared on the basis of the information provided by the parents. We tried to design probe questions that would provide increasingly specific opportunities for positive responses. If a child failed to answer a question like "Tell me about Christmas," we could ask "Did you get presents on Christmas?" Failing to get an answer to this question either, we could ask "Did you get a drum?" In this way we hoped to give every child an opportunity to show what she could remember. We tried to include the same set of questions for each child (about presents, meals, visitors, etc.) but this was not always possible. In addition, it was sometimes necessary to eliminate portions of the interview in order to hold the child's interest.

Thirteen children between the ages of 26 and 59 months (see Table 1) participated in the study, including two sets of siblings. The children were interviewed about two weeks after Christmas. Ten were interviewed at nursery school and three at home. Interviews lasted about twenty minutes and were tape-recorded.

Results

Since Christmas celebrations varied widely from family to family, each child was asked somewhat different questions. However, there were two categories which applied to all the subjects: Presents received, and specific events that had occurred on Christmas Day. Recall of presents is shown in the first column of Table 1. Children were scored as having recalled a present if they did something more than merely recognize it when it was mentioned by the experimenter: If they recalled it themselves or expanded a probe question. (Experimenter: "Did you get a truck?" Child: "Green truck.") Because different children received different numbers of presents, Table 1 presents proportions rather than absolute numbers recalled. (PR = (Number of presents recalled by child)/(Number that parents said that the child had received).) As can be seen, older children recalled more presents than younger ones. The correlation between PR and age is $r = 0.85$ ($p < 0.01$).

Because young children are less adept at recounting events than older ones, we used a relatively loose criterion to score recall of incidents. A child received credit for recalling an incident if she could provide any additional information about it in response to a specific probe. (E: "Did anybody read you any books on Christmas?" C: "I think Megan did." E: "Remember what story?" C: "Paddington Bear.") We could not cal-

Table 1
Individual Memory Scores

S	Age (in mos.)	Sex	PR	IR	NA	SP	MM	NC
DC[a]	26	M	.09	1	14	.15	.00	2
JP	32	M	.15	3	18	.04	.00	0
JK[b]	33	M	.36	4	12	.05	.00	2
SM	33	M	.09	1	7	.14	.02	3
RL	34	M	.38	7	5	.11	.02	1
JM	35	M	.25	1	10	.06	.00	3
AM	36	F	.22	3	11	.03	.00	2
JC	38	F	.29	5	9	.08	.22	0
EC	43	F	.23	3	7	.00	.00	4
MC[a]	47	M	.58	5	3	.04	.04	1
CK[b]	57	M	.83	7	8	.01	.09	0
KC	57	F	.83	9	0	.00	.04	1
CC	59	M	.47	5	0	.00	.02	1
		$r=$	.85*	.69*	-.75*	-.75*	.23	-.32

Age is in months. *a* indicates one pair of siblings, *b* another. PR: present recall; IR: incident recall; NA: no answer; SP: switches to present time; MM: metamemory; NC: non-Christmas incidents. (See text for detailed explanation of indices.) The last row shows the correlation of each index with age; correlations marked * are significant at $p < 0.01$.

culate a percentage of incidents recalled (by analogy with PR), because it is impossible to define the total number of events in a day. Hence the second column of Table 1 shows the raw number recalled (IR). Unfortunately, there is no principled way to determine whether a child who reports fewer incidents has a relatively poor memory or just had a relatively dull day. (There was no apparent relationship between the number of incidents described by the *parents* and the number reported by their children). The table shows that even the youngest children recalled some events from Christmas Day, but older children recalled more. The correlation between IR and age is $r = 0.69$ ($p < 0.01$).

What were the young children doing when they were not recalling correctly? Sometimes they just failed to make any response at all. These failures to answer (NA) are tabulated in the third column of Table 1. (Often children simply nodded in response to a question. If the experimenter could clarify the meaning of the nod with "Yeah?" or "No?" it was not counted as NA.) There is a negative correlation between age and NA: $r = -0.75$ ($p < .01$).

The young children's failures to respond do not necessarily mean that they were uninterested in the interview itself. Often, they were simply more interested in talking about something in the present than something in the past. Consider the following fragment of the interview with D.C., a boy of 2 years, 2 months:

(D.C.) 1

I: Did you get any presents?   C: Yeah.
I: What did you get? Tell me.   C: They was in the cellar.
I: They were in the cellar?   C: I oped them up.
I: You opened them up. What presents did you get? What toys did you get?   C: (pause)
I: Did you get a train?   C: (pause)
I: Did you get a book? D__?   C: (pause)
I: Did you get a book?   C: Yeah.

I: Yeah? Did you get a car?   C: (pause, but nodded)
I: Yeah? What kind of car? Tell me about the car.   C: A green car.
I: A green car?   C: An' a red car.
I: And a red car. A big car?   C: Uh.
I: A big red car, D__? Did you get a big red car?   C: Yup.
I: Ok. Did you have a stocking?   C: Yeah.
I: Where was it?   C:* It was,. . . .it's hooking. (referring to tape recorder)

I: Ok. What other presents did you get? Can you tell me? Did you get anything to wear?   C: (pause)
I: Like a hat? Or mittens? Or a shirt? Did you get anything like that?   C: Yea.
I: What did you get?   C:* (pause) This open? This open? (referring to tape recorder)

I: Yea, that opens. What presents did the baby get?   C:* This, uh, have to put it on. (referring to tape recorder)

I: Ok. Don't touch that for a second. Look at me. Look at me, D__. What presents did M__ get? Tell me what M__ got.   C: He had the presents oped, and the bi. . . .(ringing phone heard in background) Will you get that telephone?

