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IMPLICATIONS FOR SOCIOLINGUISTIC RESEARCH AMONG THE DEAF

James C. Woodward

1.0 Introduction

The purpose of this paper is to present a brief outline of the language situation of the deaf and to suggest areas for future sociolinguistic research. Unfortunately, despite many studies done on the language of deaf persons, there are few that are based on sound linguistic principles. For example, certain scholars (e.g. Furth) have stated that American Sign Language (ASL) is "not a verbal language" and that the deaf generally have poor English and are linguistically deficient. Even some studies that are linguistically based (e.g. Taylor) have ignored ASL and have concentrated on "errors" in the English of the deaf.

Some linguistic work has been done on ASL. McCall generally used terminology of traditional English grammar couched in 1957 transformational rules to describe ASL. More reliable studies have been done, among them Stokoe (1960, 1965), which concentrate on a structural description of the "phonemes" of ASL, identifying them as cheremes. These reliable linguistic studies have pointed out that ASL and the ASL community is parallel in many ways to the complicated language situation in the hearing world. Unfortunately, much more linguistic research needs to be done, if we want to get an accurate picture of the language situation in the deaf community. To begin one can describe generally the language situation among the deaf. The problem then is, how does this correlate with extra linguistic reality, i.e. the social variables, attitudes about language, etc. that affect language use. This can only be done through research

2.0 The Languages

The deaf in America are either monolingual in a variety or varieties of ASL, monolingual in a variety or varieties of American English, or they are partially or

completely bilingual in a variety or varieties of ASL and in a variety or varieties of English. Some work has been done to describe variation in ASL along regional (Croneberg) and social (Stokoe, 1970) lines. But none of the work is based on rigorous field techniques. Field work needs to be done.

As far as American English is concerned, a number of the deaf use a non-standard variety or varieties of American English. This is obvious from the fact that educators of the deaf always speak of the poor or bad English of the deaf. Unfortunately, some people using linguistic methodology (e.g. Taylor) agree with this analysis of the educators. Probably there are some deaf people who have acquired something of a bi-dialectal status in American English, but to date, no research studies have been done in this area.

For those people who are partially or completely bilingual in variety or varieties of ASL and English, the language situation seems to be structured along a diglossic plane (Stokoe, 1970). The L variety or varieties are a variety or varieties of ASL; the H variety or varieties are a variety or varieties of American English. As Stokoe has pointed out, language choice is influenced in much the same way that Ferguson has described in his classic paper on diglossia--that is, setting, topic, participants, etc. all play a large role in language choice.

Actually, the diglossic situation may be the only language situation necessary to describe, for it is difficult to imagine a deaf person in America not coming into contact with ASL or American English at some time in his life. He may have only a limited knowledge of one or the other end on the diglossic scale, but he undoubtedly will use another part of the scale like a native. The problem is why one person uses certain varieties and another person does not. Environmental factors influencing language development and use must be discovered.

Some of the environmental (social) factors influencing language development probably are: social class, educational level of parents and self, date and degree of hearing loss of parents and self, type of school (oral vs. manual) attended, and others not yet identified. Many interesting hypotheses about the correlation of social and linguistic variables among the deaf could be made; but, at present, it would not be very fruitful to do so, since no data to back up the hypotheses has been gathered. This data can be obtained by thorough linguistic and sociolinguistic research in the fields of language and education of the deaf. The following section of this paper attempts to outline the needed research [with the support of NIH grant NS-10302] .

3.0 Research possibilities

3.1 Contrastive analysis

What is needed first is a small contrastive study of one variety of ASL with Standard English to give researchers an idea of some of the possible variables to test out in other studies. A knowledge of one variety of ASL will be invaluable for comparison with other varieties. This preliminary research has been started at Gallaudet College.

3.2 Language attitude studies

The next step in the research design is an extensive language attitude study among the deaf population where future extensive variable research will be carried out. In the deaf community (at least in the deaf academic community) there is a great deal of mistrust of and antagonism towards researchers. Many seem to believe that the deaf are being used as guinea pigs. This type of attitude must be discovered and softened before extensive research can be done. The language attitude study must study both attitudes to ASL and to the English that the deaf write. A correlate to this attitude study would be a similar study done on hearing teachers of the deaf to see if their attitudes are the same as those of the deaf themselves or not.

Of course, the attitude study should be correlated with social variables as well as with linguistic variables. The linguistic variables used could be some of those discovered in the contrastive analysis project. The problem is how to carry out the language attitude study. Questionnaires are not the best technique for ascertaining attitudes, due to the fact that questions can easily be misunderstood. However, it seems that the only other choice for the ASL part of the study is video tape. But this would not do because the respondents could judge the person signing by his physical appearance; and, in some cases, informants on the video tape might be recognized, which would skew the study. But the face must be shown because, it, as well as the hands, is part of the cheremic system of ASL. Selection of a proper instrument for the ASL part of the attitude study is a large problem that will have to be solved.

3.3 Variable studies and ethnographies

The next two parts of the research design can and perhaps should be carried out simultaneously. These two parts are studies of linguistic variables and ethnographies. There are two major difficulties in field work for these two studies. One is that all data in ASL will have to be recorded by visual means. The other is that informants will probably switch to the variety of H they know, if they know that hearing field workers are being used. There is less of a problem in the variable studies related to English, since written texts can be used.

The variable studies need to correlate ASL linguistic variables with social variables and to correlate English linguistic variables with social variables. Later the diglossia theory should be tested by trying to elicit code-switching.

Ethnographic studies will help determine how the diglossic scale works for the American deaf and what the social hierarchy for code-switching is, as well as telling us some important things about the interrelationships of communication systems in the deaf.

The variable and ethnographic studies should be carried out before the other two parts of the study; but, undoubtedly, there will not be enough time to carry out the variable and ethnographic studies first.

3.4 Pidgin sign English

There is one other type of communication among the deaf that needs to be studied also, and that is simultaneous communication. Its use is not very wide spread and is centered primarily at Gallaudet College.² In this communication system, people talk a variety of English while they sign something that seems to be a pidginized version of English. The order is primarily English, but the inflections have been reduced in redundancy. For example, "I am going" is signed "I am go" or "I go".

The correspondences of this pidginized English to other varieties of English and ASL needs to be studied. This pidginized English is also undergoing some very rapid modification towards standardization and correspondence to Standard English. From the point of view of language change and language planning and standardization, it would be very interesting to study this variety of English.

3.5 Sociolinguistics and Education

For anyone familiar with sociolinguistic research, it is obvious that sociolinguistics has much to offer in the planning of language teaching and of education generally for the deaf. After the above sociolinguistic research has been carried out, it can be used to determine what features of Standard English will need to be taught and when. It will also provide ways of setting up a series of lessons based on contrastive procedures and with the slant of the present methodology applied in English as a second language and in dialect situations. The research may also suggest ways of testing language proficiency in each of the dialects of ASL and English.

Such sociolinguistic research will also be invaluable in teacher training programs for teachers of the deaf in the areas of language attitudes, teaching methodology, educational sequencing, and training in ASL dialects and deaf non-standard dialects of English. A pilot teacher training institute based on sociolinguistic principles was held at Western Maryland College in the summer of 1971.³ Students were exposed to the above research theory and design; they began to do some research in the summer which they may later expand in their own schools. Similar training institutes will doubtless be repeated and expanded.

4.0 Conclusion

Obviously there is much to be done in the field of deaf linguistics and sociolinguistics. This research will also have a direct bearing on psycholinguistic research on the deaf, since with one exception (Ursula Bellugi-Kilma's study of a deaf child's acquisition of ASL), psycholinguistic research on the deaf has been concerned with the acquisition of Standard English (e.g. McNeill).

But sociolinguistics will not be completely on the giving end in research among the deaf. Research in ASL and in deaf non-standard English may well help develop and expand sociolinguistic theory and research methodology, since ASL involves language phenomena quite different from those usually observed by linguists. It may be true that because ASL is a visual system, it has certain properties not found in oral language and therefore properties that might not be discovered if ASL is not researched.

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Notes

1. Preliminary version of a paper presented at the meeting of the Linguistic Society of America. December 1971.

2. Under the name Of total communication this type of communication is being used by an increasing number of schools for the deaf. see The Deaf Spectrum.

3. Psycholinguistics and total communication: the state of the art. Ed. by T. J. O'Rourke. Announced for publication by American Annals of the Deaf.

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PROSPECTS FOR TEACHING ENGLISH Det + N STRUCTURES TO DEAF STUDENTS

Paul Crutchfield

A teacher who was tackling a graduate course in language development of the deaf asked her class the following question: "Do you all know the morphological rules of English?" One of the class members asked for a bit of clarification: "Do you mean," she asked; " 'Do we know the morphological rules of English,' or 'Can we recite them?' " Of course, the answers to the student's two questions at that stage of the course would probably have been, respectively, "Yes" and "No". The point here is that anyone who communicates in his native language (and a few other sets of rules, besides), well before the time he reaches puberty. What goes on in language classes in public schools is mainly polishing the students' language usage, usually by teaching an entire textbook series of rules. While this procedure seems to work with some degree of success for hearing students, the same is not true for deaf students. The problems that deaf students have with English are painfully evident; and it is my opinion that the real problem lies in many educators' failure to realize that English is not the native language of a profoundly deaf child. Teachers and deaf students struggle through years of classes trying to impart and learn, respectively, the rules

of English, generally as they are taught to hearing students. Meanwhile, the deaf students become more and more proficient in the language of signs--their native language--outside the classroom. They polish, as it were, their usage of the rules they have come to learn from deaf parents, or from other deaf students who sign--all without the benefit of textbooks and teachers.

This paper is directed to the teaching of English (specifically, to the teaching of some classes of nouns and their determiners) to deaf students who have reached the secondary level. I am working on the assumption that by this time the deaf student has become a proficient user of American Sign Language (ASL). This is, in a way, neglecting one of the largest problems, that of the need to recognize and utilize the deaf child's native language during his early education. But (even if immediate innovations in the teaching of deaf children were effected) there are still large numbers of deaf students who have a limited period of formal education remaining, in which they would profit by becoming more proficient in English.

Zellig Harris (1954) provides a formula for establishing the minimal structural differences between two languages. Basically, it is as follows: The minimum structural differences between languages A and B is the sum $(A-B) + (B-A)$: $(A-B)$ is the group of structures found in A but not in B; and $(B-A)$ is the group of structures found in B but not in A.

It would seem that most current methods of teaching English to deaf students are unilateral. That is, what is taught is $(\text{StructureEn} \text{ StructureAsL})$. This may work for structural elements common to both languages, but two sets of structures are thereby neglected: often, the student will fail to understand, much less learn, structures that are unique to English; and he will apply structural elements to English that are unique to ASL.

This statement calls for continued rigorous research of ASL, and the utilization of those results to teach English through ASL. This would ultimately lead to the use of $(\text{StrAsL}--\text{StrEng})$ in teaching $(\text{StrEng}--\text{StrAsL})$ '.

Working from some research in both languages with which I am most familiar, I have prepared an example of what I have called for above. The chief source of theory relating to English nouns and determiners is Chafe (1968) secondarily Yotsukura (1967). Their classifications of English nouns led to the preparation of a means for gathering a small amount of similar data concerning nouns in ASL. Acknowledgment for data on ASL goes to

fifteen ASL informants, all students at Gallaudet College.

