VOLUME 5 - 1974

PHONOLOGICAL DELETION IN AMERICAN SIGN LANGUAGE

Robbin Battison

Abstract.

The American Sign Language of the deaf (ASL) has a level of structure which is analogous to phonology. The natural basis for both lexical description and analysis of variation is the articulatory dynamics of the hands and body.

Introduction.

Knowing that modern linguistics owes much to a centuries old tradition of phonology, one may wonder why interest in sign languages of the deaf has focused primarily on syntax, and has tended to ignore the form of the signs themselves. There are three principal reasons.

First, superficial examination of these very special languages has tended to perpetuate the myths that they are auxiliaries to spoken languages, are ideographic, lack duality of patterning, or are even universal. Hence, one would reason that the only thing of interest would be to study the order of signs in sentences and make some comparisons to speech, if the forms of the signs themselves are unconstrained, and map iconically onto their referents.

Second, the status of sign languages in deaf education is vitally linked to the question of syntax: a substantial number of North American educators advocate the use of some variety of Sign English, a pidgin language (Woodward 1973a) which imposes English word order and some inflectional structure on the morphological system of American Sign Language (ASL). Needless to say, both the natural morphology and syntax of ASL are strained by this prescriptive imposition. In addition, British authorities have rejected sign languages as "ungrammatical" (Lewis 1968; Paget 1969). Much of the work on sign languages thus far has pointed up the need to appreciate them as the independent systems they are.

Third, linguists sometimes find it difficult to make the jump from oral languages to manual-visual languages and to bring their theoretical baggage with them at the same time.

Encountering language in a different modality offers more immediate differences than similarities. However, as we come to understand more of what is common to all languages, we find that sign languages are linguistically structured in very familiar ways.

This paper will attempt to show that ASL has a level of structure analogous to the phonology of an oral language, and that the structure of this level is in part determined by the articulatory dynamics of the body.

There are those who would balk at the use of the term *phonology,* since, taken literally, it must involve sounds, and sign languages clearly do not. There are others who intuitively grasp what the term means when it is applied to signs. Just what is meant by *sign phonology?*

Phonology will be used in this paper to refer to that level of systematic-formational structure dealing with the form of signs, the sub-morphemic units which combine to make the forms, and the restrictions and alternations among these combinations. The phonology of sign language bears no relation to the sound structure or phonology of any oral language.

For sign languages, a phonology systematically separates the set of gestures which may represent meanings in a given sign language from the entire range of gestures which may be produced by the human body. This involves constraints on underlying forms (morpheme structure conditions) and constraints on surface variation, expressed by phonological rules.

In every case, the form of the constraints and rules is familiar to generative phonologists of whatever persuasion, while the content of the rules, and their motivations, refer to a different articulatory and perceptual basis. Thus sign phonology will eventually lead to a "phonetics" of sign, based on the natural dynamics of manual articulation and visual perception. For example, we have one tongue, but two independent hands. This independence is constrained, however, by the need to simplify manual-visual signals in a rapid transmission context.

The importance of this type of motivation cannot be overemphasized, and it will be introduced when relevant to the analysis. While we are far from a theory of naturalness of signs, we have a good idea of some general tendencies based on the constraints and processes observed so far.

Iconicity vs. Phonology.

In her paper on iconicity and form change in ASL, Frishberg (1973) makes some claims

which run counter to the way most previous investigators have looked at sign languages.[2] One of the points she makes is that the role of iconicity in sign language descriptions has been overemphasized in the past. Other factors, such as morphological systematicity, 3 may have a greater influence on the shape of signs than iconicity or transparency. Another point which seems especially important is that historical changes in sign language do not necessarily maintain iconicity, but rather operate according to the physical dynamics of the apparatus which produces the signs--the human body. Frishberg gave some good examples of assimilation which do not maintain the original iconic relation between the sign and its referent. For example, the sign PATIENT[4] originally involved putting the back of the thumb on the lips and bowing the head forward, as if suffering in silence. The thumb has assimilated the motion of the head in the modern version of the sign--the head remains still while the thumb slowly slides down across the lips and chin. Signs in ASL are becoming more arbitrary over time (i.e. the change is from icon to symbol). New signs are not always coined as icons, but rather are modeled after already existing morphological and phonological patterns in the language.

In a manner of speaking, iconicity is inversely related to phonological, or sublexical, structure. This is because an iconic relation is a direct analog mapping between some aspect(s) of a sign and some aspect(s) of its referent, with no regard to the way other signs are made. For a phonology, however, relations between the forms of signs is everything.

In what follows I will briefly describe one possible approach to lexical description, examine some deletion phenomena at the phonological level, and show how the level of physical signals, the "phonetics" of signing, interacts with the more abstract phonological level.

Lexical Description.

Class relations among signs can be stated in terms of four simultaneous aspects of the physical signal which are necessary to describe signs. Information regarding the location, handshape, movement, and orientation of the hands to other body parts must all be specified in the lexical entry of a sign. These four aspects are actually sets of phonological units which make up the equivalent of a phonological inventory. Stokoe's (1960) analysis gives *cheremic* status to the underlying units of location, handshape, and movement, calling them *tab, dez,* and *sig* respectively. While Stokoe does not explicitly include orientation in his

analysis, his notational system does specify each sign for orientation.

Bellugi (personal communication) calls these units *primes,* rather than cheremes, which avoids involvement with the phoneme and its problems.

There are approximately 45 different handshape primes and 25 different primes for locations on the body where signs are made. The number of different types of motion and of orientation depends upon a more complete phonological analysis than is now available, since there are many alternatives for encoding the same type of information.[5] Not all of these primes contrast at an underlying level of representation.

The following minimal pairs demonstrate the independence of these primes. APPLE and ONION differ only in specification for location, one being made on the cheek, the other near the corner of the eye. The signs are otherwise identical. CHINESE/ONION and CAR/WHICH are pairs which are only distinguished by handshape. OFFER/MAYBE differ only in movement, and SHORT/TRAIN differ only in orientation.

Note that the physical constraints on the articulator require that these primes are expressed simultaneously, and not linearly over time. In some cases, however, these autosegmental units may have a linear arrangement, just as the feature [+ strident] pertains to the final part of the English affricate [c], and not the initial part.[6] There are signs, for instance, whose articulation involves first contacting one part of the body, and then moving away from it, and there are others which require the opposite order of events. The movement in such signs is thus linearly (not simultaneously) expressed with respect to the rest of the articulation. For the purposes of this limited discussion, however, assume that all primes of a sign are specified simultaneously--that is, in one column of a phonological matrix.