D.C. wants to talk about the tape recorder and the telephone; he doesn't much want to talk about Christmas. This is like the "Pop goes the Weasel" effect noted by Brown and Bellugi (1964). The child does not want to continue the conversation about the past, either because he can't remember it or because he doesn't care about it, but he does want to keep talking. We counted the number of these switches to the present time in each child's interview.[1] In order to equate the children for their overall talkativeness, we also counted the total number of each child's utterances, excluding those that consisted simply of "yes" or "no." Our index of the tendency to switch to the present time (SP) was the ratio of these two quantities; it also appears in Table 1. SP correlates negatively with age just as NA does: $r = -0.75$ ($p < 0.01$).

Some of the children's responses suggested the presence of at least rudimentary forms of metamemory. Responses like "I don't remember," "I forget," or "I can't figure out what was there" seem to indicate some degree of reflection on one's own mnemonic processes. Occasionally such a reflection produces additional information, as in this exchange with J.C., a girl of 3:2: E: "What did you have for dessert?" C: "I don't know. Nothing, I guess." E: "Ok." C: (pause) "I ate Santa ice cream." We counted the number of metamemory statements and divided them by the child's total number of utterances (again excluding "yes" and "no") to arrive at the metamemory index (MM) in Table 1. This measure did *not* correlate significantly with age: $r = 0.23$ ($p >$

[1]One switch was counted whenever the child responded to a direct question about Christmas with an inappropriate reference to the present. Other references to the present were not counted. The three SP's in the excerpt from D.C., above, are marked with a "*."

0.20). It was also uncorrelated with SP: $r = 0.15$ ($p > 0.50$).

Some of the events that children recalled during the interview had indeed happened to them, but not on Christmas Day itself. Consider the following excerpt from the interview with E.C., a girl of 3 years, 7 months:

(E.C.) 2.

I: Do you remember Christmas?
Tell me about it.   C: R__ and I had a lot of presents!

I: Did you? What presents did you get?   C: I got a dollhouse, with people.

I: Yeah?   C: And, us, some, uh, I went to Lindsay's house.

I: To Lindsay's house?
I: Uh-Huh.   C: Umhm.
    C: And, and after I went to Lindsay's house, I went back to my house, and then I played with my dolls.

I: Yeah?   C: And, um, and when R__ came home from school, he came and I played downstairs and he played with his toys.

E.C.'s mother told us that she had not gone to Lindsay's house on Christmas day, and surely R__ did not come home from school on Christmas either. The last column of Table 1 shows the number of such "non-Christmas" incidents (NC) recalled by the children. Like metamemory, NC is not significantly correlated with age: $r = -0.32$ ($p < 0.02$). However, there is an interesting reciprocal relation between these two variables. When age is partialled out, the negative correlation between the number of metamemory statements (MM) and of non-Christmas incidents (NC) is significant: $r = -0.67$ ($p = 0.02$).

As others have observed before us, young children are not always consistent in their responses. Perhaps because they do not readily accept the task of discussing the past, their answers seem to depend quite strongly on just how a particular question is put. Consider the following excerpts from R.L.'s interview:

I: Ok, did anyone come over to see you open your presents? Did anyone come to see you that day?   C: Uh-uh.

I: Did Lisabeth, Lisabus come then?   C: Uh-uh, nobody did come and visit us.

I: Did your grandparents come?   C: No, my grandparents.

I: Gammy and Grandaddy?   C: No!

(later in the interview)

I: What did you play with?   C: (pause)

I: Were your grandparents there? Were Gammy and Grandaddy there? Did they come over?   C: No.

(still later in the interview)

I: Did anyone else get toys while you got toys? Did Gammy and Grandaddy get anything?   C: Uh-uh.

I: Did they get any presents at all?   C: Yes, they did.
I: What did they get?   C: A marbles chute.
I: Did they get it that day?   C: Yes, and they had a handle. . .(garbled) . . .put it down.

I: And they put it down.
And the marbles come out? C: Yes.
I: Were they there that day?   C: Yes.

The fact that R.L.'s grandparents visited on Christmas Day is not available to him in response to a direct question, but it becomes available as he recalls a specific incident.

Discussion

Our study has confirmed what others have already shown: Young children are not very good at episodic recall. This is true even when the topic of recall, Christmas, is of real interest to the child. When young children are not answering recall questions, they remain silent or try to switch the topic of discussion to something in the present.

Children who cannot answer a memory question may respond with some indication that they know they have forgotten. These metamemory statements occurred at all ages in our sample. Incorrect recalls -- reports of incidents that had actually occurred on non-Christmas days -- also occurred at all ages. The negative relation between these two variables suggests, however, that they represent alternative strategies: To say the first thing that comes to mind -- even if it is from the wrong day -- or to admit forgetting. Switches to talking about the present, which also appeared in our interview, may represent still another such strategy. Our overall impression is that the younger children are unfamiliar with the task of returning to specific times in the past, and deal with it clumsily -- they remain silent, or say the first thing that comes into their heads. It is not so much that they cannot remember anything -- every child recalled at least one present and one incident from Christmas Day -- but that they do not have good control of the recall process itself. Older children, in contrast, can readily cast their minds back to the day in question at the experimenter's request, and easily monitor the success or failure of their recall attempts.