The following information about ASL was gathered from these informants:

1. The (+count) feature is present in ASL.
2. Some (+count) nouns in ASL differ from those in English.
3. (+plural) features exist in ASL, and ASL requires (-def, +pl) determiners.
4. Signed plural inflections may be used to replace plural determiners in (-def, +pl) nominal constructions.
5. Nouns having (- def, - pl) features may be signed without visible determiners.
6. Visible (+def) denotata may require (+def) determiners.
7. Non-visible, (+def) denotata do not seem to require (+def) determiners.
8. (From 6 & 7) Hence, (+visibility) may be a semantic feature (for selection of determiners, at any rate).
9. (+generic) features may need no (+gen) determiners in situations where the + genericness is understood.
10. The (+aggregate) feature is probably therefore meaningless in ASL

Not all of these conclusions are safe enough to work from at this point. All of them in fact, will require much more research before any valid statements can be made. The following examples then are heuristic.

The fact that there is a (+count) feature in ASL presents an immediate point of departure for teaching the English (+count) features. The first step, then, would be to bring the ASL (+count) feature to the students' attention. Specific examples in the data are: 'much boy left school' *'much family watched television', and *'I bought four food' (Verb inflections for time will not be apparent in the signs; the discrepancies in what is signed and what is written (later) can be explained briefly, while the students' attention is focused on the nouns.) If the assumptions given above are more or less correct (i.e., if the students are proficient users of ASL, and these are unacceptable utterances in ASL), the students should show some signs of disagreement. The students would be asked to correct the three utterances in sign language. In all probability, the teacher would receive the following signs as corrections of the unacceptable utterances: 'many boy left school' 'many family watched television', and 'I bought some food' The three pairs of utterances would be written so as to be visible to the

entire class. The teacher would then explain that those utterances unacceptable in ASL are also unacceptable in English, and that the acceptable utterances in ASL are also acceptable in English--provided boy and family are given plural inflection.

I feel that there is a sort of psychological advance made here, and in any instance where elements common to both ASL and English are used as a bridge. The teacher is saying tacitly, "The language you use most comfortably is not poor English. As you can see, it agrees with English here. This shows that you can learn to write well; in fact, you probably already know more than you thought you did."

A small number of sentence pairs of this type should be enough for one lesson, the idea being to show similarity of acceptability and unacceptability in ASL and English. Once this element of structure has been recognized by the students, the teacher should work with them in looking for an explanation. When some statements regarding the (+count) features have been agreed upon, the teacher can move on to structures in English which are different from those in ASL, and those in ASL which are different from English.

In order to teach plural noun inflection in English, the teacher again begins in sign language. A variety of situations may be given to the students which require differentiating between singular and plural nouns. (These should be - def.) Signed pairs of such differentiations are written on the blackboard, and the plural markers are pointed out. The teacher then explains that just as sign language requires words like many and several, or inflections of some nouns (by repetition of the sign), English requires markers for clarifying the number of things referred to. (The students will know the English plural forms by this time, the purpose here is to relate the English plurals to signed plural markers, and to help the students be conscious of the need for the carryover when they are writing.)

The teacher should explain that while the (-def, +pl) marker in sign language may be an either-or choice between a (-def, +pl) determiner like many and the repetition of the sign to show plurality, English requires the (+pl) noun inflection, and usually requires a (-def, +pl) determiner, as well. The (-def, +pl) ASL determiners can be shown as translatable into English through a number of lexical units besides many, several, some, few, etc. (all signed). For example, such markers as a group of, a number of, a lot of, a handful of, etc., could be effectively taught as "English nuances" of the basic markers common to both languages, just as those signed markers have the nuances of facial expression, rapidity of signing force of signing, and the number of signs used ('many many boy').

With the same type of sentence pairs, the English (- def. - pl) determiners should be

pointed out. The problem to be faced here is the absence of such markers in ASL. It has been my experience that students who write such sentences as Boy stayed home will realize that they have omitted the article when they are told that something is lacking. The goal here is of course to help the students remember indefinite articles on their own--and this is a lot to ask when they don't need them in their language. A possible means of teaching some of the instances of indefinite determiner usage would be to contrast (+def) and (-def) nouns in sign language .

Visible (+def) denotata seem to require some kind of signed determiner. The teacher could again begin in ASL by asking the students to sign several sentences about visible objects that require some specificity. Instances of the (index) sign used as a determiner, as well as 'this' and 'that' should be pointed out. The teacher then explains that English, like sign language, requires indications of specificity. The students could begin by practicing, writing short compositions in which the, this, and that are needed to differentiate various visible objects. Basic differentiations for English usage of these determiners could be made by relating the signs to the English determiners. (The plurals, these and those, could be brought in rather early.) When the students seem to have gained some proficiency at using determiners with nouns whose denotata are visible, the teacher should work with them at generalizing statements that cover these structures common to both English and ASL. This process will depend on the students' awareness of their use of (+def) markers for visible objects. Then such statements are in order as, "If I would point (or use 'that', etc.) to something and also use its sign when I'm talking with my friends, I need to use an article when I'm writing about the same thing in English."

After such discoveries of structural rules for nouns having (+def, +vis) denotata have been made, the teacher could guide the students to discoveries about (-def, -pl, +vis) denotata. The students could be reminded of the necessity to use (-def, +pl) determiners, and using their English lexical counterparts, write short compositions about (-def, +pl, +vis) denotata. Combinations of situations in which (+def, -pl, +vis) determiners and (-def, +pl, +vis) determiners must be used might accustom the students to using (+def) and (-def, +pl) determiners more or less automatically. Then, as proficiency is noted, situations having (-def, -pl, +vis) denotata could be introduced. Discoveries such as "If there is only one thing to be described, and the, this, etc., do not seem to apply, then English requires something like a" might follow.

Moving from visible to non-visible denotata will require a strong grounding in the

discoveries the students have made about visible denotata. The students will have to rely on operations they have learned for writing about visible denotata, since (+def,-vis) nouns probably don't require determiners in sign language. In other words, the students will have to generalize English structure rules from the English structure rules they have learned through ASL, rather than making any type of direct generalization from ASL to English.

One possible means of beginning work on such determiners would be actually "moving out" from the present visible world of the classroom to locations just beyond the range of visibility. Students might be asked to imagine that they are in another room (e.g. the library) and to sign several statements about the things they "see". If determiners are not used, prompting ("Which book? Or does it matter?") might be utilized to get the student to see the necessity for signing determiners. Then the students could write short compositions about similar situations. This "empathetic visibility" might be a means of getting the student to use at least (+def) determiners more spontaneously, in addition to their (-def, +pl) determiners, for (-vis) denotata.

The data for (+generic) and (+aggregate) nouns is too shaky for similar treatment here. I feel that the generic feature does exist in the ASL; but the proof is lacking. Such signs as 'all' and 'every' could be used to convey the +generic feature of English nouns, and once this is established, the similarities of such constructions as All boys...and Boys . . . could be shown. The generic feature is a very important one that should not go untaught; however, the aggregate may be a bit too esoteric when compared with all the constructions that should receive vigorous treatment .

I have tried to show that the existing determiners and nominal features in ASL might well be a profitable source from which to draw in teaching those English structures to deaf students, especially when such elements are common to both languages. The most viable of these is that of the (-def, +pl) nouns and their determiners at present, because of their necessity in sign language and the relatively broad common occurrence in both languages. More research in both the ASL and in its use in the teaching of English is needed.

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SOME SOCIOLINGUISTIC CONSIDERATIONS OF AMERICAN SIGN LANGUAGE

Harry Markowicz

In the mid-eighteenth century, a controversy developed over the instruction of deaf children, pitting against each other the founders of two opposed methods of instruction. In 1775, the Abbe Charles Michel de l'Epee established the first public school for deaf children in Paris. The method of instruction consisted of the language of signs. A German contemporary, Samuel Heinicke, became known as the originator of the oral method by which deaf children are taught through speech and lipreading. The controversy between the two schools- the manual and the oral--was never resolved and is still today a central issue in the bitter debate between the proponents of each method.

A search through the literature indicates that the debaters professionals concerned with the education and the welfare of the deaf--have only rarely looked to linguistics for support for their positions. On the other hand, it appears that until very recently, linguists have not shown any interest in the development and use of language by the deaf. Interest in the modes of communication employed by the deaf seems to have arisen following the

establishment of the field of psycholinguistics. Recent studies by Blanton (1968), Lenneberg (1967), McNeill (1965) indicate a concern with the language problems of the deaf and the implications for their education. Sometimes the approach is from the point of view of advancing theoretical knowledge of linguistics, and other times from the practical aspect of helping the deaf overcome a very large handicap .

Sign language constitutes the most important means of communication for the majority of the deaf in North America. At the same time the general community and some of the deaf themselves consider it inferior to and more primitive than spoken languages. Linguistic studies, whose results indicate that sign language is not fundamentally different from other languages, can contribute to giving it the legitimate status which it deserves, and which may be necessary for the welfare of the community to which it belongs. Sign language, and its acquisition by deaf or hearing children, may have important implications for linguistic theory. However, this paper will not deal with them as much as with describing the status of signs as a language used by a substantial number of deaf people.

Herbert Kohl (1966) writes "As adults, deaf individuals use sign language exclusively, or a combination of signs and words.... This is true regardless of whether the individuals went to college or not, and is also independent of intelligence." While sign language does permit communication with hearing people--very few non-deaf individuals are familiar with this language and these are usually the children of deaf parents--the facts indicate that it is the preferred means of communication within the community of the deaf. Social scientists have observed the existence of a subculture of deaf people:

Because most deaf persons are happier in association with other deaf persons, and because of the concentration which results, there develops a subculture of the deaf within the larger community. This subculture is a direct result of their deafness, a result of the difficulty they have in communicating with the hearing society around them as opposed to the ease with which they interact among themselves. (Boese, 1964, p. 4)

A quotation of Dr. Anders S. Lunde in Stokoe (1960, p. 26) reveals the extensive use of sign language in the subculture of the deaf in the U.S.:

Although oral schools emphasize speech reading and speech, the plain fact is that the deaf as a group use the sign language among themselves. According to Best, 78.2 per cent of the

deaf used sign language and only 1.0 per cent used speech alone.