As with any other language, what actually occurs in connected discourse is somewhat removed from (dictionary or informant) citation forms. Signs are subject to assimilation, dissimilation, deletion, insertion, and other types of change (Frishberg 1973; Friedman and Battison 1973; Battison, Markowicz, and Woodward 1973). Two of the motivations for these changes are the need to smooth transitions between signs, and the need to simplify manual-visual signals in a rapid transmission context. Besides the familiar types already noted, there is a type of change unique to signing--*displacement.* Displacement involves the articulation of a sign in a location other than that for which it is specified. In certain

contexts, signs made in one area of the body may be made in another area, usually a lower, more centralized location. This is sometimes influenced by deletion of contact, and sometimes by assimilation to the location of contact, and sometimes by assimilation to the location of a neighboring sign or neighboring part of a compound. For example, the sign LEARN (in citation form) involves moving the hand from one hand to the forehead, rather imitative of taking something from a book (represented by a flat hand) and putting it in one's head. A less formal version of the sign deletes the actual contact with the head; an even more informal version keeps the moving hand away from the face, making only a small upward movement away from the static hand. This is another example of phonological change which does not maintain iconicity.

For some signs this displacement away from the original location has become the norm, and the sign has become relexicalized. This is true of some signs that were once made with one hand contacting the opposite elbow; they have been displaced to the opposite (non-moving) hand. HELP and SUPPORT, once made by contacting the opposite elbow with the hand, are now made with one hand acting on the other. Other signs may vary between the elbow and the hand, depending on context and style, but the tendency is to centralize the location away from the elbow toward the non-moving hand (Woodward, personal communication).

Besides deletion of contact and deletion of one part of a compound, there is also deletion (or simplification) of movement, which has not yet been studied in any detail. The following discussion is focused solely on deletion of one hand of a two-handed sign.

Restrictions on Combinations of Primes: Simultaneous Morpheme Structure Conditions.

Since we have two hands, two-handed signs are potentially symmetrical, and this symmetry is exploited to a great extent in simplifying the production of signs. Symmetry is unmarked and asymmetry is marked. This is well-illustrated by two morpheme structure conditions, the Symmetry Condition and the Dominance Condition.

The Symmetry Condition holds that if both hands move independently during a given two-handed sign (as opposed to one or both being static), then the specifications for handshape and movement must be identical, and the orientations must either be identical or polar opposites (reciprocals).7 Locations of the two hands in such symmetrical signs must also be specified either as symmetrical or as polar opposites. Since each hand must be

specified separately for location, "symmetrical location" in this case means that the hands contact corresponding locations on the corresponding halves of the body. So two of the relevant descriptive features are *ipsilateral* (same side of the body as the signing hand) and *contralateral* (opposite side of the body).A Ipsilateral location is unmarked.[9] A sign whose locations were polar opposites would involve the hands contacting the *physically identical* part of the body, on one side or the other. There would be no symmetry to such a sign, since one hand would have to cross over to its contralateral side to contact the physically identical place.

So, a sign like RUSSIA (flat hands on hips) is symmetrical, and has each hand specified for an ipsilateral location. The location of NAVY (both hands contact first one, then the other hip) is asymmetrical, since one hand has ipsilateral contact and the other contralateral. The abstract form of the sign does not need to take into account whether the sign is going to be made with the left or right hand if the location is specified in terms of ipsilateral and contralateral. TRY, MEET, BECOME, CHANGE, and LIVE are other examples of signs which meet the Symmetry Condition.

It is clear that a high value is placed on harmony in articulation: symmetry and ipsilateral contact. Since there are about 45 different handshapes and 25 different locations, the extent of this reduction of possible forms is quite large.

The Dominance Condition is an implicational statement which works from the other direction. For those signs which have *non-identical* handshapes, one hand must remain static, while the other, usually the dominant one, executes the movement. Examples are THAT, PRESSURE, IN, THROUGH, CHEAT, LATER, WEEK, TICKET, SODA POP.

These signs are even more severely constrained, however, since (with a few exceptions) only the six most unmarked hand configurations can serve in the subordinate, stationary position. This set of maximally differentiated handshapes is (I) A-the closed fist, (2) B--the flat palm, (3) 5--the palm with fingers spread, (4) G--fist with extended index finger, (S) C--hand arcs in a semi-circle, (6) O--fingertips meet thumb, forming a circle.

These handshapes are considered unmarked because they are maximally distinct both in articulatory and perceptual terms, have a high frequency of occurrence in a wide variety of contexts, are found in all other sign languages studied to date (i.e. Chinese, French, Iranian), and according to one study, are among the first handshapes mastered by a deaf child

acquiring signs (Boyes 1973). In addition, both adults and children make errors of substitution which tend toward this small set of handshapes. Another criterion which defines this *class is point of contact:* these unmarked handshapes may contact other body parts in a greater variety of ways than marked ones, which may be restricted to one or two contact points.' ° For example, the relatively unmarked B (flat hand) may contact other body parts, including the other hand, at a number of points--the fingertips, the heel, the palm, both top and bottom edges of the hand, the back of the hand and the back of the fingers. The relatively more marked R (the familiar cross-your-fingers handshape) has only two points of contact--the fingertips, and less often, the heel of the palm.

There are other two-handed signs which are covered neither by the Symmetry Condition nor by the Dominance Condition. These are signs which have identical handshapes, but in which only one hand moves, as in TO, SEW, SCHOOL, MOST, EVERY, PERFECT, YEAR, and WORLD. Some can be traced to symmetrical signs in which both hands moved, e.g. PERFECT, YEAR (Stokoe, personal communication); some of these can be traced to signs which were at one time non-identical in handshape (Frishberg 1973). DEPEND had a stationary B hand and an active G, now it has two G's. SHORT-TIME had a stationary B hand and an active H (index and mid finger extended from fist), now it has two H's. FINAL was once made with an I (little finger extended) and a G, but now has two I's. Usually the stationary hand has assimilated to the active hand. This assimilation toward symmetry also overrides independent considerations of markedness of handshapes, since in FINAL, G changes to I even though I is more marked, and in WORLD, a static A or S hand has assimilated to a relatively more marked W (index, mid and ring fingers extended) to produce symmetry.

Deletion: Background.

It is clear that ASL has a rather strict way of reducing the complexity of two-handed signs. Optional deletion of one hand of these two-handed signs follows arbitrary linguistic principles, and does not depend on whether or not the resultant form (with one hand deleted) is unambiguously identifiable. For instance, PARTY made with only one hand is seen quite often, although it is then identical to the sign for PURPLE. With other signs deletion is prohibited even though enough information would be left to unambiguously identify the sign. Other constraints operate which take into account other aspects of the phonology, and

not just the question of potential ambiguity.

Phonological deletion is generally a term applied to the deletion of one element in a linear string. While a case be made, in ASL phonology, for considering deletion of contact and deletion of one part of a compound to be deletions of linear elements, it must be emphasized that the prime concern here, deletion of the articulations of one hand, is the loss of a simultaneous, not a sequential element. This deletion is nonetheless conditioned by phonological environments.