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Consequences of Schooling*

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It is tempting to think of the effects of schooling exclusively in terms of what is taught. Teachers teach children some skills -- to read, write, calculate -- and some bodies of information -- science, social studies, literature and so on. The effects of schooling are summarized in terms of what the children have learned from those things taught. These effects are of course reflected in achievement texts.

However, at least since the time of Dewey, but more particularly since the time of Piaget, it is commonly held that the relation between what is taught and what is learned is more complex. What is learned is a joint function of what the child already knows and what the the teacher (or book) is trying to teach him or her. What the child already knows is reflected in what we call aptitude tests. Hence, in this view what is learned is a joint function of teaching and aptitude. One can complicate such theories by measuring more refined aptitudes or more precisely describing instructional sequences or by looking for interactions between the two, and so on, but ultimately such theories are limited in that they cannot characterize what in fact, the child is doing or how he's doing it in an instructional context.

A theory of aptitude which does attempt to characterize just what a child understands and learns from what he experiences or is taught is that of Piaget. Since Piaget, it is not adequate to characterize learning as simply a product of an aptitude and an instruction. Rather, the focus falls on learner and the question becomes just how the learner uses his or her accumulated prior knowledge, orientation, background, interests and intellect in assimilating what a teacher is teaching. Piaget (1971) expressed the fundamental importance of the child's interpretative procedures, what he calls "instruments of assimilation" in learning what is being taught in this way:

> The acquisition of knowledge naturally depends upon educational or social communications (linguistics, etc.), and for a long while it was solely to this process that the traditional school confined its attention. Psychology in no way wishes to neglect such communication but sets itself to study questions that affect it and that may have been supposed to be long since resolved: does the success of such communication depend solely upon the quality of the presentation made by the adult himself of what he desires to inculcate in the child, or *does it presuppose in the latter the presence of instruments of assimilation whose absence will prevent all comprehension?* (p. 39, italics added).

Piaget, of course, went on to characterize these "instruments of assimilation" in terms of major stages of conceptual development -- sensory motor, concrete operational and formal operational thought. And the role of schooling was to "flesh out" children's knowledge within the constraints imposed by these instruments of assimilation. The "instruments of assimilation," that is the intellectual structures of the child, themselves, are

not, according to Piaget, derived from education, but rather are prerequisite to it:

> The development of intelligence. . . .is dependent upon natural, or spontaneous processes, in the sense that they may be utilized and accelerated by education at home or in the school but that they are not derived from that education and, on the contrary, constitute the preliminary and necessary condition of efficacity in any form of instruction. (1971, p. 36).

Now Piaget's theory seems to me the most advanced of learning and development and indirectly of education that has yet been developed and so my intention is now to suggest that it may be superceded. Indeed, his theory goes far beyond most contemporary educational theories which try to account for learning independently of what the child knows or does by means of including such descriptions as time on task, type of teacher talk, or even more remote descriptions such as subjects studied, course outlines followed and so on, or the complementary theories which do take into account the characteristics of the learners but only in abstract "trait theory" terms. Piaget's theory is right at the heart of the matter -- namely what does the child do with anything he or she does, hears or is taught? Note too that in formulating the question this way we have moved from a casual objective type of theory to a subjective-intentional type of theory. Intentions, not merely actions, become crucial as I shall indicate later on in this paper.

But Piaget's theory does seem to have one lacuna, a lacuna of particular significance to educational theory. Different critics have tried to express this point in a variety of ways. One was that Piaget's theory was ethnocentric -- stages of intellectual development were supposed to be universal and yet they seem to bear an uncanny similarity to the progress and vagaries of western educated thought. So, to illustrate, children in the formal stage of operations were observed to speculate on alternative "possible worlds" -- adolescents debate such questions as what if all possessions were held communally?" or "what if marriage as an institution were abolished?" and so on. Yet these speculative theories are not universally characteristic of human adult thought. Horton (1970), Gellner (1970) and others have pointed out that in traditional societies scientific thought does not have anything like the speculative flavor that western scientific thought seems to have. Thus, the thought process we consider to be of a high or abstract level seem not to be universal.

The same problem has been raised by pointing out that Piaget's theory seems to make little or no allowance for historical-cultural change. The mental structures that Piaget described, for example, must have existed since neolithic times and hence these structures cannot reflect cultural advances in the growth of knowledge. Or on a more restricted time scale, Piaget's theory fails to acknowledge that important changes in the uses of language and perhaps ways of thinking are associated with literacy.

This then, I would take to be the lacuna. Intellectual structures are universal and yet, as every educator knows, they are not clearly manifest in all children in a literate society let alone in traditional societies. To be more specific there is little in the theory, that would suggest that a particular technology, in this case, writing, or a particular institution, in this case, schooling,

would have any important consequences for intelligence or modes of thought generally.