Concerning language acquisition by the congenitally deaf, Lenneberg writes:

In America it is not until the child is four or five that intensive language training is begun, and during the first year the training is merely preparatory, that is, readiness for the instruction in articulation, lip reading, and reading and writing. (1967, p. 320)

He is referring here to deaf children whose parents are hearing people and who are naturally unfamiliar with the language of signs. Deaf children of deaf parents who communicate manually learn to sign in the same manner as hearing children learn to speak. Their linguistic development seems to parallel that of hearing children. (Stuckless & Birch, 1966, p. 454) Lenneberg continues:

Thus there can be no doubt that the deaf come in contact with language at an age when other children have fully mastered this skill and when, perhaps, the most important formative period for language establishment is already on the decline. (p. 321)

Today the proponents of the manual method are waging a battle from the sidelines, or from the underground, because there does not exist in North America a school for the deaf where children are taught through the medium of sign language. Neither is sign language included as a subject matter in any school. (Stokoe, 1960, p. 25) All deaf children at present are brought up by the oral method, or in a few schools by a modified oral method which involves the use of fingerspelling. In some schools, after an initial stage in the oral system, children who fail to make satisfactory progress are relegated to the manual department. (Getz, 1953, p. 51)

McCay Vernon, like other social scientists, writes about the deaf as a suppressed minority. He points out that deaf children, like Puerto Rican, Indian, and Negro children, "tend to be forced into segregated schools over which they have little control." (1969, p. 3) Vernon expresses the psychological relation between the deaf child and the language of the community of which one day he will probably become a member:

The consequence of the almost exclusive use of 'outside' educators has often been teachers and administrators who cannot fathom the life circumstance of their pupils.... The National

Association of the Deaf has long supported the use of the language of sign and fingerspelling. Yet the child is taught that these modalities, the only ones he can master for purposes of full communication with other deaf persons and with his family, are bad. This negative value is transmitted by its being forbidden to him and his family by the school. His teachers rarely know the language and frequently refuse to use it if they do. (D. 3)

Robert Boese, in a study of the deaf community of Vancouver, British Columbia, found that almost unanimously, the educators favor oralism for every child. (1964, p. 14) Most educators of the deaf in North America seem to hold the same view. Commenting on the state of education for deaf children, Don Campbell, a psychologist, writes:

Paradoxically, the very teachers who embrace the idea that most profoundly deaf children can, through speech acquisition, learn to relate well in a hearing world, often themselves studiously avoid involvement with the deaf community other than during the school day when they are paid to do so. This is particularly interesting in view of the fact that these teachers might be expected to be among the first to promote true social integration of the deaf. In practice this is usually not the case. (1970, p. 2)

In many schools the use of signs is discouraged or punished, while in others it is tolerated. Without the benefit of instruction, the vast majority of deaf people acquire sign language and fingerspelling by association with other deaf persons. (Furth, 1966, p. 9) Stokoe (1965) points out the difference between a 'native' signer and a 'non-native' signer. The native signer is typically a deaf or hearing child of deaf parents, or a deaf individual who has had extensive contact with sign language users "since early childhood or early youth." (p. 297) The non-native signers include teachers of the deaf and some deaf individuals who have had only limited intercourse with native signers.

It is revealing to note the results obtained by the schools which claim to be educating deaf children by means of the oral method. A study done by Boatner showed that only about 5 per cent of the deaf students, aged 16 or over, leaving the 88 schools involved in the study, had attained 10th grade or higher. (Quigley, p. 13) In another study, Furth found that "the percentage of deaf pupils who have linguistic competence . . . reaches a maximum of only 12 per cent, a number which may be somewhat inflated by the presence of pupils in the norming sample who had lost their hearing after the acquisition of language, or who were

not profoundly deaf." (1966, p. 14) Furth's evaluation was based on reading skills of the pupils. Quigley points out that reading achievement is not a reliable indicator of a deaf child's linguistic competence and suggests that the ability to write in English is a more reliable measure. (p. 13) Commenting on the writing done by the students of Gallaudet College--the world's only institution of higher learning for deaf people--Stokoe writes:

When we look at the literally tons of evidence--we have files of students writing going back to 1954--just one conclusion is to be drawn. If one objective of our profession is to teach the language of his culture to the deaf child, we have failed. Looking only at the top 10th of the products of our teaching of the deaf child, we can hardly see that we have tried. The language patterns of the other 90 per cent hardly bear looking at. (1963, p. 967)

Furth, among others, suggests that the education of the deaf has not been adequate. He points out that "a four-year old hearing child masters language and so does an adult with an IQ of 40." (1966, p. 15) Thus, a high intelligence level is not a prerequisite for the acquisition of language, while the majority of deaf children in the schools for the deaf do not acquire it as well as do retarded individuals. According to Furth, "The true 'language' of the deaf is the sign language, as one can readily observe." (p. 15) Blanton agrees and expresses the opinion that signing will continue to serve as the medium of communication in the deaf community. (1968, p. 166)

The suggestion that sign language is the 'true' language of the deaf is not a recent one. L'Abbe de l'Epee, who is best known as the founder of the manual method for the education of the deaf, wrote:

La langue naturelle des sourds et muets est la langue des signes: ils n'en ont point d'autre, tant qu'ils ne sont point instruits, et c'est la nature meme, et leurs differents besoins, qui les guident dans ce langage. Il importe peu en quelle langue on veuille les instruire: elles leur sont toutes egalement etrangeres, et celle meme du pays dans lequel ils sont nes, n'offre pas plus de facilite que toute autre, pour reussir dans cette entreprise. (1776, p. 12)

Recorded history indicates that there had been attempts to educate the deaf long before l'Epee started his school. Pedro Ponce DeLeon, a Spanish monk born in 1520, educated the children of several noble families "by associating objects with the printed word and then

introduced speech by associating movements of the vocal organs with the printed characters." (Quigley, 1969, p. 4) Another approach was taken by Juan Martin Pablo Bonet who also taught the deaf children of several Spanish noblemen. He described his method in a book published in 1620, *Simplification of Sounds and the Art of Teaching the Dumb to Speak*. Bonet's method, which is similar to the Rochester Method employed in several schools in the U.S. today, consists of teaching a one-handed manual alphabet which was associated with the printed letters. Speech was then taught by associating movements of the vocal organs with printed and fingerspelled letters. (Quigley, p. 4) Morkovin (1960) reports that this approach is presently in vogue in the Soviet Union where it is claimed to obtain excellent results in developing speech and speech reading. (Quigley, p.9)

In the initial stages of instruction, l'Epee made use of a fingerspelled alphabet associated with the printed letters, and he also made some attempts to teach his pupils speech. However, he differed from his predecessors, as is indicated above. He believed that sign language was the natural language of the deaf and that it should be the medium for their instruction. He set out to expand the sign language then in use by adding what he called "les signes methodiques" which had the effect of creating a one to one relationship between grammatical items in the French language and in sign language. He imposed the French grammatical structure on sign language so that deaf people would have access to French language and culture. (Stokoe, 1960, p. 10) This elaborate system of signs was seen by l'Epee as the natural language of deaf for their thinking processes and for their communication. [l'Epee was doubtless shrewd enough to realize that in everyday use the elaborate system would undergo curtailment and change. Ed.]

At the same period that l'Epee was operating his school in Paris, Samuel Heinicke became the proponent of what became known as the oral method. Heinicke adopted a philosophical position derived from Locke, the founder of empiricism. (Garnett, 1967, p. 123) Locke rejected the concept of innate ideas and principles. According to him, all knowledge comes from experience, the mind initially being a blank. Thinking takes place in words (sounds) which form part of experience. Inspired by Locke, Heinicke claimed that thinking is not possible without spoken language since it is conducted in the mind by means of the sounds which we make when we talk. A person who has not learned to talk, therefore cannot think, at least not in abstract terms. As a consequence of this belief, Heinicke became the proponent of the oral method of educating deaf children. He opposed manual communication as being harmful to the intellectual development of the deaf. Reading, for

someone unable to speak, he relegated to the same position as manual communication since for such an individual a written text cannot evoke the sounds of the language in his mind. Heinicke wrote: "it is a mistake to believe that the sense of sight, through written speech, can replace the sense of hearing for deaf mutes. Abstract concepts cannot be developed through the aid of writing." (Garnett, 1968, p. 23) Heinicke represented written communication in the following manner, quoted from the exchange of letters between himself and l'Epee:

Through sight we obtain always (inner?) impressions of colors, shapes, and surfaces which are then presented as abstracted in our imagination; yet, we must not believe that because words permit themselves to be represented on paper that they therefore can be similarly presented inside ourselves. No, this in no way follows. Written or printed words are like heaps of flies' feet or spiders' legs; they are not forms or figures that can be presented as fixed or abstracted in our imagination; and we are hardly able to represent individual letters to ourselves subjectively with any continuity. (Garnett, 1968, p. 23)

In his criticism of l'Epee, Heinicke thus claimed that a deaf person unschooled in the oral method cannot remember, beyond a short period of time, the spelling of words or the configuration of signs representing abstract concepts. In a letter to the editor of a Viennese newspaper, Heinicke wrote: "Clear thinking is possible only in spoken language." (Garnett, 1968, p. 47)

It naturally followed for Heinicke that if deaf people are to be able to think abstractly, they must be taught to speak and to speech read. He was of course aware that even through speech reading, the deaf do not perceive auditorially the sounds of a conversation. He resolved this problem by suggesting that the sense of taste somehow provides the deaf with the sound data necessary for thinking to take place. (Garnett, 1967, p. 126) Although this bizarre suggestion has not been adopted by Heinicke's followers, his method is today the prevailing one. Young deaf children in North America are not taught in sign language, and signs are generally not used by the educators to communicate outside of the classroom with their pupils. The two centuries of debate about which method to utilize in the education of the deaf, often seems to lack the advantage of any scientific evidence. Furth points out the basic fallacy in the educational philosophy of our schools for the deaf: "They [the deaf] feel instinctively that without sign language most of them would indeed be unable to

communicate anything but the most primitive and obvious needs." (1966, p. 16) The same view is held by others who have had extensive contact with deaf individuals. The following views are quoted in Getz, p. 56-7: R. Pintner asserts that:

Some deaf children's speech is comprehensible only to their hearing associates, and it is a bitter disappointment later on in life to find that what they have acquired through long years of hard work is useless when they meet a stranger.

Another opinion is offered by J. Keith who wrote:

Speaking from my own observations of lip reading classes, methods, teachers, and students for more than thirty years, I have still to meet a single one of the lip reading students or graduates who could understand ordinary rapidly spoken speech.

T. Brill points out one reason why deaf people form their own subculture:

Even when they are fairly good speakers and lip-readers which is true of only a small percentage, there is a difficulty in the means of ordinary communication, and the result is that they will isolate themselves

The National Association of the Deaf speaks for a large number of deaf adults when it states:

The many intelligent deaf who are confused and helpless in classes where oral instruction and nothing else is allowed resent the fact that their education is restricted in this way. Through no fault of their own they have been denied all the workable types of communication which should be open to them. . . Time which could have been well invested in acquiring knowledge has been wasted in forcing children to concentrate on the unreliable arts of speech and lip reading.

Don R. Campbell, a psychologist employed by the Western Institute for the Deaf, in Vancouver, writes:

Not enough thought is given by administrators of most oral programs to the fact that while many ten year old deaf children are struggling to say simple sentences on the two or three

year [old's] language level, they may also be lagging farther and farther behind in their ability to cope socially and emotionally in a hearing world. They may, at the same time, be falling dramatically behind in their intake of general information. (1970, p. 4)

From the point of view of linguistic competence only, leaving aside all matters of psychological and sociological concern, such as the deaf individual's adjustment to his handicap, his educational achievements, his relations with the deaf and hearing communities, his employment potential, etc., one finds it hard to understand why the professionals who deal with the deaf attempt to impose one mode of communication over another. The deaf turn to sign language as their 'natural' language in the same way that a hearing individual acquires and uses the language of the community in which he grows up. Commenting on the educators' viewpoint, Furth writes: "The fixation on the secondary aspect of language, namely speech, in preference to everything else, including linguistic competence, is indeed baffling. This oral preoccupation must strike a neutral observer as irrational. It is like some strange custom or institution which is encouraged within a community although perceived as harmful by an outsider." (1966, p. 209)

A review of the literature on the education of the deaf and their social and employment problems written by teachers, school administrators, psychologists, and social workers, indicates almost complete denial of the existence of sign language and fingerspelling the manual means of communication. The whole emphasis of the educators is directed toward the learning of speech and lipreading, generally confusing this activity with the teaching of language. They are also often convinced that they are creating in the deaf the possibility to think. A teacher comments: "These 'wordless' children are at the same time without any adequate thinking process." (Dumitrescu, in Fushfeld, p. 63) Another teacher explains how she attempts to overcome her pupils' linguistic problems:

Some have good speech, others try so hard, though we can hardly understand them and there are still many others who have no speech at all. In this case, I emphasize in the child the power of lipreading and the ability to express himself in writing. I try my best to develop in him all the possibilities that will help him in his struggle for existence-his speech, lipreading and writing abilities-for all these put together will help him a great deal in the daily contacts which enrich life. (Alvarez, in Fushfeld. P. 89)

For this teacher, like so many others who are well-meaning and sincere in their efforts to help deaf children become part of society, there is no awareness that sign language, the language of the community of the deaf, can be the means by which deaf children can be educated. "... several extensive research studies (Meadow, 1967; Montgomery, 1966; Stevenson, 1964; Quigley and Frisina, 1961; Quigley, 1969; Stuckless and Birch, 1966; Vernon, 1969) have shown that children with early manual communication not only are more advanced when they enter school, but maintain this advantage throughout their school age years." (Campbell, 1970, p. 15) The results of these studies indicate that in a comparison of them with children who have been brought up orally only, the former generally have a better command of language, not only in manual communication, but also in lipreading, reading and writing. There was no difference in speech intelligibility between the two groups. In most cases, the early manual group showed better psychological adjustment and higher educational achievements. Stevenson's study found that four times as many students from the early manual group went to college as from the oral group.