There are, however, non-linguistic variables which affect the use or non-use of both hands in signing. People do not stop signing when they have their hands occupied with books, babies, or steering wheels, just as people do not stop talking when they eat, drink, or smoke. Of course the difference between speech and signing is that you can actually see what is going on with the hands, while you cannot monitor the contents or activities of someone's vocal tract. Sometimes holding an object in one hand will prevent that hand from signing at all-it depends on the object and it depends on the signs. But very often signers will carry on as if nothing was changed, and contact one hand against an object in the other hand. The preacher with a Bible in his hand will use the book, rather than the occupied fingers, to make the appropriate contacts in the sign JESUS (middle finger of one open hand touches the palm of the opposite hand, then alternate). Fatigue is also a factor in one-handed signing, as is posture.

The psychological and social variables related to deletion may include whether the signer was deaf or not, whether the parents were deaf, the age of onset of deafness, age of acquisition of sign language, sex, age, etc. Woodward (1973b), in his study of negative incorporation and directional incorporation, has shown that some of these variables have predictive power in determining the variety of language that a person will use .

In this preliminary study, none of the above variables have been taken into account. Three informants were questioned to get an idea of what the phonological environments were that condition deletion, before a full-scale variation study was undertaken with more informants. (Please bear the small number of informants in mind during the discussion of deletion and the exceptions to deletion.)

Hand Switching.

There are a few observations we can make about which hand will play the active role in a sign. Most people with strong hand preference will use their dominant hand to play the active role, and their non-dominant hand in the static role. They may occasionally switch, for instance when some focus is put on a co-articulated sign. In a co-articulation, the two hands execute two different signs simultaneously.

But one hand of a co-articulation is usually limited to a holding position, it is more frequently seen with an unmarked hand configuration, and it is not subject to rapid modulation of signal. For example, one can sign TIME SIX ("six o'clock"), and then maintain the articulation of SIX with one hand while the other hand signs other information, e.g. what happened at six o'clock. The hand articulating SIX may even be active in producing other signs in conjunction with the other hand, holding the handshape for SIX constant, while make the proper movements and contacts for another sign, e.g. FRIEND. Thus it is possible to encode two different signs with the two hands, but only when one hand has something relatively simple to express.

One informant (not used in this study) was observed using his left and right hands with about equal frequency in the role of active articulator. But although he switched hands frequently, he did not switch in the middle of a sentence.

Whether signers find it easier to switch hands when the sign involved is a one-handed sign rather than a two-handed sign calling for reversal of dominance roles, is an untested question.

Deletion Phenomena.

Reviewing once again, there are three kinds of two-handed signs: (I) in which the hands are *non-identical* and one hand is active (PRINT, PRESSURE), (2) in which the hands are *identical* and only one hand is active (EVERY, PAPER), (3) in which the hands are identical and both hands move (DIE, LIVE).

With these facts on handedness, morpheme structure conditions, and types of two-handed signs, we are able to fit together a hierarchy of deletion. The informants in this study were shown a sign and then asked if they could delete one hand from it if they were talking casually with a friend. If they could, then they were asked to demonstrate with one hand, to see if any other changes occurred when a hand was deleted. Data also came from videotapes

of free conversation.

Deletion of the dominant moving hand in an asymmetric sign, i.e. where the two hands are not identical, is ungrammatical. If the active hand is deleted, the remaining stationary hand presents so little information that the sign is uninterpretable. Remember that only the six most unmarked handshapes are allowed in the stationary position-A B S G O C. If the *stationary* hand is deleted, information on the contact position and orientation of the hands is lost, and deletion of this stationary hand is therefore also restricted. There are just a few signs which allow deletion of the stationary hand, and these are all with B (flat palm) hands--WEEK, LATER, THAT.

For signs in which the hands are identical, but only one moves, the informants in this pilot study almost always rejected deletion in elicitation, but sometimes deleted the subordinate hand in conversation. However, there always seemed to be the need to "ghost" the deleted hand by contacting another part of the body or another object. Or, according to the ingenuity of the signer in the use of space, he may mime the presence of the hand, just as one can mime the presence of a wall. Certain information on orientation and point of contact is preserved this way. So, for example YEAR can be made by contacting the hip rather than the other fist (deleted), and RIGHT can be made by contacting the hip or a nearby flat surface. As far as I know, this type of deletion never results in ambiguity. That is, the sign with deletion and subsequent displacement is never equivalent to another, unrelated, sign.

For the third type of two-handed sign, in which both hands move and are identical, there is more frequent deletion. In fact, for some signs made on the face, deletion of one hand is no longer optional, but has become a historical fact, i.e. diachronically it has become an obligatory deletion. Many of the two-handed signs which are made on the face have been relexicalized as one-handed.[11] The two-handed forms of HORSE, COW, CHINESE, CAT, and DEER no longer occur, not even in citation. Most of the signs made on the face which retain both hands are made on the lower or upper perimeter of the face--INNOCENT, FAMOUS, DENY, PRESIDENT, ANNOUNCE, etc.

However, deletion in other highly symmetrical signs is still constrained. If the sign has an alternating movement (IF, CAR, WHICH) or if the arms cross each other and move to the contralateral side of the body (BEAR, SAFE, DON'T), then deletion is prohibited. Deletion is also ruled out if both hands do not contact symmetrical parts of the body. In signs such as

NAVY, RESPONSIBILITY, SWEETHEART, UP-TILL-NOW, the hands contact the physically identical part of the body, not the symmetrical or mirror-image locations. Informants accepted deletion in RUSSIA but not NAVY.

Of these three types of signs, we can match the hierarchy of symmetry with the hierarchy of deletion. Those signs which do not have identical handshapes resist deletion of either hand, with a few exceptions of the static B (flat palm) hand mentioned earlier, which suggest that it may constitute the simplest hand contact. Those which have identical handshapes but in which only one hand moves sometimes allow deletion of the stationary hand, but contact is usually maintained and is realized as contact on some part of the body or on an object. Deletion is most common in signs which have the highest degree of symmetry--those with symmetrical handshapes, locations, and movements.

Discussion.

There are two major points to be made on this presentation of sublexical systems. The first is that there is indeed a system to the components of signs, and that not every possible combination of these primes, not every possible gesture, is a possible sign. General constraints limit the possible signs of ASL. Second, the motivation for these constraints comes directly from the articulatory dynamics of the body, which provides the basis for a discussion of the naturalness of signs and the naturalness of phonological change. So, although the "phonetic" basis of signing has different dynamics, constraints on form are rather familiar at the lexical level.

Symmetry reduces the complexity of signs and creates much redundancy in the signal. Although it has not been tested experimentally, it seems safe to hypothesize that symmetry reduces the perceptual load in reading signs. Siple (1973) proposes several sign language constraints based on visual perception properties. Signing which takes place in areas of low visual acuity will tend to be symmetrical and have simpler movements.