Now in attempting to account for some of the effects of schooling in terms of written language and literacy, we must not undo the important contribution of Piaget. It is not sufficient to explain children's cognition by an appeal to some external fact such as the nature of writing, the structure of story books or the reading practices of literate adults. That language is written down does not in and of itself have any causal effect on cognition. Written artifacts as Piaget would say must be interpreted by the child in terms of his instruments of assimilation. What is crucial then is what the child does to a written text that he would not ordinarily do to an oral one or for that matter to his direct experience. Specifically, we cannot explain any changes in children's cognition by saying that "he or she reads alot" -- we shall have to have some description of what the child is doing or led to do *in reading* that would not be done in listening or in doing something. Further, we must allow that the processing of written text reflects at least some of the general intellectual changes that Piaget described. Thus, reading text for an adult may involve somewhat different comprehension processes than reading the same text does for a first grade child.

To summarize to this point, instructional theory is construed as being primarily concerned with what is taught and with the discovery of powerful ways of teaching these things to children. These concerns may obscure the problem of identifying the operations available to the child to "assimilate" and interpret what is being taught. Such a construal has the advantage of giving great significance to what the teacher says and does but it has the disadvantage of not being able to account for what the child is intending and doing intentionally. Ability theory tries to account for what the child is doing but does so only indirectly through locating predispositions, traits and abilities. Piaget provides a corrective to both in his impressive demonstrations that what a child learns, understands and remembers is determined by the prior knowledge and intellectual operations that he or she brings to bear on what is taught, told, communicated or experienced. This second theory however has the disadvantage of not being able to account for the fact that schooling has significant effects on cognition nor that these effects have something to do with literacy. What are some of the effects of literacy and how would we relate them to the development of educational theory? Cole and D'Andrade (1982), anthropologists who have long been concerned with the cognitive processes arising in different societies, have recently reviewed the effects of schooling on conceptual development in traditional societies. They conclude that schooling does not alter the basic building blocks of human cognition but they add: "the data speak unequivocally on one issue. Schooling provides increased experience with language" (1982, p. 25). What does all of this experience with language do? That is just what my colleagues at OISE, Nancy Torrance, Angela Hildyard and I have been examining for the past several years. I cannot review much of that work but I shall cite some examples of it which indicate that what schooling provides is not just an "increased experience with language" although that is part of it, but rather a metalanguage for referring to

language. It is the cognitive uses of this metalanguage which is distinctive to schooling.

In studies of children as they move from being preliterate to literate, namely over the age range of 5 to 8 years, we have found one relatively consistent pattern: younger children do not, while older children do, differentiate between what we, following Grice (1957), have called the sentence meaning and the speaker's meaning, or phrased otherwise, what a sentence means and what a speaker means by it. We call this the said/meant distinction. Let me give three examples. In one of these studies Angela Hildyard and I (Olson & Hildyard, 1981) read preschool and school aged children a story which told about two children, Kevin and Susie, who went to a movie, bought and shared some popcorn, and concluded with Kevin complaining to Susie: "You have more than me." When asked what Kevin had *said,* more than half of the kindergarten children replied "Give me some." By Grade 2, the majority reported verbatim what had been said and when asked, indicated that they knew what was meant as well. From such observations we inferred that preschool children tended to conflate what had been said and what had been meant and that they come to differentiate these two in the early school years.

A second study by Elizabeth Robinson in Bristol and by Hillel Goelman and I in Toronto shows one of the consequences of the development of this distinction. In some of her earlier studies, Elizabeth Robinson, in collaboration with Peter Robinson (Robinson & Robinson, 1977a, 1977b), had discovered that in cases of communication failure in which responsibility could logically be traced to the speaker and his or her inadequate message, children invariably "blamed the listener." To illustrate, if the child in a communication game intends to say "blue flower" and inappropriately says just "flower," and the listener picks a flower, the child *blames the listener* for not picking the right one. As Robinson points out, it seems not to occur to the child that the speaker or his message may be at fault. This tendency disappears in the first year or two of schooling.

Our collaborative study (Robinson, Goelman & Olson, in press), was designed to determine if the pattern of "blaming the listener" was the result of the inability to differentiate what the speaker means from what his sentence means, a conflation of the two types of meaning. To this end we, Robinson in the United Kingdom and Goelman and I in Canada, repeated the game but this time on each occasion that the child inappropriately blamed the listener, we asked the child what the speaker had said. This question was asked only when, by looking (on the sly) at the object in the speaker's hand, or when the adult was speaker, at his or her own hand, it was clear what the actual intended object had been. Hence, we have independent evidence both of what was *said* (and thereby what the sentence meant) and what the speaker had *meant* or intended. The hypothesis was that the listener blamers are not aware of the difference between what the speaker means and what the sentence means or of the possible discrepancy between the two. If children conflate the two they should answer the question with a correct description of the intended object rather than with a correct repetition of the sentence. If they differentiate the two, they have the option of saying something of

the form "I (you) said x but I (you) meant y." Specifically, we looked at cases in which there was a discrepancy between what was said and what was meant. The results were just as predicted. To take one such case, if the child says "flower" while holding (intending) a *blue flower*, and the listener picks up a red flower, the message results in a failure in communication. If the child is then asked "What did you say?" the child tended to reply "*the blue flower.*" That, of course, was what was *meant*, not what what had been *said.* In sum, these studies indicate that children assumed, with Popeye, that they say what they mean and they mean what they say, but on the average, until they have been in school for a year or more, they do not make the differentiation in their own thinking or use that distinction in blaming the speaker for his inadequate message.