The lack of sensitivity shown by some educators toward deaf children equals their ignorance about the deaf community and their prejudice against sign language. It is illustrated by the comment by the teacher quoted above:

Speech and speech reading may mean nothing at first to a deaf child, just like talking to a newborn baby. But in every way, we have to keep on and be determined to work on it. The time used cannot all be wasted for we even talk to animals and to our pets, which after numerous repetitions, learn to respond to commands, etc. (Alvarez, in Fusfeld, p. 89)

The view that a deaf child who does not learn to speak and lip-read is less than a human being seems to be quite prevalent among educators of the deaf. The following provides another example:

Not long ago I spoke with the lady director of an oral school. She was telling about her program, disparaging signs as 'glorified gestures.' Finally she pointed to a little black girl, hearing aids sprouting from both ears, who was sitting on the floor and staring at us: 'Look at her; she's such a well-trained little animal.' (Ridgeway, 1969)

The view against signing can be best understood as prejudicial in nature, due to the

empirically based belief that only speech is language and that thinking is possible only through speech. "Underlying this general emphasis on verbal learning was the ready association of thinking and language which prevailed in one form or another throughout the history of Western thought and education. The history of the deaf stands out as one exceptionally glaring instance of man's inability to see beyond the confines of his own theoretical assumptions." (Furth, 1966, p. 212) Furth has investigated extensively the relationship between conceptual and verbal skill. On the basis of his studies he concluded that "The basic ability to conceptualize and reason is seen as largely independent of [spoken, Ed.] language and mainly subject to the general experience of living" (1963, p. 482) Thus, while deaf people may have poor verbal skills, they have a normal distribution of intellectual abilities.

The educators' prejudice is akin to the ethnocentrism shown by numerous teachers of English who claim that only standard English is correct, while nonstandard dialects are ungrammatical derivatives of the 'pure' version. In the process of teaching 'correct' English, they make the speakers of nonstandard English feel that their dialect is inferior. (Labov, 1970) The educator of the deaf claims that his own language-English-is superior to the language of the deaf community. The following statement taken from a report on the education of the deaf made by a commission set up by the [Canadian] Department of Education and Science in English illustrates that point:

There was agreement that deaf children signing among themselves out of class, and deaf adults communicating by signs, are both using forms which are ungrammatical and bear little relationship to normal usage

The commission which itself was not familiar with sign language, listened to the testimony of individuals, both deaf and hearing, whose opinions were sought because of their contact with sign language, without considering the fact they were not qualified to make objective observations about language. A study based on an informant's opinions of his language certainly would not be considered scientific by a linguist. It is hard to comprehend why this is the practice when it comes to sign language. The claim that sign language forms are 'ungrammatical' refers to the fact that sign language has a structure which is different from English, but then so do Chinese, Turkish, and Swahili. It would be ludicrous to call these languages ungrammatical because they are structured superficially unlike English. However,

cultural and linguistic chauvinism does exist; the claim that the French language is the most logical and the most precise of all languages is still heard. The commission's report continues: "One witness pointed out that when good and fluent signing is used, it is not, in fact, a self-sufficient language but parasitic upon well-developed mastery of conventional language." (p. 27) The relationship between signs and English is a complex problem which will be somewhat illuminated by a proposal made by Stokoe and to be presented later in this paper.

When recognition is given to manual communication, it is usually by the social workers and psychologists who work with the adult deaf and who are therefore aware of the limitations imposed on the communication with their deaf clients by lipreading, synthetic speech, and writing. Stephen K. Chough, a social worker, explains deaf people's preference for signing and fingerspelling over other modes of communication: "Just as hearing people prefer oral or spoken communication to written communication, so do almost all deaf people prefer manual communication." (in Fushfeld, p. 352) Most deaf people acquire sign language and fingerspelling from others in their subculture although the community at large does not approve of manual communication. Some deaf individuals who have not acquired linguistic competence in English, and who have been prevented from acquiring the ability to communicate by manual means by the emphasis placed on oral communication by the institutions which control their lives, do not share a language with anyone and therefore live in virtual isolation from all human contact. "Because of difficulty in, or in some instances lack of, means of communication there can be nothing for some but a life of deprivation, loneliness, and dissatisfaction." (Chough, in Fushfeld, p. 350) Another social worker points out the importance to the individual of communication with others:

An inability to communicate creates barriers to the satisfaction of basic needs. Since the individual's well-being depends in large part on his ability to satisfy his own needs harmoniously with the needs of others, the deafened person may experience considerable frustration both from inner, emotional sources and from outer, social situations. (Ibid.)

This explains in part why deaf people associate for the most part with other deaf individuals and form a subcommunity in which communication takes place with almost the same facility as in the hearing world.

When it is accepted as a system of communication, sign language is often not

considered equal to other natural languages. Chough makes the following statement:

While the characteristics of the sign language are more colorful, lively, and dramatic than other means of communication, it has some disadvantages, especially those of grammatical disorder, illogical systems, difficult expression of abstract ideas, and linguistic confusion. (p. 351)

This kind of unscientific observation is based on a comparison with English grammar--English word order, English word classes and forms--and with English semantics, instead of treating sign language as an independent natural language. Bernard T. Tervoort, a Dutchman who has studied language development of American and Dutch deaf children, provides an example of the type of research which considers sign language as a manual/visual representation of a spoken language. He writes:

. . . until he [Stokoe] definitely proves differently, the author of the present study warrants to set forth the hypothesis that at least among well educated deaf adults English is the communication system used, be it through speech and lipreading only, through fingerspelling or through signs. or through a combination of these. (1965, P. 14)

The implication is that less educated deaf adults use a form of broken or ungrammatical English. Another observation made by Tervoort is that the material he recorded on film for his study on young deaf children contained very few instances of metaphoric, ironic, or humorous usages. (1961, p. 460) It is apparent from the anecdotes he introduces as evidence, that it is beyond his capacity to determine what constitutes metaphor, irony, or humor in a language in which he has less than native ability. To prove that abstract and idiomatic usage requires special teaching to deaf children, Tervoort shows that they must have the expression 'to hold open house' explained to them, otherwise they understand 'to keep one's door open.' (1961, p. 467) By the same token, a French pupil learning English in school would also need an explanation for such an idiomatic expression. However, on the basis of that particular evidence, one would hardly claim that Frenchmen do not employ idiomatic expressions in their own language. It is correct that deaf children must be taught English--a language which is foreign to them; but it does not follow that their own language is therefore impoverished as Tervoort indicates.

Herbert Kohl, following a non-partisan investigation of the literature on the education of the deaf, concluded that the schools have failed to do what they set out to do, namely, to educate deaf children. Like others, he notes that while deaf individuals generally use sign language for their inter personal communication, none of the methods of education for deaf children involves the use of that mode of communication. (1966, p. 10) Although Kohl is entirely sympathetic to the use of sign language--he believes that it is the missing element in the education of deaf children--he holds certain reservations regarding its status as a full-fledged language. He expresses the view, based on his study of the literature, that "... sign language is limited in scope and expressive power compared to oral language. It is bound to the concrete, and with difficulty rises to abstraction, metaphor, irony, and humor. The various relevant studies seem to imply that this concreteness generalizes to the learning of English, and it is an interesting question as to whether this limitation may be responsible for some of the deaf child's behavior and maturational problems." (1966, pp. 18-19) It appears that these opinions originate from people who are either not familiar with sign language or are linguistically naive, and therefore unable to make scientific observations of any language .

To date very little linguistic work has been done on sign language. What is available tends to indicate that it is an independent language, with its own grammatical and semantic structure. It appears to share general linguistic principles with [vocally] articulated languages. Elizabeth McCall, in her M.A. thesis titled *A Generative Grammar of Sign* (University of Iowa, 1965), concludes from her study of sign language:

Results of the analysis show that Sign has a syntactic system that can be systematically described in a generative grammar. Constructions generated from the grammar that was defined in this investigation are structurally different from English in most cases. It is believed that taken as a whole, Sign is grammatically unique from any other language. (p. 83)

Unlike such observers as Fusfeld, and others, McCall found that sign language "is a true language" with a "sequential grammatically ordered sentence structure" independent of other languages. (pp. 77-78) She suggests a hypothesis concerning the relation between sign language and the spoken language of the community at large:

It is highly probable that the sign language, or languages, are grammatically distinct from any others, although it may be hypothesized that the structure of Sign in any given country shifts somewhat in the direction of the grammar of the native oral language. This question, however, awaits further investigation. (p. 78)

Another investigator, Stokoe, has dealt with this problem. His writings include a structural description of the cheremic (phonemic) system and the morphocheremics (morphophonemics) of American sign language. In this same work published in 1960 under the title, *Sign Language Structure; An Outline of the Visual Communication Systems of the American Deaf*, the author describes an orthography he devised for sign language. In 1965 he and two colleagues published a sign language English dictionary in which the signs are listed "in the order of the symbols used to write them" (xxiii), using the orthography described in the earlier work.

Stokoe's analysis of sign language structure is based on the Smith and Trager (1951) model of linguistic description. It describes the combination of cheremes into signs--the morphocheremics of sign language; and to a limited extent, the equivalents of morphological and syntactic levels in spoken languages. The actual syntactic structure of sentences had not yet been analyzed, but several non-cheremic elements were isolated and assumed to be part of these patterns in the same way that the supra-segmentals enter into the structural make-up of spoken sentences. (1960, p. 61) Stokoe writes:

The sign language, as the term is understood in this study, requires only a small, though radical, change in the definition of language given by Trager in his "Paralanguage" (SIL, 1958, p 3) 'it is the cultural system which employs certain visible actions of the face and hands,] combines them in recurrent sequences, and arranges these sequences into systematic distribution in relation to each other and in reference to other cultural systems.' (1960, p. 30)

The sign, according to Stokoe, corresponds to the morpheme, the smallest meaningful unit of a language.