In terms of a production model of signing, symmetry would appear to reduce the programming load. Instead of directing the two hands to do two different things, which increases the complexity of the motor commands, we find that one of two things happen--if the complexity of the sign is based on the fact that both hands move, then the two hands are programmed to do the same thing and they produce a symmetrical or nearly symmetrical sign. If the sign requires that the hands are not identical, then the complexity of the sign is

restricted by directing only one hand to move while the other hand remains still. Most of the signs in ASL that have non-identical hands require that the hands contact each other in a particular way during the sign, which requires close coordination of movement and timing.

The other way in which production complexity is reduced is by limiting the choice of static hands in asymmetric signs. Remember that only the six simplest, most unmarked handshapes are allowed in the static position.

Let me emphasize this once more--signs with two active hands must be symmetrical and signs which have different handshapes can only have one active hand. In these cases, a relative complexity in one part of the sign (two hands vs. one hand moving; different handshapes vs. identical ones) is counteracted by a reduction in complexity somewhere else (symmetry; one hand remains still).

The generalizations made here which match the hierarchy of deletion to the hierarchy of sign symmetry are only very general tendencies, since the data has more variation than has been suggested. A complete accounting of deletion in sign, with all its variation, will only be possible using implicational rules with weighted features. Battison, Markowicz, and Woodward (1973) have shown that alternations among certain handshapes involving the extension or non-extension of the thumb are governed by an implicational rule with weighted features.

Implications for Artificial Languages.

Besides possible contributions to theories of sign phonology, there are other reasons for exploration into phonological naturalness in signs. The language situation of the deaf is subject to many pressures, as is that of other minority groups. Part of the conflict involves the comparative status of English and ASL (and the many varieties of language which fall between these two extremes),l 2 and some people, especially those who do not appreciate the independent linguistic status of ASL, attempt to solve the problem by making sign language fit the English mold, usually for pedagogical purposes. Some rather elaborate signs have been invented by various groups to transliterate (not translate) English morphemes, especially inflectional and derivational morphology (Gustason et. al. 1972, and Anthony 1971).

This imposition strains the natural morphology, phonology, and syntax of ASL, and results

in what Woodward (1973a) has shown to be a class of pidgin languages. They are used primarily in interaction with hearing signers, and do not serve the integrative or expressive functions of the deaf community. For many of the deaf, these artificial classroom pidgins, unlike natural Sign-English pidgins, are devoid of the esthetic or functional clarity of either parent language. Apart from considerable arguments from both an esthetic and an anti-elitist viewpoint, however, these invented signs are also subject to criticism on morphological and phonological grounds (Cokely and Gawlik 1973). The invention of new signs or new languages must take into account the naturalness conditions of the system which is being supplanted or augmented. This principle has not always been followed.

Some of the signs that have been invented violate both of the morpheme structure conditions mentioned earlier, for instance the invented signs TOTAL-COMMUNICATION and SIMULTANEOUS COMMUNICATION. In these signs, each hand moves independently with a different hand configuration. Others, such as BEGIN and COMMENCE, violate morpheme structure conditions not mentioned previously. These signs violate the condition that the non-active hand cannot be specified for handshape if the active hand is articulating in another location, in these two cases, the wrist.

Most of these irregularities can be traced to the need of these artificial systems to incorporate into the sign the fingerspelling handshape of the initial letter of the English word which translates the sign.[13] Sometimes this results in the incorporation of some rather marked handshapes and/or orientations. This leads to the establishment of unstable forms, which are prone to change in several directions, and further disrupt the natural patterns of the language.

For example, the signs EITHER and EVALUATE use the same locations and movement as OR and JUDGE, respectively, but they both incorporate the handshape with represents the letter E (thumb touching and fingertips, fingers drawn in tightly against the palm), which is only used in ASL for initial-handshape signs. The fact that it is a marked handshape is not as troublesome as the fact that both signs use the hand in an awkward orientation--bent backward somewhat at the wrist. The inventor's motivation for the orientation is clear--it affords a good view of the relevant parts of the E handshape, which from certain angles is hard to distinguish from other fist-like configurations (A,S). From the standpoint of ease of articulation these signs are unstable, and should change handshape and/or orientation to less

marked primes.

This tendency toward change can be seen when persons unfamiliar with an invented sign attempt to use it. In a recent meeting involving sign language instructors and interpreters, one signer changed the orientation of the sign EVALUATION so that the E hands were not upright, but on one side, which caused the arms to assume a more relaxed orientation also. No one corrected him, although others in the group later agreed that he had not done the sign properly.

Children also make errors in the direction of unmarked forms when they use these invented signs. One boy was seen signing HIT using two H hands, rather than an active H contacting a static G. Overgeneralization in the direction of symmetry, change of orientation. and resultant changes in the point of contact are just some of the ways signs tend to change from marked to unmarked forms.
Since one good principle in inventing anything new is to establish a stable form, it seems that naturalness in sign phonology is relevant to some of the many problems involved with these invented signs, and to language planning in general as it relates to the deaf.

Final Remark.

This paper is only a sketch of one part of the phonology of American Sign Language. hopefully it has shown that the dynamics of constraints and alternations of sign forms are partly determined by the articulatory properties of a manual-visual system, and that this level of structure does indeed merit the label "phonology".

Hopefully it has also shown that there is a need to consider such rule-governed structure in language planning.

Notes

Acknowledgments:

An earlier version of this paper was read before the 48th Annual Meeting of the Linguistics Society of America, December 28-30, 1973, San Diego. l would like to thank some of the many people who have made comments and helpful suggestions on portions of this paper, as they have given freely of their time and patience-Ursula Bellugi, Susan Fischer, Nancy Frishberg, Edward Klima, Richard Lacy, Harry Markowicz, William Stokoe, and James

Woodward.

This study was supported in part by NSF Grant GS-31349, NIMH Grant NS-10302, and by NEH Grant AY 8218 73 136. Portions of the study were conducted while the author was supported by an NDEA Title IV Fellowship.

[1]I have chosen to avoid the term *cherology,* found in Stokoe (1960) and Stokoe, Casterline, and Croneberg (1965) for two reasons: (a) to avoid confusion between Stokoe's structural analysis and the present study, which is in a generative phonological framework, (b) to avoid using a new term where a familiar one seem both adequate and appropriate.

[2]For example, Oleron (1952) classifies signs according to the degree to which the body's articulation reproduces either the image of the intended referent, or the actual role of the body in performing some referent action.

Schlesinger et. al. (1970) develop a taxonomy of relations between signs and their referents based on two binary features, [+ spatialization and [+ metonymy], which mediate the relation between the base (or immediate image evoked by the sign) and the referent.