A recent study by Newman (1982) reports a similar finding in children's interpretation of lies. He showed first to sixth grade children a Sesame Street television segment in which Ernie says to Bert: "I'm going to divide this banana up so both of us can have some" whereupon he eats the whole banana and gives Bert the skin saying: "See, I took the inside part and here's the outside part for you." First grade children think that Ernie has lied, but by third grade, children began to note that the sentence "I'm going to divide this banana up" was both true and false. It was true by virtue of the sentence's literal meaning but false by virtue of its putative intended meaning. In our terms, children begin to notice that sentences have meanings and speakers have meanings and they may or may not be congruent. It is this differentiation that is crucial to indirect meanings, metaphor as well as sarcasm and lying, and lest I make it sound to grim, to all fictive literature.

Now, I have shown that one of the linguistic achievements in the early school years is the separation of the linguistic form, what was said, from the intended meaning, what was meant. It remains to show that this distinction has to do with literate orientation to language and then to examine some of the implications of that distinction.

Writing is implicated in that it does one obvious thing to speech. It separates the speaker from his or her speech. In so doing writing loses both the intentions of the speaker and his or her personal authority. I shall deal here only with the "loss of intention." In oral language the linguistic form -- *what is said* -- is ephemeral and lost after a few seconds; it is the intended meaning which is preserved as we saw in our "popcorn" story. Writing reverses that relation. It is the surface form which is preserved and the speaker's intention which is lost and must be reconstructed. Hence, what is said, being preserved, becomes the focus of attention. This fact would explain the studies we have cited -- the child comes to see that there is a sentence meaning which is somewhat independent from what the speaker meant by it. Having made the distinction, the child can apply it to either speaking or writing. It is a skill or orientation to language that has its roots in literacy.

The focus on the sentence *per se* leads in two directions. First in order to make the intention at all recoverable from the mere surface structure, the surface form must be elaborated in some way to indicate how the sentence meaning is to be taken in recovering an intention, hence the increased importance and

differentiation of verbs naming speech acts -- say, tell, claim, assert, ask, command, promise -- and upon the corresponding mental states -- believe, want, intend, and the like. I shall return to these verbs presently.

The second direction the preservation of the linguistic form leads, is downward to the constituents making up the linguistic form including such words, syllables, letters and so on that make up the reading program. Indeed, Hazel Francis (1975) found that when children realize that speech form can be analyzed into constituents, they do so first with writing not speech. Hence, when they learned the word "word," they think that it refers to a unit of print, rather than to a unit of sound or a unit of meaning. This awareness of the constituents of the linguistic form is, as is well known, extremely important to the acquisition of reading skills (Liberman, Schankweiller, Fisher & Carter, 1974).

That attention to linguistic form, what was said as opposed to what was meant, is related to literacy, is also indicated by anthropological studies of traditional non-literate societies in which a similar disregard of form was observed. Several anthropologists including Lord (1960), Parry (1971), Goody (1977), and Finnegan (no date), have noted that in the oral societies they studied there was no word equivalent to our "word." Similarly there appears to be a restricted set of speech act verbs, *say* serving the whole range of *promise, ask, command, assert* and so on, and a restricted set of mental state verbs for *think, know intend, believe* and the like (McKellan, 1982).

Finally, what are the implications of this attachment to or focus on "sentence meaning" rather than speaker's intention? As my introductory comments on instruction and schooling may have led you to anticipate, the concern with the *form* of language in addition to its intended meaning, which I suggested was a byproduct of literacy and schooling, can lead us to think of ability and development in a new way. Again, Piaget has set the stage for this. Piaget suggested that the function of schooling is to bring into awareness -- to make subject to reflection -- the very structures which were implicit in the more natural intellectual activities of children.

> The pedagogic problem, therefore, despite the progress realized in principle by this return to the natural roots of the operational structures, still subsists in its entirety: that of finding the most adequate methods for bridging the transition between these natural but nonreflective structures to conscious reflection upon such structures and to a theoretical formulation of them. (p. 47).

Piaget's suggestion is that schooling can contribute to intelligence, not through creating new mental structures but through bringing into awareness the existing ones and in showing children how these new explicit structures could be applied to new problems. In a word, education is *explication.*

But Piaget seemed not to notice that this is as true for language as it is for thought. What literacy does is to make the child aware of the very structures that are implicit in linguistic competence. Words are implicit in speech; children implicitly know morphemic structures but they are not aware of them until they see print. Speech act forms -- asking, talking, ordering and promising are implicit in speech but they are not named and known as such until the child is confronted with written texts (usually in the form of bedtime story

books). And finally, mental states -- beliefs, wants, intentions -- are implicit in all intentional action and in the use of speech acts even if the child is not aware of them. Children become aware of them only when they learn the explicit names for those speech acts of asking, stating, ordering and promising. And they become aware of those mental states only when they learn the explicit names for those mental states -- knowing, believing, wanting, intending, understanding and so on.

But it is precisely this set of linguistic and cognitive distinctions which are so vital to schooled cognition. It becomes important to know what was said, promised or done as opposed to what was intended, what was suggested as opposed to what was wanted, what was known as opposed to what was believed, and other fine distinctions used to analyze the structure of talk and the categories of thought.