The sign-morpheme, however, unlike the word is seen to be not sequentially but simultaneously produced. Analysis of the sign cannot be segmented in time order but must be aspectual. The aspects of the sign which appear to have the same order of priority and

importance as the segmental phonemes of speech are the aspects of configuration, position or location, and motion.... Like consonant and vowel, the aspects position, configuration, and motion may only be described in terms of contrast to each other. (1960, p. 40)

The three aspects have been named tab, dez, and sig by Stokoe, and he proposes the names chereme and allocher for the concepts corresponding with phoneme and allophone. (1960, p. 30) Signs are formed by the combination of the three aspects, requiring movements from the hands and arms of the signer. Facial expressions and other such bodily activity, Stokoe suggests, function like supra-segmentals. (1960, p. 40) In conclusion, Stokoe states: "... the work so far accomplished seems to us to substantiate the claims that the communicative activity of persons using this language is truly linguistic and susceptible of micro-linguistic analysis of the most rigorous kind." (1960, p. 67) One of his colleagues has also observed that sociolinguistic variations found in spoken languages occur in sign language. "ASL [American sign language] exhibits both horizontal and vertical variations. So far, only obvious and easily recorded vocabulary differences have been observed." (Croneberg, in Stokoe et al., 1965, p. 314) In different geographical areas, different signs are sometimes used to represent the same thing. Or else, in the same area, different signs are used by the young and the old, the whites and the blacks. Stokoe suggests that investigations of sign language will eventually require a change in the definition of language so that it will read: "A language is a system of arbitrary symbols by means of which persons in a culture carry on the total activity of that culture." (1960, p. 67)

Stokoe (1970b) has applied the features of diglossia, discovered and described by Ferguson (WORD, 1959, 15: 325-340), to sign language. Diglossia occurs when the same speakers use two or more varieties of the same language under different conditions. This approach to sign language contributes to linguistic knowledge, since Stokoe shows that in most respects, sign language diglossia occurs in the same fashion as in the languages which Ferguson has used in his investigation: Arabic, Modern Greek, Swiss-German, and Haitian Creole. Secondly, but of more importance to the deaf community, Stokoe's study, by showing the similarity of ASL to other languages, could lead to a changed attitude toward sign language and its use by the deaf for their inter-personal communication and for the education of deaf children.

One of the two varieties of sign language used in North America (excluding areas where English is not spoken in the general community) consists of English represented visually by

means of signs and fingerspelled words. In diglossia this form is called "H", and in the deaf community it is referred to as "correct signing" or "(grammatical) sign language," the name "manual English" having also been suggested. (Stokoe, 1970b, 28) Sign language H is used in more formal occasions such as in church, for lectures, for all forms of written communication, etc. For deaf people who sign, as for the speakers of the other languages used in Ferguson's study of diglossia, H is the prestige form. It is considered superior to variety "L", the conversational language in use for most everyday communication, and called "signs" or "signing" by the deaf. The sign for "conversation" also refers to L (p. 28). Stokoe points out that diglossia would present no problem for the deaf community, except for the fact that outsiders, i.e., professional educators, have made deaf people feel that only H is a language, assuming without benefit of any knowledge of linguistic science that L "is no language at all, has no grammar, is but a collection of 'gestures . . . suggestive of . . . ideas.' " (p. 30) As in the case of the four languages used by Ferguson, L is grammatically simpler than H in which signs or fingerspelled words are in a one to one relation with spoken words, and where English morphology is represented and its word order followed. Sign language L follows its own syntax and does not have most grammatical features found in English, such as inflections and concord. (pp. 33f) H and L share most of their vocabularies; H contains "the whole technical and learned vocabulary of English" which does not have any equivalents in L since the subjects for which they are used almost always are discussed in H (p. 34), although L can and does borrow vocabulary for H when necessary for conversational use.

In diglossia, "The sound systems of H and L constitute a single phonological structure...." (p. 36) The gestemic (phonological) systems of H and L in American sign language are described by Stokoe as "a single gestemic structure of which the L gestemics is the basic system and the divergent features of H gestemics are either a subsystem or a parasystem.... In using H the signer 'refines' his L gestemics." (p. 37) These differences amount to "the substitution of one allophone [allophone] for another. The cheremic (phonemic) system embraces them both." (p. 37) In another interesting suggestion worth pursuing further, Stokoe considers fingerspelling a subsystem of sign language which could be accounted for as "a divergent feature of H gestemics." (pp. 37f)

The lack of interest in sign language shown by linguists in the U.S. where the deaf population extends to almost a quarter of a million of individuals (Levine, p. vii) [now estimated at more than 350,000 Ed.], can probably be attributed at least in part to the

behavioristic basis of American structural linguistics. "The tone of behavioristic theory was set by its founder, Watson, who proposed that what is called thinking may be nothing but sub-audible speech. In other words, thinking is just silent language." (Furth, 1966, p. 37) The non-mentalistic approach to language taken by Bloomfield also led him to see thinking as identical to language.

He called thinking "talking to oneself." (p. 28) He explains further how "thinking" develops as a process of socialization: "As children we talk to ourselves a lot, but, under the correction of our elders, we soon learn to suppress the sound producing movements and replace them with very slight inaudible ones: we 'think in words.' " (p. 28) Referring to gesture languages such as those used by monks who have taken a vow of silence and by American Indians as an auxiliary language, Bloomfield states: "It seems certain that these gesture languages are merely developments of ordinary gestures and that any and all complicated or not immediately intelligible gestures are based on the conventions of ordinary speech." (p. 39) He also writes that "deaf and dumb language," like writing, is merely a derivative of language. (p. 144) While this claim is true for variety H of sign language, the facts indicate that variety L is not derived from spoken language, and that it has its own independent structure and lexicon. The influence of the dominant culture, the hearing community, must also be recognized over the linguistic expression of the deaf community, particularly on the vocabulary level. However, Bloomfield does not refer to any empirical evidence that sign language is derived from spoken language, he appears to make this claim on theoretical grounds, so as to avoid a contradiction with this assumption that we "think in words."

Sapir (1921) wrote that possession of a language is a universal fact In his words:

One may argue as to whether a particular tribe engages in activities that are worthy of the name of religion or of art, but we know of no people that is not possessed of a fully developed language. The lowliest South African Bushman speaks in the forms of a rich symbolic system that is in essence perfectly comparable to the speech of the cultivated Frenchman. (p. 22)

However, the kind of symbolic system acceptable to Sapir for language and thinking was restricted to that found in speech:

We shall no doubt conclude that all voluntary communication of ideas, aside from normal speech, is either a transfer, direct or indirect, from the typical symbolism of language as spoken and heard or, at the least, involves the intermediary of truly linguistic symbolism.... auditory imagery and the correlated motor imagery leading to articulation are,

by whatever devious ways we follow the process, the historic fountain-head of all speech and of all thinking. (p. 21)

With these a priori concepts about the nature of linguistic symbolism and of thinking, it is not surprising that Sapir rejects the possibility that gesture languages, including that used by deaf-mutes, possess independent symbolic systems suitable for the thinking processes of those who use them. Sapir states that "The intelligibility of these vaguer symbolisms can hardly be due to anything but their automatic and silent translation into the terms of a fuller flow of speech." (p. 21) Aside from the fact that this statement contradicts the native signer's intuition, the claim does not seem feasible in light of the fact that 88 percent of deaf adults do not achieve linguistic competence in a spoken language (Furth, 1966, p. 14). Sapir would have us believe that the signer who expresses himself fully and freely in sign language, translates from or into another language in which his level of expression--in speech, lipreading, reading, writing, and fingerspelling may be less adequate than that of a four-year-old hearing child. For deaf people, Sapir's claim leads to an important implication concerning their education, their employment potential, and their social status in the community of hearing people, namely that because of their inability to hear and to acquire spoken language, they are forcibly limited in their intellectual capacities.

We have seen earlier how Heinicke developed the oral method for the same reasons, i.e., he felt that unless deaf people learned to speak and to lip-read, they would have no language and they would be unable to think, or at best in concrete terms only. The concept that articulated words are the necessary medium through which thought can occur, is said to be an idea held by the Greek philosophers. (DeLand, 1968, p. 8) Although references to the deaf exist from early times, not much information is given about them. One thing they do indicate, according to DeLand, "they were considered incapable of being educated." (p. 8) The

1. Communicated personally to the writer by several native signers, both deaf and hearing, deaf, with occasional exceptions that were often recorded with exaggerations, were left in ignorance. Methods for the instruction of the deaf began appearing toward the end of the sixteenth and the beginning of the seventeenth century in different parts of Europe.

(DeLand, p. 28) The change of attitude toward the deaf resulting from the awareness that they could be educated to take part in the culture around them was extremely significant. It was no longer thought that dumbness, in the sense of lack of intellectual capacity, was the necessary correlate of deafness. After almost 200 years of instruction, the lot of deaf people has been much improved and they have gained a certain degree of acceptance in the society at large. However, Furth points out: "Our educational and scientific atmosphere does not permit us really to accept deafness." (1966, p. 204) Elsewhere, he writes:

As stated before, the deaf are now accepted as being possibly equal to the hearing in intelligence, but only insofar as they succeed in learning the language of the hearing. Common opinion about the interdependency of language and thinking has hardly changed. (1966, p. 28)

Just as in the case of other minority groups, North American society is willing to accept the deaf on condition that they accept its values, here represented by its language. Furth writes that "This attitude is constantly nourished by theories of scholars who extol language as the source and medium of civilization and intelligence." (1966, p. 203) In this regard, Labov, a critic of recent programs for teaching the 'culturally disadvantaged', states:

For many generations, American school teachers have devoted themselves to correcting a small-number of nonstandard English rules to their standard equivalents, under the impression that they were teaching logic. This view has been reinforced and given theoretical justification by the claim that nonstandard Negro English lacks the means for the expression of logical thought. (1970, p. 22)

The similarity between the criticisms of sign language and of nonstandard Negro English is striking. Labov points out that "linguists have endeavored for many years to show that differences in language are matters of social convention established by historical processes which shift continually the social prestige of dialect variants." (p. 1) Apparently, they have

not been too successful in disseminating this point of view since the opposite opinion prevails in our society. The argument for equal status for sign language is more difficult to present since, in one extreme, it is an independent language, and in the other, it is a visual representation of English, both varieties making use of signs. The prejudice against nonstandard English dialects is caused by "ignorance of basic facts about human language and the people who speak it." (Labov, p. 34) To make sign language acceptable requires, in addition, overcoming the long standing assumption concerning the relation of thinking and spoken language. In this respect, structural linguists (Stokoe excepted) have been of no help, because to do so would cause them to contradict their underlying assumption, namely, that thinking is a silent expression of speech.

Sign language offers two different areas of research to the linguist. The first one involves doing basic investigations on the nature of sign language, linguistic descriptions and analyses. This type of study would add to the store of knowledge of natural languages used by humans to communicate with each other. It may also contain implications for linguistic theory for which less exotic languages would not provide evidence. At the very least, the existence of languages which make use of visual rather than auditory symbols would require the redefinition of some basic concepts in the science of linguistics. Of more importance, research on sign language acquisition among children of deaf parents offers possible evidence for the hypothesis advanced by Chomsky and others, regarding an innate language-learning capacity in humans. (Chomsky, 1965; Lenneberg, 1967; McNeill, 1966) Their assumption is based on a rationalist approach to linguistic theory in which language is seen as species-specific and a result of man's unique biological make-up. (Lenneberg, 1967, p. 28) The empiricist view which holds that language is acquired as a result of conditioning of the individual by his environment and his experience (Skinner, 1957), may obtain support from the work being done by Allen and Beatrice Gardner with a chimpanzee who is acquiring the sign language of the deaf. (*Science*, 1969, 165: 669-72)

A conference on sign languages sponsored by the Center for Applied Linguistics was held on December 5-6, 1969. (Stokoe, 1970a) The unstructured discussions dealt mainly with problems of definition and classification, according to Stokoe who served as chairman for the conference which was attended by nine participants, including two deaf individuals connected with the National Association of the Deaf. This conference reveals a growing interest by linguists in sign languages.