Battison (1971) presents a very similar analysis based on the two features [+ metaphor] and [+ metonymy]

[3]The term "morphological" is used in its most general sense, i.e. some element of meaning is associated more or less regularly with some element of the form of the symbol. In this general sense, a morphological element need not be an independently occurring visible segment of signing, but need only be an aspect of a simultaneously occurring set of visual units. As is typical in signing, at the lexical level-whether the lexical unit in consideration is a monomorphemic sign or a polymorphemic sign-the elements that occur generally occur simultaneously. The sequencing of morphemes typical of spoken language is not at all characteristic of ASL or of the other sign languages we know of.

[4] Sign glosses are given in capital letters. The gloss is simply a common translation of the sign into English, and the semantic and syntactic properties of the word and the sign do not necessarily coincide. For instance, TRAIN means "railroad train", and cannot be used in the sense of the verb "instruct". For the sake of brevity, complete descriptions of all signs used as examples in this paper are not included, but relevant parts of the signs are pointed out.

For a more complete description of some of these signs, see Stokoe et. al. (1965) or one of the more recent sign instructional books, such as Fant (1972).

[5] For example, unmarked direct movement between locations can be coded entirely in terms of those locations

[6]Cf. Krohn (1972) for a discussion of such problems in feature specification.

[7]To illustrate the nature of opposition in orientation consider the following familiar uses of the hands-ordinary prayer and applause. In prayer, the two palms "face" each other and make full contact. If we were to insert a mirror along the vertical midline of such a gesture, the mirror-image of one hand would correctly fill the role of the opposite hand. That is, a hand on a mirror gives the same image as two hands in prayer. Both hands in prayer have the identical orientation, i.e. facing the opposite side.

In applause, although the same surfaces make contact, the orientations are polar opposites-one hand is palm *down,* the other palm up. A mirror inserted in either the vertical or horizontal midline would distort, rather than faithfully reproduce, the entire gesture.

[8] Both features are needed because there are signs whose location is neither contralateral nor ipsilateral, i.e. on the vertical midline of the body, the main axis of symmetry .

[9]This is well supported by signs made on the face. Most contacts are made on the ipsilateral side of the face (e.g. HOME, TOMORROW), but a very few are made by touching both the ipsilateral and contralateral sides (e.g. FARM, BORING, BACHELOR, FLOWER). There are no signs which contact only the contralateral side of the face, except for the Atlanta Black deaf sign GRANDFATHER (two "5" hands cross each other and contact contralateral sides of the forehead with the thumbs). A very bizarre exception. Many Black signs are different from those used by Whites.

[10]I am grateful to Richard Lacy for pointing this out.

" I am grateful to Nancy Frishberg for bringing this to my attention. Older forms of the signs may be found in Long (1918).

[12]Cf. Woodward (1973a, b).

[13] Initial Handshape signs are those whose handshape corresponds to the first letter of the English word which commonly translates the sign. Not all signs are like this. Many signs use one of the handshapes that do not correspond to a letter of the fingerspelled alphabet (e.g. AIRPLANE, HATE); recall that there are 45 handshapes. Other signs coincidentally use handshapes which correspond to fingerspelled letters, but they may have no connection to an English gloss (e.g. SCHOOL with "B" hands, TELEPHONE with a "Y" hand). For some handshapes (e.g. R, T, E, etc) nearly all the signs which use them are initial handshapes. In this sense they can be said to occur in a restricted context, since they are not freely productive handshakes.

References

Anthony, David

1971 *Seeing Essential English* (2 vols.), (Anaheim Union High School District, Anaheim, California).

Battison, Robbin

1971 MS Some Observations on Sign Languages, Semantics, and Aphasia (U. C. San Diego).

Battison, Robbin, and Harry Markowicz

1973 Sign Aphasia and Neurolinguistic Theory. A paper delivered at the 48th Annual Meeting of the LSA, December 28-30, San Diego.

Battison, Robbin, H. Markowicz, and James Woodward

1973 A Good Rule of Thumb: Variable Phonology in American Sign Language, to appear in *New Ways of Analyzing Variation in English, Vol.* 2, eds. Shuy and Fasold (Georgetown University Press).

Bellugi, Ursula

1972 Studies in Sign Language, in *Psycholinguistics and Total Communication: The State of the Art,* ed. T. O'Rourke (Silver Spring, Maryland, *American Annals of the Deaf)*.

Boyes, Penny

1973 Developmental Phonology for ASL, Salk Institute Working Paper (La Jolla, California).

Cokely, Dennis, and R. Gawlik

1973 A Position Paper on the Relationship Between Manual English and Sign, *Deaf American* 25: 9 (May, 1973), 7-11.

Fant, Lou

1972 *Ameslan: An Introduction to American Sign Language* (Silver Spring, Maryland, National Association of the Deaf).

Friedman, Lyn and R. Battison

1973 MS Phonological Structures in American Sign Language, NEH Grant Report.

Frishberg, Nancy

1973 Arbitrariness and Iconicity: Historical Change in American Sign Language. A paper delivered at the 48th Annual Meeting of the LSA, December 28-30, San Diego.

Frishberg, Nancy, and Bonnie Gough

1973a Morphology in American Sign Language. Salk Institute Working Paper (La Jolla, California).

Frishberg, Nancy, and Bonnie Gough

1973b Time on Our Hands. A paper delivered in May before the 3rd Annual California Linguistics Association Meeting, (Stanford University).

Gustason, Gerilee, D. Pfetzing, and E. Zawolkow

1972 *Signing Exact English: Seeing Instead of Hearing* (Rossmoor, California, Modern Signs Press).

Krohn, Robert

1972 On the Sequencing of Tautosegmental Features, *Papers in Linguistics, 5: 1.*

Lewis, M. M.

1968 *The Education of Deaf Children* (London, H.M.S.O .).

Long, J. Schuyler
1918 *The Sign Language: A Manual of Signs,* 1962 reprint of 2nd edition (Washington, D.C., Gallaudet College Press).

Oleron, P.

1952 Etudes sur le langage mimique de sourdsmuets, *L 'Annee Psychologique* 52,47-81.

Paget, Grace

1969 The Systematic Sign Language, Hearing, 24: 3.

Schlesinger, i., B. Presser, E. Cohen, and T. Peled

1970 MS Transfer of Meaning in Sign Language, Working Paper No. 12 (Psychology Department, Hebrew University of Jerusalem).

Siple, Patricia

1973 Constraints for Sign Language from Visual Perception Data, Salk Institute Working Paper (La Jolla, California).

Stokoe, William C. Jr.

1960 Sign Language Structure: An Outline of the Visual Communication System of the American Deaf *Studies* in *Linguistics,* Occasional Paper 8 (Linguistics Research Laboratory, Gallaudet College).

Stokoe, William C. Jr., D. Casterline, and C. Croneberg

1965 *A Dictionary of American Sign Language* (Washington, D.C., Gallaudet College Press).

Woodward, James C. Jr.

1973a Some Characteristics of Pidgin Sign English, *Sign Language Studies* 3,39-46.

Woodward, James C. Jr.