Contrary to Piaget, the attention to *form* is not merely *developmental*, it is *cultural-historical* in that attention to form is made possible by virtue of the invention of a technology -- first writing, then print. And it is the traditional function of the school to provide children with access to those literate forms of talk and thought which become the school's "tools of intellect."

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On the Interpretation of Language Data for Cognitive Purposes*

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Much of cognitive research depends on the variation and interpretation of language data. However, there is not a one to one correspondence between language facts and cognition. In particular, variation in language data can arise from many factors and the cognitive component of the variation must be separated from other factors. The problem is further complicated when populations are being compared. If there are differences in development, pathology or culture across populations, finding a specifically cognitive component can be especially treacherous.

This paper sketches a few of the questions involved in using linguistic data for cognitive purposes, suggests an approach, exemplifies its application to a body of data and reviews its implications.

Approaches to the problem

The unit of analysis for cognitive linguistic study is not straightforward. Cole and D'Andrade (1982) note that words and schemata have been used as basic units, at least in some studies. When the data to be investigated are specifically linguistic there is a problem of parsing the language and tracing the fundamental linguistic facts to some cognitive factor. However, the basic linguistic units and the more surface linguistic features have many factors impinging on them. Traditionally, cognitive linguistic studies look at a set of independent variables (perhaps having to do with the age, sex, bilingualism, economic class, etc. of the subjects) and a set of dependent variables hypothesized to be sensitive to cognitive processes (e.g., number of propositions recalled, MLU). There are two problems here. First, the linguistic units must be selected on a cognitive basis as well as a linguistic one. Second, the units of analysis should be seen as being influenced by a range of factors (such as social situations, etc.) and as contributing to the construction of social and other factors. Some of these other factors may be the mutually negotiated code of exchange (including register and dialect), the information space of two conversational participants, the social relationship between two speakers. Language choices reflect these and other such factors and also contribute to their establishment as characteristics of the speech event.

One approach to delineating appropriate linguistic units for study is to use paradigmatically defined sets. Paradigmatic sets consist of the set of choices available to fill a given slot. If the set of choices is exhaustive then the selection of one choice rather than another under given circumstances can be seen as the rejection of other options and as motivated by one or more factors. When comparing populations or a population

under two conditions, frequencies of each of the choices in an exhaustive list can be compared to each other. For example, if population A is compared to population B on the use of linguistic forms R, S, T which form an exhaustive set then the proportions of R, S, and T for each population can be simply compared. This is basically the method of Labov's (1966) sociolinguistic study of r-lessness in New York City and of story grammar studies (e.g., Stein and Glenn, 1979) where the units of the schema are taken to be an exhaustive list.

Data and analysis

The following data is from a study of normal and disabled readers. The two groups of subjects have I.Q.'s in the normal range and the subjects are matched for age (range 102-132 months). The tasks were: 1. the telling of a story to make a video-tape without the experimenter present; 2. a monologue on an emotional topic intended for the experimenter (an adult) and a monologue on an emotional topic intended for a peer.

The language from these conditions was subjected to a cohesive analysis derived from Halliday and Hasan (1976) and Rochester and Martin (1979). Systemic grammar on which the analysis is based is built on choices from paradigmatic sets. A choice indicates a certain meaning selection which excludes other meaning options in the set. The categories for conjunction are given in Table 1.

Table 1
Categories of conjunction with examples

Conjunction
Additive
"John liked steak *and* Mary liked fish."
Adversative
"Tom was in a hurry *but* Harry took his time."
Causal
"He avoided water *because* he couldn't swim."
Temporal
"He ate supper, *then* he watched T.V."
Continuative
"She missed the train. *Well*, it didn't matter much."

Conjunction is an example of a particularly social influence on what appears to be a cognitive linguistic measure. Conjunction is a linguistic relation between two pieces of text which instructs the reader or hearer to "interpret what follows in a given way with respect to what precedes." The specific semantics of "a given way" are reflected in the different options in the conjunction set (i.e., additive, adversative, causal, temporal, continuative). The additive option is the unmarked one in the sense that it merely signals the textual conjoining of two pieces of language without further semantic specification of the link. By grouping all non-additive conjunction together a measure of the use of specific semantic conjunctive links is obtained.

In task 1, the telling of a story from a wordless book and then the recall of that story show a difference in the use of conjunction. The original story telling (18%) had less non-additive conjunction (ANOVA p < .03) than did the recall of the story (30%). When subjects have the relations of the propositions in memory, more detailed semantic links are explicitly stated. Martin (in press) also found this result for normal subjects (Martin's corresponding variable is explicit non-additive

externals). This interpretation is strengthened by the result that the monologues of task 2 (40%, 33%) had more (p < .003) non-additive conjunction than the story telling (18%) and recall (30%) of task 1. When a passage is entirely produced by a speaker, the speaker is presumably fully aware of the material to be presented and the relationships between stretches of language. These relationships can then be coded in a semantically specific way. In particular, causal conjunction is used more frequently (p < .03) in the monologues (13%, 17%) than in the story telling tasks (3%, 2%). At these ages, then, causality is not lacking in students' language but is favored by certain conditions, specifically the opportunity to speak on a topic selected by the speaker. Interpreted another way, students can be seen as picking and developing topics that require specific causal relations.