The second area of interest for the linguist in sign language of the deaf prevails on the field

of applied linguistics. One of the problems requiring the attention of the applied linguist is how to make sign language acceptable as a mode of communication for deaf adults, and of greater importance for the welfare of the deaf community, as the medium for deaf children's education. In relation to this problem, psycholinguistic investigation of language acquisition will hopefully shed some light on how linguistic competence is established in an individual. This knowledge could then be applied to determine ways of educating the deaf so that ultimately they can achieve true bilingualism: sign language competence for interpersonal communication in the deaf community, and linguistic competence in English, at least in written English, so that they can also partake of the common culture of the society in which they live.

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RECENT NATIONAL DICTIONARIES OF SIGNS

Harry Bornstein and Lillian B. Hamilton

Revision of a report presented by Harry Bornstein to the Sixth Congress of the World Federation of the Deaf. Paris, 1971.

Our task is to describe the dictionaries of sign language which have appeared during the past fifteen years in the various nations of the world. In trying to find all the different national dictionaries of sign language, we wrote to every national association of the deaf at least twice. We tried also to contact every other possible source of information. We cannot guarantee that we found every dictionary in existence, but we can assure you a great effort was made to do so. What we found was surprising for if one considers a dictionary simply as a collection of signs together with their definitions, then there are many more dictionaries than we had supposed. And there are more to come. A tabular description of these dictionaries is given in four different tables below.

Table I describes the general purpose dictionaries now in print. Table II lists general purpose dictionaries that are now being prepared or in press. Table III lists special purpose dictionaries currently in print, Table IV covers special purpose dictionaries in preparation. There are two observations to be made about the dictionaries in that part of Table I which describes general purpose dictionaries in print in all countries except the United States of

America. First, nearly all of them are new. In fact, only four were published more than three years ago. Second, with few exceptions, these new dictionaries contain many more entries than the dictionaries of the past. Often there are 2000 or more entries. Some briefer works such as those in Poland and Finland will soon be replaced by larger ones and the Japanese dictionary is only the first in a series. Not being native users of these national sign languages, we cannot pretend to know how complete these dictionaries are. But they clearly represent attempts to describe more of the language of people who must live in today's complex society than has been true in the past. Books containing rudimentary vocabularies of a few hundred signs seem to be on the wane. Other features of European dictionaries should be noted. Gestures are often depicted by still photographs and described verbally. Generally, each sign entry is explained by only one or two synonyms in the national language.

Now, we wish to describe the U.S.A. dictionaries which are grouped in the last part of Table 1. Ten dictionaries have been published in the last decade in the United States. The vast majority of these are brief introductions consisting of about 500 signs each. Only the dictionary prepared by Stokoe, Casterline and Croneberg is as comprehensive as the larger European works. Excepting this last mentioned dictionary for the moment, let us note a few differences from the European dictionaries. First, most of these dictionaries depict signs by line drawings rather than photographs. American authors apparently believe that line drawings are clearer than photographs and show movement better. The second principal characteristic of many American dictionaries is that they appear to make special efforts to teach the reader how to make and/or remember the signs. Whether they do this any better than the European dictionaries is debatable. Frankly, it is difficult to understand the very large number of introductory works that seem designed to do substantially the same thing. Nevertheless, as will be described later, efforts to produce new dictionaries in the U. S. seem to be as plentiful now as they have been in the past.

At this time we would like to point out some important differences between sign language dictionaries and the typical dictionary for any spoken language. Almost all of the latter consist of alphabetic lists of words with their pronunciations, definitions, etymologies and other information. The significant point to note is that the definitions, synonyms, and other information are given in the same language as the entry word itself. Moreover, dictionaries generally provide several definitions and alternative meanings in different contexts. This is not the case

TABLE I – GENERAL PURPOSE DICTIONARIES IN PRINT (Cont.)

Country	Date	Author(s)	Source
<i>The Language of Signs</i>	1966	Anne Davis	Gallaudet College Bookstore 7th and Florida Ave., N. E. Washington, D. C. 20002 and Episcopal Church Center 815 Second Avenue New York, N. Y. 10017
<i>Conversational Sign Language: An Intermediate Manual</i>	1967	Willard Madsen	National Assn. of the Deaf 814 Thayer Street Silver Spring, Md. 20910

with the general purpose sign dictionaries. In all of the sign dictionaries, the entries consist of sign representations which are explained in verbal terms. That is to say, the entries are pictographic, but the definitions and explanations are in the printed form of the national language. Hence, it is difficult to avoid concluding that all of these dictionaries have been made, intentionally or otherwise, for hearing people. No matter how carefully a person may study such a dictionary, his use of the sign language must necessarily be severely limited if he knows neither the syntax of the language nor the variety of meanings of any given sign. If a dictionary is to be useful for deaf people, then it is obvious that both entries and definitions of entries should be presented in the same terms. The terms, of course, would take the form of illustrations and/or some symbolic notation. If it is desired to link the sign language to the related spoken, national language, appropriate indexes can be added.

Let us now state the criteria for an unabridged dictionary of any national sign language: (I)

common terms for entries and definitions, (2) a full range or variety of meanings including connotation and entry origins, (3) syntax comment for each entry, (4) organization of entries in terms consistent with the given sign language, and (5) completeness, i.e., all

TABLE I – GENERAL PURPOSE DICTIONARIES IN PRINT (Cont.)

Form	No. of Gestures	How Depicted	Comments
Hardbound 91 pp.	586	Photos w/line drawings and word descriptions.	M. A. and hand positions. Grouped by common use. Index
Mimeo 52 pp.	229 English Idioms 146 Deaf Idioms	Word descriptions	Sign “idioms” or signs in conversational context.

gestures in the sign language are included. There is only one dictionary in existence which comes close to meeting these criteria or put another way, there is only one group of editors who have tried to meet these criteria. The dictionary referred to is the *Dictionary of American Sign Language* by Stokoe, Casterline and Croneberg. If you remember, this work was excepted earlier when other dictionaries were discussed.

The *Dictionary of American Sign Language* is the most sophisticated sign language dictionary in print today. The authors did not rely on illustrations of signs for the entries. Instead they devised a symbol system which they used to represent each sign. The book is organized in terms of this symbol system, thus permitting the reader to locate specific entries in much the same way he would if he were using a typical dictionary. Unfortunately,

the system, however simple in concept, poses some difficulties. There are 55 elements to be mastered and only a person with considerable experience can use it with facility. The editors chose *not* to define their signs with other signs because they wanted to relate each sign to an English word. Finally, since it is truly a pioneer effort, the number of entries, the descriptions of syntax, and variety of meanings assigned to each entry are probably far from complete.

with the general purpose sign dictionaries. In all of the sign dictionaries, the entries consist of sign representations which are explained in verbal terms. That is to say, the entries are pictographic, but the definitions and explanations are in the printed form of the national language. Hence, it is difficult to avoid concluding that all of these dictionaries have been made, intentionally or otherwise, for hearing people. No matter how carefully a person may study such a dictionary, his use of the sign language must necessarily be severely limited if he knows neither the syntax of the language nor the variety of meanings of any given sign. If a dictionary is to be useful for deaf people, then it is obvious that both entries and definitions of entries should be presented in the same terms. The terms, of course, would take the form of illustrations and/or some symbolic notation. If it is desired to link the sign language to the related spoken, national language, appropriate indexes can be added.

Let us now state the criteria for an unabridged dictionary of any national sign language: (1) common terms for entries and definitions, (2) a full range or variety of meanings including connotation and entry origins, (3) syntax comment for each entry, (4) organization of entries in terms consistent with the given sign language, and (5) completeness, i.e., all gestures in the sign language are included. There is only one dictionary in existence which comes close to meeting these criteria or put another way, there is only one group of editors who have tried to meet these criteria. The dictionary referred to is the *Dictionary of American Sign Language* by Stokoe, Casterline and Croneberg. If you remember, this work was excepted earlier when other dictionaries were discussed.

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chose *not* to define their signs with other signs because they wanted to relate each sign to an English word. Finally, since it is truly a pioneer effort, the number of entries, the descriptions of syntax, and variety of meanings assigned to each entry are probably far from complete.

A study of the *Dictionary of American Sign Language* makes clear that the compilation of a dictionary which presents full information about the sign language requires scholarship of a very high order. Perhaps because of this fact, and because of the way sign language is taught in the U.S A., this work has had limited influence. It may have served, however, to impress upon authors of instructional material the limitations of those books which merely present a sign and one or two synonyms.

A step in the direction of making the dictionary more than a word list has been made by Willard Madsen in his *Conversational Sign Language*:

TABLE II – GENERAL PURPOSE DICTIONARIES

Country	Date	Author(s)	Form
U.S.A. <i>A Comprehensive Dictionary of the Language of Signs</i>	In press	Martin L. A. Sternberg	Hardbound 1000 pp.
<i>Ameslan: An Introduction to American Sign Language</i>	1971	Louie J. Fant, Jr.	Mimeo
<i>Talk With Your Hands</i> Vol. 2	1971	David O. Watson	Hardbound 330 pp.
JAPAN <i>Successive Series of the Dictionary, No. 2.</i>	1971	Kikuji Nakanishi	Softbound
ISRAEL <i>A Dictionary of Sign Language</i>	1971	I. M. Schlesinger	

An Intermediate Manual. This is the last entry in Table 1. This book provides many alternative meanings for a given sign and presents information on the syntax of the sign language. Mr. Madsen's manual contains 375 signs and sign idioms. It appears to be the first set of instructional materials to provide the variety of meanings which are characteristic of the sign language.

If we turn our attention now to Table 11, those General Purpose Dictionaries which are in preparation or in press, the trends noted earlier are very, very much pronounced. Fant and Watson, both of whom have

IN PREPARATION OR PRESS		
No. of Gestures	How Depicted	Comment
5200	7200 line drawings	Indexes: French/English, German/English, Italian/English, Portuguese/English, and Spanish/English. Verbal rationale for each sign. Cross-referenced.
228	Line drawings	Preliminary form of work is composed of verbal descriptions. Signs described in English by more than one synonym and always used in one or more sentences.
	Line drawings	Usage of deaf idioms in various situations. List of additional vocabulary (to previous work).
	Line drawings	Special fields, i.e , medical school education, legal and welfare terms.
Sign to English 1400	Word description and movement	
English to Sign 200	notation system	

previously authored dictionaries, are now preparing works which are focussing on syntax. Every time Fant introduces a new sign to the reader, he also presents it in sign phrases and sentences with their English equivalents. Watson's work will stress sign idioms. Because these are essentially new developments, the authors are limiting themselves, as did Madsen before them, to rather small basic sign vocabularies. But hearing persons using them should be able to get a better feel for the sign language than heretofore.

The Israeli dictionary being prepared by Schlesinger and others depicts signs with a movement notation developed jointly with the Movement Notation Society in Israel. The dictionary will have a Sign-to-English as well as an English-to-Sign section. The Sign-to-English section of course, would permit deaf persons to use the dictionary directly. It is not possible within the scope of this paper to compare the movement notation in the Israeli dictionary with the symbol system devised by Stokoe, Casterline, and Croneberg. However, it does appear to be a more elaborate and a more comprehensive system. And finally, if we look at some of the other works listed in Table 11, we will find three further attempts to prepare a more complete dictionary. These include the greatly enlarged Polish and Finnish dictionaries and the American dictionary by Martin Sternberg which is surely the largest sign language dictionary in prospect.