1973b Implicational Lects on the Deaf Diglossic Continuum (Georgetown University doctoral dissertation in Sociolinguistics); in press.

Robbin M. Battison has B.A. and M.A. degrees in linguistics from the University of

California, San Diego. He is completing requirements for the Ph.D. at the same institution while pursuing research in the Linguistics Research Laboratory, Gallaudet College. Besides his phonological work, reported at several recent professional meetings, he is well known in the small group which studies aphasia, deafness, and neurophysiology. The First Sign Language Conference he organized in April 1974 seems well on the way to becoming an annual event.

IMPLICATIONAL VARIATION IN AMERICAN SIGN LANGUAGE: NEGATIVE INCORPORATION

James C. Woodward, Jr.

l. Introduction.

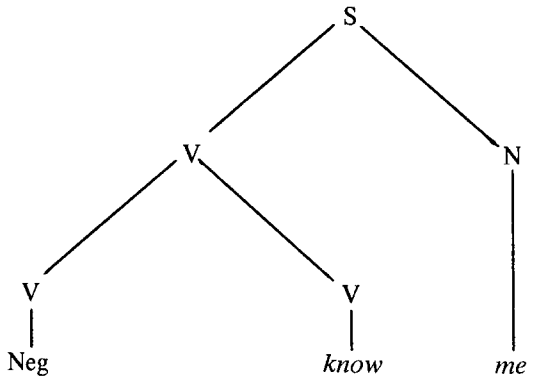
There is a diglossic continuum between American Sign Language (ASL) and Standard English in the U.S. deaf community (Stokoe 1969-70, 1973; Moores 1972; Woodward 1972, 1973; Friedman 1973) . This differs from the classic diglossic situation described by Ferguson (1959), because the H variety (Standard English) and the L variety (ASL) are two separate languages, but it is a situation that shares much of the attitudinal and social characteristics of typical diglossic situations.

Variationists Bailey (1971), Fasold (1972), Bickerton (1972), and DeCamp (1972) have shown 'hat traditional linguistic theory is inadequate to explain language variation, especially in continuum situations. Models of variation theory developed by these (socio)linguists can explain such variation. This paper reports on variation in the Negative Incorporation Rule of ASL. Three studies of variable use of this ASL syntactical rule are examined utilizing variation theory. These studies offer a crucial testing ground for the descriptive and explanatory power of variation theory, since these studies are on visual language phenomena that linguists have not normally observed.

The first study (DC) reported in Woodward (1973a) analyzed data on three ASL rules from

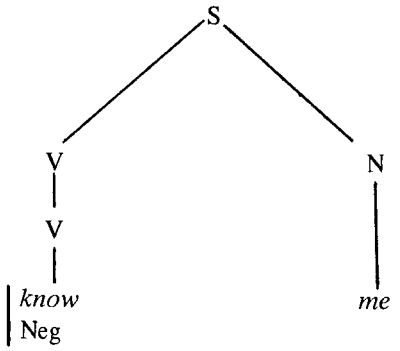
141 informants living in the Washington, D.C., Frederick, Maryland, and New York City areas who varied according to four social measures. These variables identified the informants as +deaf, with +deaf parents, as having learned signs +before the age of six, and +attended some college. The second (MW) study (Woodward 1973b), tested the same three variable rules using 36 informants from Montana and Washington state, who were chosen on the basis of three social variables: +deaf parents, +signing before six, and +college. The third (IRI) study, the inter-rule implication study (Woodward 1973c), took the data from the DC study and attempted to find implicational relations among the three ASL rules.

1c.



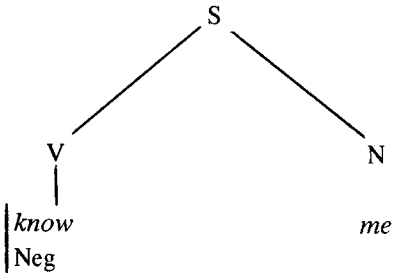
Negative Incorporation then yields 1d.

1d.



A final pruning rule gives 1e.

1e.



Later rules give a surface structure symbolization to the lexical units and rewrite Neg as twisting outward movement of the dez from the tab of KNOW. (These terms for the working hand's configuration and the distinctive sign location are from Stokoe, 1960; Stokoe et al, 1965; caps. show signs as common glosses.)

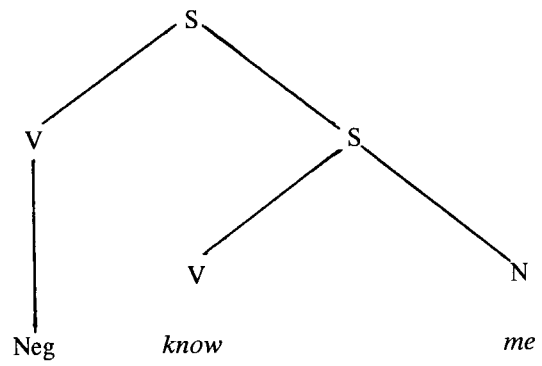
2. Negative Incorporation.

American Sign Language has several verbs that may be negated by a bound, outward twisting movement of the moving hand(s) from the place where the sign is made. The derivational history of one example of Negative Incorporation is described below.

1. ∩B $\frac{\perp}{v}$ [] G ^{T}
   not me
   know 'I don't know'.

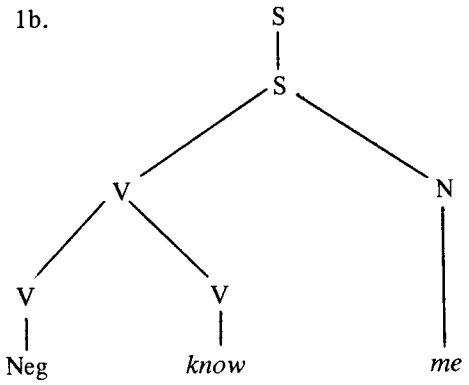
The underlying structure of 1 is represented in la. [Only essential structures are listed in trees in this paper. la probably needs an underlying object later deleted. However, as this object is not essential to the tree in question, it is not included.]

1a.



Predicate lowering results in 1b.

1b.

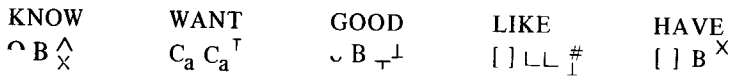


A pruning rule allows deletion of the highest S, yielding 1c.

3. 0 The DC Study.

3.1 Negative Incorporation Implication.

Not all ASL verbs undergo Negative Incorporation. Five verbs that do undergo this transformation were used in the DC study:



Before this study was begun, it was noticed that not everyone who signs or who claims to use ASL uses Negative Incorporation with all these verbs. There was considerable variation. However this variation was found to be implicational. The ordering for the implication is: HAVE, LIKE, WANT, KNOW, GOOD. Based on this implicational ordering we have the six possible implicationally ordered lects shown in Table 1, even though mathematically there are 32 (25) possible lectal arrangements.