The role of conjunctive relations can be further detailed by comparing normal and reading disabled subjects. As can be seen from Table 2, the typical level of additive conjunction is 65% to 70%. These levels are slightly higher than reported in Martin (in press). Under two conditions subjects deviate from this mean level of usage (ANOVA, task x subject interaction, p < .02). In the monologue directed to an adult the normal readers specify less additive relations and more conjunctive relations of other kinds. Under the same conditions, the disabled readers choose the default option (additive conjunction) more often. As the social distance between speakers increases in the monologue to an adult, the normal readers become more semantically specific in their use of conjunction, whereas the disabled readers use less specific links.

Table 2
Percentage of conjunction that is additive by subject group x task

| | Task 1 | | Task 2 | |
	Story Telling	Story Recall	Monologue to Adult	Monologue to Peer
Normal readers	82	70	60	67
Disabled readers	62	71	76	70

On the other hand, in the telling of a story from a wordless book, the normal readers use more additive conjunction and the disabled readers less. When the normal readers become aware of information only in stages, they use unmarked additive conjunction which just specifies that two pieces of information are linked together. In contrast, the disabled readers use less additive conjunction and are so trying to specify certain cohesive relations before they become clear. That is, when the overall information structure of a passage is not clear normal readers appropriately use somewhat more additive conjunction than usual, but the disabled readers use less and, instead, use somewhat more temporal and causal conjunction. When the overall structure is available to the subjects, the two groups are similar.

Discussion

The data show that the overt coding of conjunction is dependent on an awareness of propositional material, to whom language is directed, and the general interac-

tion in the communication situation. Furthermore, subjects with a particular difficulty in one realm of language can be seen as having difficulties in another realm. The same series of linguistic variables are sensitive to both social and cognitive processes. If linguistic sets are defined paradigmatically and are constructed from the point of view of the communicative value of the units then there can be a clear social interpretation of the results. Furthermore, the paradigmatic construction of the sets means that there is in most cases (excluding the categorical inability to use a certain option) a choice among a number of options, each with a certain variability. Individual or group variation can then be informative of different cognitive approaches. What is important is that the linguistic units and the way they are organized into paradigmatic sets exhaustively represent what can be signaled by the particular set of units. Thus the option selected, or, more exactly the rate of selecting each of the given options, can be seen as the result of the cognitive decision imposed by the presence of a paradigmatic set with exclusive 'or' options.

Implications

The approach outlined has implications in a number of areas. For linguistics there is a requirement that complete lists of options for each part of language be developed and organized into paradigmatic sets. Furthermore, the linguistic system must link the surface structure to cognitive and social factors. This requirement implies a link to semantics and pragmatics. In fact, semantics and pragmatics do not have to be viewed as separate components but, rather, the surface form can be viewed as realizing many systems simultaneously (a standard position in systemic grammar). The task is to develop linguistic theories and models that are linguistically reasonable in terms of internal linguistic patterns and also plausible in communicative terms, e.g., social interaction, setting, language learning and socialization.

From a cross-cultural perspective, the problem is to develop networks of linguistic features that equivalently link linguistic, cognitive and social features of different cultures. An appropriate level of abstraction and generalization for each set of features must be found. For example, Cole and D'Andrade (1982) suggest that the categories of schooled and non-schooled are in some ways equivalent across cultures. Other possibilities may be the use of schemata or literacy (Goody, 1977; Olson, 1977). There is evidence for the different processing of schemata across cultures (Kintsch & Greene, 1978) and for the variety of social factors and surface forms involved (Freedle & Fine, 1982).

For educational and remedial applications, the practitioner must look beyond one dimension (such as increasing MLU's or spelling scores), and beyond two dimensions (such as studying whether material is organized in one way or another). The circumstances of the educational or remedial effort must be examined, including factors such as cognitive tasks, social tasks, the language produced by the learners in different situations, and the fit of the subject to the situation. In terms of this last point, for example, Cole and D'Andrade (1982) show that the same context can be interpreted differently. Martin (in press) separates dialect as the variation in linguistic features produced in the same context by different speakers, from register which is the variation in linguistic features produced in different context by a single speaker. These considerations extend specially to testing situations where the kind of test, structure of material, and form of response may all produce a variety of reactions in test-takers.

Computer systems (and especially now educational systems, see Levin, 1982) are designed with certain schema-structure factors. In fact, it is through computer modeling that much of our knowledge of schemata has arisen. These schemata and their surface linguistic representations are built on a cultural and linguistic base. We must appreciate the specificity of the assumptions in the software. In particular, interactive systems invoke even more factors that can have a specific cultural input. Differences in how questions are asked and answered can be important to the user. What is sufficient and helpful information may differ culturally as it certainly does differ with degrees of experience in any field. An expert needs less prompting than a novice. Even the kinds of commands that are helpful in different contexts vary with a user's experience (Scapin, 1981).

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*"A longer care man's helpless kind demands,
That longer care contracts more lasting bands."*

Alexander Pope

The Supportive Context: Both Here and There and Now and Then

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In a recent article in the Quarterly Newsletter Lucia French and Katherine Nelson (1982) described some of the language abilities of a group of children, ages 2 years 11 months to 9 years 5 months, in an interview situation. The results of the investigation from which their data were obtained have been reported elsewhere and have provided important information about the mental representation of events in preschoolers' cognitive development. The purpose of the French and Nelson paper was to draw on these data in order to provide complementary information about these same children's language development.