Let us turn now to Table 111 and discuss briefly the special purpose dictionaries listed there. Here we have another truism. Like other natural languages, the various sign languages are growing and changing. This happens not only through the usual cultural processes, but also as a consequence of systematic efforts. If chemists can invent words to describe new compounds, then signers can invent signs for the sign language. In the United States, two such works already exist. One presents 465 signs invented for terms used in high school and college. The second illustrates about 200 signs created for use in vocational rehabilitation settings. A third work, which is listed in Table IV, consists of a set of films which show still another 300 signs developed for computer technicians and scientists. As deaf persons participate more and more in world affairs, we can anticipate many other efforts to enlarge the sign language. Let us hope these additions to the language are set forth in a systematic way so that all who want to may make more effective use of them.

The last kind of special purpose work in Table 111 has to do with attempts to provide signs for international use. The table lists the conference signs compiled by the World Federation of the Deaf and signs for airplane passengers compiled by World Wings International, Inc. We could also have included the Swedish work *Teckensprak for Dova* from Table I because it is clearly intended to be used in other northern countries as well as in Sweden. These works are manifestations of a long

TABLE III – SPECIAL PURPOSE DICTIONARIES IN PRINT

Country	Date	Author(s)	Source
U.S.A. <i>Signs for Instructional Purposes</i>	1969	Kannapell, Hamilton and Bornstein	Gallaudet College Bookstore 7th and Florida Ave., N. E. Washington, D. C. 20002
<i>Improved Techniques of Communication: A Training Manual for Use With Severely Handicapped Deaf</i>	1970	Harry Hocmann, Editor	The Psychology Department Bowling Green State Univ. Bowling Green, Ohio
<hr/>			
INTERNATIONAL			
<i>First Contribution to the International Dictionary of Sign Language</i> , 2nd Ed.	1965	C. Magarotto D. Vukotic	World Federation of the Deaf 120, Via Gregoria VII 00165, Rome, ITALY
<i>The International Language Guide to Understanding</i>	1971	Marian Morton (World Wings International, Inc.)	Operation Communication 4405 50th Ave., N. E. Seattle, Washington, USA
<i>Second Contribution to the International Dictionary of Sign Language</i>	1971	F. Rubino A. B. Hayhurst	WFD

standing desire to develop an international sign system for deaf persons. They constitute a very tentative beginning of specifying a set of signs that can be used in international settings. The World Federation signs and the World Wings International signs have essentially the same limitations that are noted for the vast majority of the national

dictionaries, viz., entries are defined by a single synonym in a spoken language. The dictionary of conference signs is most easily used by hearing persons or by deaf persons with a command of French or English. The last

TABLE III – SPECIAL PURPOSE DICTIONARIES IN PRINT

Form	No. of Gestures	How Depicted	Purpose and Comment
Hardbound 120 pp.	465	Line drawings and notations	For classroom use at secondary and college levels. Index in English and French. Signs grouped by subject matter.
Softbound manual 67 pp.	261	Line drawings and word descriptions	For rehabilitation workers to help improve the English language skill of deaf clients. Signs grouped by common u Index.
Softbound 88 pp.	323	Photos with line drawings	Codification of International Sign Language. Index in English and French
Softbound 14 pp.	100	Line drawings	To promote sign language as a universal language. M. A. and numbers. Index.
Softbound 90 pp.	291	Same	Same as above for new group of signs

is a difficult requirement for deaf persons of other nationalities. Because the gestures in the Conference Book are merely numbered, the only way the reader can find the meaning of a particular gesture is to turn to the index and refer to its English or French equivalent. As we noted before, this is usually one word and therefore, conveys limited meaning. A similar logic of relating illustration to word is used in the Airplane Traveler's Booklet. We think that a deaf person would find an international dictionary of signs much more useful if each sign entry were defined by a

sign or signs from his own native sign language. This means, of course, that the signs would have to be depicted or represented in the book by a symbol system and/or an illustration. If we disregard cost considerations, illustrations would probably be easier for a deaf person because no intermediate steps in interpretation would have to be made. In case you have not recognized it yet, we are merely restating that entries and definitions of entries should be given in the same terms. It would be useful but not necessary to include indexes of French and English as they are the official languages of the World Federation of the Deaf. Let us make a few suggestions as to how the national sign language dictionaries listed in Table I might be used to create an Introductory International Dictionary of Signs. The basic idea would be the same as that used for the collection of the conference signs. Those signs which are most common in use and in meaning should be accepted as international. To make these judgments objectively, our first task would be to select and/or develop a digital representational system which could be used to describe a sign or gesture. As of the moment, it seems to us that the system developed by Stokoe, Casterline and Croneberg with some minor modification would be quite adequate. We would, of course, use only the numerical counterpart of the symbol system. Given now that we can describe a sign in digital terms, it follows that we can do this for every sign in each of the dictionaries in our possession. Additionally, we can couple the gesture with an English translation of the meaning of the gesture. After all of this has been coded for computer input, we can analyze all of the gestures and provide an objective statement of the gestures common to most countries along with the commonality of meanings. These can be designated as international signs. Moreover, we will be able to locate a synonym, where there is one, in the national sign language of each of the other countries. An International Sign Language dictionary developed in this fashion will result in a book, each page of which will consist of 14

columns. The first column will depict the international entry. Each of the remaining 13 columns will be devoted to the signs of a given national language. Each column will contain a pictorial sign synonym for the international sign. The deaf person using this kind of dictionary will be able to work from the column devoted to his national sign language to the international column without any intermediate steps. He can, if he chooses, also refer to the appropriate sign for any other country of interest to him.

With simplified illustrations and modern copy machines, the production of such a work seems quite feasible. However, costs for such a project have not yet been estimated. In any event, the analysis itself will provide a significant beginning to an understanding of the various sign languages used by the deaf throughout the world. It can only be a beginning, however, for such a work will require an agreed syntax as well as most of the other criteria for a dictionary cited earlier.

We would like to turn now to Table IV and discuss some very important derivatives of the sign language. Until now we have treated the sign language as a natural language. By that we mean a language used in any given country by deaf people as a part of their normal day to day living: The expansion of the sign language described earlier in no way changed the essential character of that sign language. However, there are at least four efforts now under way which so markedly change the character of the natural sign language that they are best thought of as sign language derivatives. The first is the Systematic Sign Language originated by Sir Richard Paget and developed further by Lady Paget and Dr Pierre Gorman. It is our understanding that Miss Elma Craig and Dr. David Crystal have also begun to cooperate on this project. Essentially the Systematic Sign Language is an attempt to develop a sign language on a completely systematic basis. For example, it was early decided that a sign would be equivalent to an English word, that the signs would be used in the same order as English syntax, and that there would be signs to represent all of the words in "Basic English". Additionally, a children's vocabulary was included. When we tried to locate some of the original materials, we learned that the work is being reviewed and possibly up-dated. Some of the ideas of the Systematic Sign Language have jumped the Atlantic. A group which has labeled its work, "Seeing Essential English" has concentrated its efforts on developing signs for each of the words in basic English. They are also attempting to develop signs which enable the

TABLE IV – SPECIAL PURPOSE DICTIONARIES
IN PREPARATION OR PRESS

Country	Date	Author(s)	Source
U.S.A.			
<i>Seeing Essential English Manual</i>	1971	D. A. Anthony	Anaheim U. H. S. District P. O. Box 3520 Anaheim, Cal. 92803
<i>Signing Exact English</i>	1972	Gerilee Gustason, Chairman	S.E.E. 3131 Walker Lee Dr. Rossmoor, California 90720
<i>Signs for Pre-School Children</i>	1973	Bornstein, Hamilton and Kannapell	Gallaudet College Bookstore 7th and Fla. Ave., N. E. Washington, D. C. 20002
“New Signs for Computer Terminology”	1971	Carl Kirchner, Coordinator	San Fernando Valley State College Northridge, California 91324
<i>Linguistics of Visual English</i>	1971	D. W. Wampler	Linguistics of Visual Eng. 2322 Maher Dr., No. 35 Santa Rosa, Cal. 95405
ENGLAND			
Update of Paget’s <i>Systematic Sign Language</i>	----	E. C. Craig D. Crystal	University of Reading White Knights Reading RG6 2AA
SWEDEN			
<i>Teckenspråk for Døva</i> (See Sweden in Table No. 1)			
			One thousand of the previous signs are being changed.

signer to parallel English syntax as nearly as possible. The project is intended primarily for adult usage. The group is issuing dittoed materials periodically as they progress in their work. They use the Stokoe notation to depict signs. Wampler is working on a parallel effort.

**TABLE IV – SPECIAL PURPOSE DICTIONARIES
IN PREPARATION OR PRESS**

Form	No. of Gestures	How Depicted	Purpose and Comment
Looseleaf ; 2 volumes	3000	Symbols and word descrip- tions	Visual presentation of words and language for basic English vocabulary.
Paperback workbook	1600 words	Drawings and word descrip- tions	Visual presentation of words and language for basic English vocabulary.
Hardbound	1500 to 2000	Line drawings and symbols	To make sign language as close to the English language as possible for pre-school children.
16 mm films 10 reels	300		Each film will have 30 words. Signs will be presented in- dividually and in sentences.
Booklets	500 to date 2000 planned	Symbols	Same purpose as "SEE" Uses modified Stokoe Symbols

For international and
instructional use.

We and our associates, on the other hand, have been concerned with the English language development of deaf children, in particular, preschool children. We believe, in common with most students of language development today, that the period of greatest potential growth in language occurs at ages 18 months to four years. Therefore, we have very carefully attempted to ascertain the vocabulary that parents and teachers use with children of such ages. We have arrived at a target vocabulary of about 1500 English words. We also have developed signs for syntax. Fortunately, our task is considerably simplified by the fact that the more complex constructions and syntactical features of the language come at later ages. Moreover, we do not try to achieve as faithful a representation of the English language as does the "Seeing Essential English" group or Wampler's Linguistics of Visual English. At later ages, we see little harm in greater use of the manual alphabet to spell out English words. We might add that the number of schools in the US A. planning to use signs along with other means of conveying English to deaf children is very much on the increase. In the last year alone, we have learned of several schools which have made or plan to make a conversion to this kind of communication technique. It is our intention to determine empirically if such communication procedures greatly aid the English language development of deaf children. We hope to be able to report on this work in the next few years.

In conclusion, our survey of sign language dictionaries seems to suggest the following:

1. Sign language is presently an object of considerable interest to scholars, educators, and other specialists who work with the deaf. It has gained increased respect throughout the entire world. The large number of dictionaries which are in being in so many different countries probably is the best evidence of this, (but there is a considerable amount of other scholarly work which has not been cited).
2. The dictionaries used to describe the various national sign languages are rapidly increasing in sophistication and comprehensiveness. We can expect that within the next decade dictionaries will become more like unabridged dictionaries of the various spoken national languages throughout the world.
3. As dictionaries increase in sophistication, so will the sign language grow and become

more precise and powerful. This in turn, will make it become more influential in the life style of the deaf person. It seems inevitable that the sign language will be incorporated into the educational practices used with deaf children.

4. Available dictionaries can supply reasonable materials for an introductory effort to develop an international language of signs. As the various national dictionaries increase in sophistication, more information will be available for an analysis of syntax. This analysis could, of course, result in an international syntax to go along with the international sign vocabulary discussed earlier. If and when this happens, deaf people will have the tool to converse on a worldwide basis.

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REVIEW

Wallace L. Chafe, *Meaning and the Structure of Language*
(University of Chicago Press, 1970: pp. 360, \$10.50) W.C.S.