Lect	HAVE	LIKE	WANT	KNOW	GOOD
1	+	+	+	+	+
2	–	+	+	+	+
3	–	–	+	+	+
4	–	–	–	+	+
5	–	–	–	–	+
6	–	–	–	–	–

Table 1. Presence of Negative Incorporation in Six Implicational Lects.

For such an implicational scale to be valid, at least 85% (Guttman 1944) and preferably 89-90% (Bailey personal communication) of the responses must fit the implication shown in Table 1. With 141 informants and five verb choice slots, the total number of responses was 705. There were 21 exceptions to the scale in Table 1, which makes a 3% exception rate or 97% rate of following the implication--well over what is needed for a valid implication.

The information supplied by an implication must be incorporated into the grammar. Methodology for doing this will be discussed after the following discussion of the correlation of these lects with social variables.

3.2 Correlation of Negative Incorporation Lects With Social Variables.

The four social variables in the DC study were, +deaf, +deaf parents, +signed before age six, and attended some college. The first three of these social variables are extremely important criteria for socialization into the deaf community. If a person is deaf, he can much more easily join the deaf community. Meadow (1972) has pointed out that socialization into the deaf community invariably includes language socialization. With the children of deaf parents this takes place from birth. With deaf children of hearing parents it may take place at other times. However, the age of six seems to be a crucial time in first language acquisition. Quite possibly a person learning signs after the age of six will sign differently from a person who learned signs earlier.

The fourth variable, education, seems to be a universal social variable for those societies having a formal educational system, since education tends to preserve and transmit traditional values of language and society as well as to promote a maintenance of language forms and structures that may not be present in everyday conversation.

Membership in lects having Negative Incorporation is related to the variable +deaf and does not seem to be related to the variables of parents' deafness, age of acquisition, or education. As intuitively expected, deaf informants fell into lects that were closer to "pure" ASL, although it is surprising that none of the other variables were significant. Other linguistic variables, e.g. ASL Agent-Beneficiary Directionality, are correlated with more social variables, +deaf, +before six, and +college. In fact, it is possible to set up hierarchies of social variables from the linguistic variation. The most important social variable found in the DC study was deafness, which correlated with four out of five linguistic variables. The next most important variable was parentage, which correlated with three of the five linguistic variables. Education correlated with two, and age of sign language acquisition with only one of the linguistic variables.

3.3 Features Conditioning the Variation.

We have seen that the Negative Incorporation Rule applies for signers first in environment of GOOD, second in the environment of KNOW, third in the environment of WANT, fourth in the environment of LIKE, and fifth in the environment of HAVE .

We hypothesize that there are phonological and/or semantic features that are similar in these

five verbs, and that are conditioning the variation.

Table 2 shows the phonological features necessary to distinguish these verbs.

Feature	HAVE	LIKE	WANT	KNOW	GOOD
face	-face	-face	-face	+face	+face
trunk[2]	+trunk	+trunk	-trunk	-trunk	-trunk
outward sig motion	-out	+out	-out	-out	+out

Table 2. Features on Negative Incorporating Verbs.

From Table 2 we see that it is possible to weight these features, assigning ~ to that feature that influences operation of the rule more frequently. To successively less important environmental features we can assign ,B, y, etc. Table 3 shows the proper weighting of features.

HAVE	LIKE	WANT	KNOW	GOOD
	γ out	β -trunk	α face	α face
			β -trunk	β -trunk
				γ out

Table 3. Weighted Features on Negative Incorporating Verbs.

While there is not enough empirical evidence to completely justify the naturalness of these phonological features in conditioning the operation of this rule, these features are not merely *ad hoc.* Negative Incorporation requires an outward twisting movement of the hand(s) from the place where the sign is made. These negative signs require more complex movement

than their positive counterparts. Siple (1973) has shown that because of constraints on visual perception, signs on the *face* allow much more complex hand configurations and movements than signs made on other parts of the body. Signs made on the *trunk* appear to allow the least complex configurations and movements. Signs already containing an outward movement in their positive form are also favored for Negative Incorporation.

The rule for Negative Incorporation, which changed tree 1c to tree 1d, can now be written:

1	2	3	4	5	6	7
[	[	NEG	V	]	N	]
S	V		+Neg Inc	v		s
			α face			
			β -trunk			
			γ out			
1 2 3 4 5 6 7 ⇒			1 2 4 5 6 7			
			+ out			
			+ twist			

4. 0 The Montana-Washington Study.

The M-W study was a follow-up to test if the implicational patterns found in DC would be found in the lects of informants from other parts of the country. The patterns were the same, and with generally higher rates of following the implication. Negative Incorporation, e.g., showed a 95% rate of responses fitting the pattern of Table 1. There were not enough informants in each cell to test reliably for correlation of membership in lects with social variables.

5. 0 The Interrule Implication Study.

The DC study revealed six lects for Negative Incorporation, ten lects for Agent-Beneficiary Directionality, and ten lects for Verb Reduplication. It was pointed out in that study that the

implicational scales could be divided and that Negative Incorporation lects 1-3, Agent-Beneficiary Directionality lects 1-5, and Verb Reduplication lects 1-5 were that part of the continuum that approached ASL most closely, i.e., the lects that used these three rules in the largest number of environments. These three rules then may be treated as parts of another implicational ordering. Table 4 shows the four lects so determined with '+' indicating membership in the ASL-like lects and '-' indicating membership in the more English-like lects.

Lects	Agent-Beneficiary lects 1-5	Neg-Incorporation lects 1-3	Verb Reduplication lects 1-5
1	+	+	+
2	-	+	+
3	-	-	+
4	-	-	-

Table 4. Rule-to-Rule Implication.

There were 20 exceptions to this implication out of 423 responses. This gives a 95.3% rate of acceptability. Dividing this implication in half, lects 1-2 represent the end of the continuum in which most ASL rules are used in the most environments, and lects 3-4 represent the end of the continuum in which few ASL rules are used in few environments. Chi-square tests of membership in lects 1-2 and 34 and the social variables used in the DC study showed strong dependency relationships between +deaf, +deaf parents, and +signing before six and membership in lects 1-2; also between -deaf, -deaf parents, and -signing before six and membership in lects 3-4. Thus, deaf people, people with deaf parents, and people who learned signing before the age of six patterned in lects that approach "pure" ASL more closely. Hearing people, people with hearing parents, and people who learned signs after age six patterned in lects that do not approach ASL closely.

6. 0 Summary and Conclusions.

These three studies have shown that variation along the ASL-to-English continuum is

regular, rule-governed, and describable by variation theory. It is perhaps in the U.S. deaf community, more than in any other place, where the utilization of variation theory is most needed. Variation in sign competence is large and complex. Any attempt to describe the language of the deaf community must take account of this variation.