French and Nelson report that "the discourse setting established by interviewing preschoolers about familiar activities results in a quite different use of language, and thus a quite different picture of the young child's linguistic and cognitive skills, than is obtained by analyzing their ordinary context-bound conversations" (p. 5). This claim prompts the following comments. First, in studies of the acquisition of complex sentences (Bloom, Lahey, Hood, Lifter & Fiess, 1980; Hood & Bloom, 1979), two-year-old children, in naturalistic, nonelicited conversation, produced sentences with the connectives *so, because, if, but,* and *or* far more frequently than French and Nelson indicate for their three-year-old subjects in their interview task. Thus, at least with respect to revealing the linguistic skills required for complex sentences (which was one of the domains singled out by French and Nelson), the interview situation is not necessarily the favored discourse setting.

Second, French and Nelson did not compare the two discourse contexts in their study. Rather, they contrasted aspects of their language data with generalized claims about preschoolers' speech from the available literature, in particular the observation that early speech is about the 'here and now.' The problem here, however, is that the data they have are from children who are considerably older than the children in the literature to which they have referred. The observation that young children talk in the 'here and now' was based upon the very early speech from children in the age range of approximately 17 to 27 months (e.g., Bloom, 1970; Brown & Fraser, 1963). No one has ever claimed that these children never talk about the 'there and then' and, indeed, development of talk in the 'there and then' in one two-year-old's speech has recently been documented by Sachs (1979). French and Nelson do not describe the development of what they call "decontextualized speech" so much as simply report that it occurs in the speech of children who are three to nine years old, and they are no doubt correct.

French and Nelson suggest that the 'here and now' characterization of young children's speech (and the speech addressed to them) was an artifact of the data collection procedures in the studies of early speech to which they refer, and here they are not correct. The observational, descriptive studies of language development of one- and two-year-old children were not contrived with a focus on the immediate context as they claim. Rather, as each of the researchers in those studies (e.g., Bloom, 1970; Brown, 1973; Bowerman, 1973; etc.) pointed out, the data were obtained by recording naturalistic interactions in the course of children's everyday events: playing with toys, but also eating, bathing, toileting, waking from a nap, etc. The child's use of context varies at different levels of development and according to the demands of different conversational tasks, and it may be that speech is never "decontextualized" (see Bloom, 1974). By asking a child "Can you tell me what happens when you have lunch at McDonalds?," you provide one kind of context for talking about lunch at McDonalds.

As long ago as 1927, Grace de Laguna proposed that "The evolution of language is characterized by a progressive freeing of speech from dependence on the perceived conditions under which it is uttered and heard, and from the behavior which accompanies it" (1963 edition, p. 107). Just as the ability to think about events that are not supported by the immediately observable context develops over a long period of time, so does the ability to talk about and understand when others talk about displaced events. This gradual freeing of both thought and language from the immediate context poses a developmental problem for the child. French and Nelson have data that bear on this developmental problem and they have described one discourse context in which this development proceeds. The data they have appear to be more complementary -- with respect to the age range they studied and the discourse context that they tapped -- than contradictory to the child language literature to which they refer.

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"The major activities of the individual must directly satisfy his own creative and emotional impulses, must always be something more than means to an end. The great cultural fallacy of industrialism, as developed up to the present time, is that in harnessing machines to our uses it has not known how to avoid the harnessing of the majority of mankind to its machines. The telephone girl who lends her capacities, during the greatest part of the living day, to the manipulation of a technical routine that has eventually high efficiency value but that answers to no spiritual needs of her own is an appalling sacrifice to civilization. As a solution to the problem of culture she is a failure -- the more dismal the greater her natural endowment. As with the telephone girl, so, it is to be feared, with the great majority of us, slave-stokers to fires that burn for demons we would destroy, were it not that they appear in the guise of our benefactors.

The American Indian who solves the economic problem with salmon-spear and a rabbit-snare operates on a relatively low level of civilization, but he represents an incomparably higher solution than our telephone girl of the questions that culture has to ask of economics. There is here no question of the immediate utility, of the effective directness, of economic effort, nor of any sentimentalizing regrets as to the passing of the natural man. The Indian's salmon-spearing is a culturally higher type of activity than that of the telephone girl or mill hand simply because there is normally no sense of spiritual frustration during its prosecution, no feeling of subservience to tyrannous yet largely inchoate demands, because it works in naturally with all the rest of the Indian's activities instead of standing out as a desert patch of merely economic effort in the whole of life.

A genuine culture cannot be defined as a sum of abstractly desirable ends, as a mechanism. It must be looked upon as a sturdy plant growth, each remotest leaf and twig of which is organically fed by the sap at the core. And this growth is not here meant as a metaphor for the group only; it is meant to apply as well to the individual. A culture that does not build itself out of the central interests and desires of its bearers, that works from general ends to the individual, is an external culture. The word 'external,' which is so often instinctively chosen to describe such a culture, is well chosen. The genuine culture is internal, it works from the individual to ends."

Edward Sapir

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