Professor Chafe's book should be read by every person who should be teaching language to children who cannot hear. It marks a new stage in the fast-changing science of language, but it is also a book that can be studied with profit by the educated layman. It begins with an account of Chafe's own progress in thinking about language. From structuralism through syntacticism (his apt term for generative-transformational theory) he has moved to his present semanticist view, a view best summarized by the title itself. His account of the evolution in his thought reveals by the way another of the reasons that the book is good for teachers, the modesty with which he puts forth his theory of language. As he writes,

. . . the complexities of the universe, linguistic or otherwise, are so vast that one cannot help but be awed and humbled by them, and . . . arrogance in a linguist betrays at least a lack of

perspective on the problems that confront him (p. 2).

With this attitude it is natural that Chafe writes in a clear style to let the reader get at his ideas as completely as possible. His main idea too, the new direction he thinks language study should take, is one that a teacher can appreciate. He sees language as the system relating ideas to sounds, in that order. He regards meaning, i.e. "the semantic structure" as "the crucial component" of language. Structuralists never seriously doubted that it was, but much of linguistics before 1957 had an emphasis on phonetics that made semantic information in language seem like a far distant end product. Syntacticism, which has been in vogue since 1957, places the generative center of language in "deep structures" requiring processing in two directions, toward semantic interpretation and toward surface structures (what we see in print and writing) and their phonetic interpretations. Chafe rejects both these theoretical positions and boldly attempts to show how language starts with meanings to be expressed. In the body of the book he presents a clear explanation of semantic structures and traces the process by which they are transformed into surface structures and these into sounds.

Because the whole work is a connected treatment of this meaning-to-expression process, it has great significance for those who cannot hear the end product, language sound. For the same reason no summary can do it justice. Here in a brief review it is only possible to point to a few language matters, important to deaf persons, which it treats in a new and exciting way. Out of many choices I have picked the use of articles and other things with nouns, new and old information, and idiomaticization.

No teacher of the deaf is satisfied with the treatment of articles or determiners in available textbooks and handbooks. Native speakers who can hear have no need to be told how to do what they have been doing with near perfect grammaticality since childhood; a brief paragraph is all that books written for native speakers of English usually devote to *a* and *the*. Materials specifically for learners of English who do not hear, e.g. *Generating English Sentences* (Gallaudet College Press, 1968), may deal with three articles, *the*, *a/an*, and zero-article, with two classes of nouns, *count* and *non-count*, and with two numbers, *singular* and *plural*. These result in only five formal arrangements (surface structures) which are exemplified by such nominals, as, *a glass*, *the glass*, *glass*, *glasses*, *the glasses*. Making and using these structures cause trouble for the deaf learner of English; and although attention to their formative elements may bring improvement in using them, it is clear that

even this treatment falls far short of adequacy. How far it falls short is immediately **clear when one** looks into Chapter 14 of Chafe's book. The five surface structures in the examples above are seen to reflect at least ten semantic structures; e.g. *the elephant* may be *count* and *definite* or *count* and *aggregate*; *a glass* may be *count*, or it may be *count* and *generic*, as in *A glass is better than a cup for Russian tea*. Chafe identifies no less than eight semantic features equally important with *count*, *generic*, and *definite* in determining semantic noun

inflection. An innovative teacher should be able to turn Chafe's description of these semantic structures and the surface structures they lead to into lessons that can help any bright deaf student manage English nouns better. (Cf. Crutchfield's article in this issue). Related to this problem is that of new and old information in sentences (Chapter 15). Chafe hits here on something not only "of unusual importance to our understanding of how language works" as he says, but also of unique importance to understanding why deaf persons have the problems that they do in learning the language of hearing persons. Every speaker assumes that some of what he says is new information and some is old, and his sentences are constructed accordingly. Chafe shows how this distinction operates in all parts of the process of forming semantic structures, how it determines which elements become subjects and which predicates, and how it remains perceptible in the spoken output. What this means for a n(n-hearing learner of English is not just that a part of the grammatical and semantic systems of English is blocked off but that the whole relation of semantics to syntax to sound depends on the functioning of all its variables. Specifically, this one semantic feature, *new*, is like a single thread that appears and reappears in various parts of an intricate woven pattern, now a semantic feature, now the reason one noun is the subject and another is the object in a sentence, now determining word order, now requiring a difference in pronunciation. The native speaker/hearer handles all this automatically, which is one reason that linguistics has largely neglected it so far. But part of this is physically manifested in pitch and stress changes that cannot be detected by the most sensitive non-human devices. A deaf child is taught to articulate the difference between /d/ and /n/ (or *duhduhduh* and *nuhnunuh*), because it has always been clear that lexical units must be distinguished, e.g. *don't/note*, *rudder/runner*, *bad/ban*. After Chafe it will become clear that it is just as important for a deaf child to have explained to him the intonation difference of new-marked and unmarked information. The reason for this is that nothing else really explains what happens in sentence (1) below that makes the noun form of (2) inevitable.

(1) He shot at a box. (2) The box was empty.

A native speaker of English, aware that who *he* refers to is old information, keeps the pitch low in saying it and for the same reason will have put *he* in subject position. *What he did is* always new relative to *he* so that there is no special stress to mark *shot*. However, *what he shot at is* new; it receives most stress and highest pitch in the sentence; and it takes *a* since it is a singular, count noun, and comes last in the sentence. But, assuming (2) follows (1) closely, now *box* is old information, receives low pitch/stress, appears in subject position, and must be inflected with *the*.

After reading Chafe it is hard to see how anything like native language competence can be acquired unless at least these points are systematically related: intonation, inflection, word choice, position, and newness. Of course intonation will always remain inaudible to one with a certain degree of hearing loss, but now that the interrelation of all these things and many more has been pointed out by Chafe, there is less reason that the intelligent deaf pupil cannot learn them as an intellectual system, much as he learns mathematical systems which nobody can hear, **see, feel**, smell, nor taste.

Great obstacle though it is to a deaf learner of English, noun inflection is minor compared with idiomaticization (Chafe's Chapter 5). Mistakes in the former lead to surface structure errors (e.g. in (3) below we have opening sentences of three compositions) but these do not obscure meaning completely.

(3) a The family will go to the picnic. b They packed for going to the picnic. c Who planned going to the picnic.'

The writers of these sentences had all been shown the same picture and "understood" all it had to tell them: the family in the picture is packing for a picnic. Behind their more or less ungrammatical surface structures

1. Writer a, 10 years old; b, 14; c, 18--all judged "average" in ability by teachers.

some general outlines of semantic structure are still discernible, but idioms can cause complete opacity. One of the writers represented in (3) can write: *A little boy carried out a ham*. There is a good chance, however, that all three would be baffled by this written

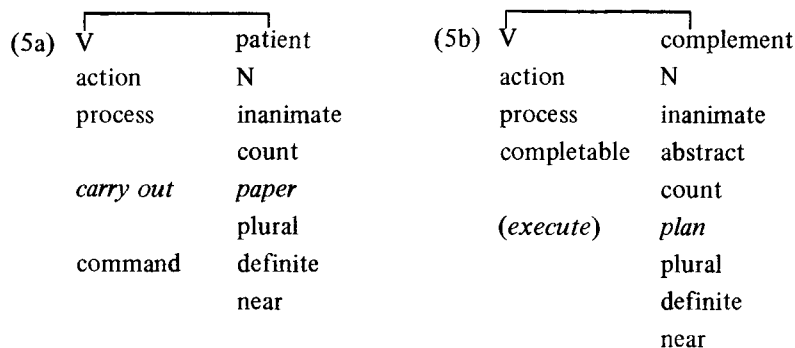
instruction: "Now we will carry out our plans." Sophisticated by school, probably none would try to carry the papers on which they had written plans out the classroom door, but it is very likely that few will understand the instruction.

Chafe uses idioms as a strong argument for his view that meaning and not abstract (deep) structure leads to surface structure. There is a difference in the sentences below (4) which his *semantic structures* best

explain:

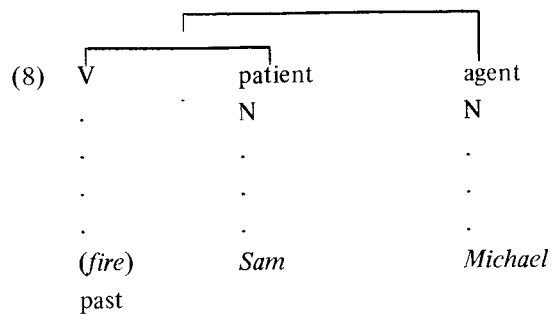
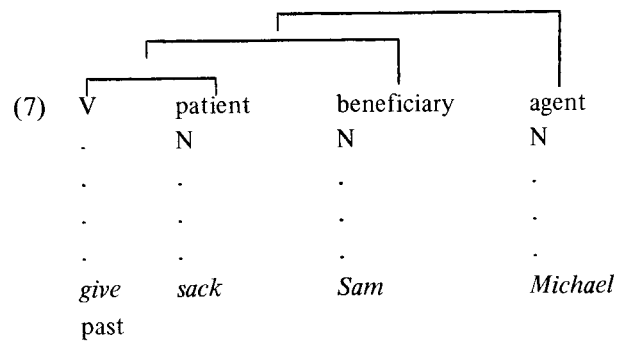
(4) a Carry out these papers. b Carry out these plans.

He supposes that they each begin with different semantic structures. His book treats such structures in full detail, but even a few of what he calls the relations and the semantic features can be helpful here. A commonsense distinction would be that (4a) 'means what it says' but that (4b) is an idiom. The diagrams below (based on examples in Chafe), respectively lettered, break this into details:



The literal sentence has an *action-process* verb which requires a *patient*, but after that the semantic requirements loosen, for anything that is portable can be carried out. The idiomatic sentence has a verb with a further specification, *action*, *process*, and *completability*. It requires a *complement*; and semantically such verbs and their complements are closely related, e.g. *dream dreams*, *sing songs*, *live lives*, and of course, *execute* or *implement plans*. The lexical unit in (5b) is shown in parentheses because although some such meaning as 'execute' is in the structure, that never appears in the surface. Instead the structure in (5b) is *literalized* and the verb *carry out* is used to symbolize its meaning. Other idioms may depart still farther from semantic structures in their literalization. Thus (6) below has a *beneficiary* and an agent as well as a patient, but (7) and (8) show a literal and an idiomatic semantic structure, both of which (6) ambiguously may mean.

(6) Michael gave Sam the sack.



One who has not had the experience of hearing idiomatic English should find it useful to trace how both (7) and (8) can be "the meanings" of (6) and how (6) as a surface structure may have come from either of these semantic structures. Chafe's algorithm, only briefly sketched here, should do more than help explain idioms; for when all the semantic detail he analyzes is added to such diagrams, the features which determine the surface forms show up--as above where *give* (past) ~ *gave* and *sack* (-new) ~ *the sack*.

Once again, the whole book and not this brief summary of points in three chapters is what every teacher of the deaf should attend to. There is a special reward in it for those teachers of the deaf who are themselves deaf. After a semantic structure is completed it must be *linearized*, one way for English, somewhat differently for each other language, according to

Chafe. The structures *V*, *pat*, *ben*, and *agt* of (7), for instance, are rearranged to *agt*, *V*, *ben*, and *pat*; then *give* and *past* (shown vertically to indicate simultaneity in semantic structure) become *gave*; and *sack* and *-new* emerge as *the sack*. But in the sign language used by deaf persons in the United States, American Sign Language, this linearization is simpler. One who knows it will find again and again that Chafe's diagrams of semantic structures come very close to depicting the exact order of sign sentences. A word to the wise should be sufficient; imagine the advantage in explaining the semantic structure of English if one has ready to hand a way of drawing clear semantic structures in the air.