Negative Incorporation, as a particular example of variation, offers important insights into the nature of ASL. As seen from the IRI study, Negative Incorporation is crucial in defining ASL-like competence along the deaf diglossic continuum; for this rule marks the boundary between ASL-like and more English-like lects in that study.

Further support for the salience of this rule in ASL comes from observation of children's signing in which it is over generalized. There have been reported over generalizations by a child who already had the full implication, i.e. was most ASL-like. This child used the over generalized form *DON'T-LOVE.[3] It is also interesting to note that once hearing signers realize that Negative Incorporation extends to more signs than KNOW and GOOD, they also begin making hypercorrections, e.g. *DON'T-THINK.

Finally Negative Incorporation is also important because it gives further support to the presence of a systematic phonology in ASL (Battison 1974; Battison, Markowicz, and Woodward 1974) which helps to condition grammatical variation. With a level of systematic phonology, American Sign Language shares a basic quality of all human languages, duality of patterning.

Notes

[1]This paper was presented at the 1973 annual meeting of The Linguistic Society of America in San Diego. Research studies reported on were supported in part by NSF grant GS-31349 and NIH grant NS-10302 to the Linguistics Research Laboratory at Gallaudet College.

[2]I would like to thank Susanna Oliver for suggesting this feature (-trunk) as a possible solution. Earlier I had proposed as *beta* feature -body, which weakened the rule somewhat in the environment of +face, the *alpha* feature, and which did not allow any claim for naturalness in WANT's occurring before LIKE and HAVE. With -trunk as *beta* feature the rule is strengthened and weakened in the proper places. Moreover a further claim can be

made for naturalness using the work of Siple (1973).

[3]I would like to thank Dennis Cokely for pointing out this example to me.

References

Bailey, Charles-James N.

1971 MS Variation and Language Theory.

Battison, Robbin

1974 Phonological Deletion in American Sign Language. A paper presented at the 1973 Annual Meeting of the Linguistic Society of America, San Diego, *Sign Language Studies 5,* 1-19

Battison, Robbin, Harry Markowicz, and James Woodward

1974 A Good Rule of Thumb: Variable Phonology in American Sign Language. A paper presented at the NWAVE II Conference- Georgetown University, Oct. 1973.

Bickerton, Derek

1972 The Structure of Polylectal Grammars, *Georgetown University MSLL 25,* 17-42.

DeCamp, David

1972 What Do Implicational Scales Imply? *New Ways of Analyzing Variation in English,* eds. C-J N. Bailey and Roger W. Shuy (Washington, D.C.: Georgetown University Press), 141-148.

Fasold, Ralph

1970 Two Models of Socially Significantly Linguistic Variation, *Language* 46:3,551-563.

Friedman, Lyn

1973 Semantics of Space, Time, and Person in American Sign Language. (Unpublished M.A. thesis, University of California, Berkeley.)

Guttman, Louis

1944 A Basis for Scaling Qualitative Data, *American Sociological Review 9,* 139-150.

Meadow, Kathryn

1972 Sociolinguistics, Sign Language, and the Deaf Sub-Culture, in *Psycholinguistics and Total Communication: the State of the Art,* ed. T. J. O'Rourke (Washington: *The American Annals of the Deaf)* 19-33.

Moores, Donald

1972 Communication: Some Unanswered Questions and Some Unquestioned Answers, in *Psycholinguistics and Total Communication: the State of the Art,* 1-10.

Siple, Patricia

1973 MS Constraints for a Sign Language from Visual Perceptual Data

Stokoe, William C. Jr.

1969-70 Sign Language Diglossia, *Studies in Linguistics* 21,27-41.

Stokoe, William C. Jr.

1973 Sign Language Syntax and Human Language Capacity, a forum lecture at the Summer Institute in Linguistics, Ann Arbor, Michigan.

Woodward, James C. Jr.
1972 Implications for Sociolinguistic Research Among the Deaf, *Sign Language Studies,* 1: 1,1-7.

Woodward, James C. Jr.

1973a Implicational Lects on the Deaf Diglossic Continuum (Georgetown University doctoral dissertation in Sociolinguistics; in press).

Woodward, James C. Jr.

1973b A Report on Montana-Washington Implicational Research, *Sign Language Studies* 4,77-101.

Woodward, James C. Jr.

1973c Interrule Implication in ASL, *Sign Language Studies* 3,47-56.

James C, Woodward, Jr. hardly needs an introduction in these pages. Assistant Professor in the Linguistics Research Laboratory and the department of English, Gallaudet College, he has contributed seven papers to the first four issues of SIGN LANGUAGE STUDIES. His research and teaching are rapidly bringing forward a new generation of scholars to make up for the long neglect of Sign and its users.

KINSHIP SIGNS IN JAPANESE SIGN LANGUAGE

Fred C. C. Peng

Introduction

Kinship system, as a set of biosocial relations upon which social organization of any given human community must rest, exists in every human society. The terms by which such relations are designated often vary from one culture to another, depending upon the language spoken in it. The extent to which the variations occur has been studied from many points of view in semantics and ethnoscience; thousands of articles have been published, dealing with the subject. But I have yet to see a single paper touching upon kinship among deaf people and their hearing peers in any society, to show how the deaf regard themselves and others. Scholars, anthropologists and sociologists in particular, have hitherto ignored the deaf as if they did not exist or were simply an insignificant segment of their global society, not even constituting a recognizable minority to be reckoned with and so preserving no attributable social relations of their own. The situation is made the more serious, when the deaf tend to stay out of sight of the rest of the society in which they live. Another reason for a scarcity of knowledge is that little is known about any sign language, not to mention its social functions.

A cursory investigation of the Japanese deaf in Japan, however, suggests that they do have a distinct set of relations of their own, expressable in a unique system of communication called Japanese sign language (hereafter JSL). The purpose of this paper, the first of its kind, attempts to examine the expressions of kinship that constitute a system of its own among the Japanese deaf in terms of JSL. It must be mentioned in passing that I am aware of the insufficiency of presenting kinship expressions without any serious study of social organization of the deaf in Japan. I must add, however, that at this stage, owing to the fact that the social climate in Japan is not particularly in favor of such a study, any investigation into the social relations between the deaf and their hearing peers would appear premature; many hearing parents are afraid to admit that they have deaf children and an inquiry into

their family trees easily constitutes or is likely to be interpreted as a threat to their sense of security, a feeling that would certainly hamper their badly needed cooperation.

Since a sign language, such as JSL, is made up of signs formed by certain body parts and a set of rules governing their usages and directing their changes in configuration, I shall speak of kinship signs throughout, instead of kinship terms which are better suited for an oral language. The data to be presented were collected from March to September, 1973, in a series of field studies, from deaf informants living in Tokyo as well as from hearing people who know JSL and are professional interpreters for the deaf. l have also learned to use JSL since then to a considerable extent.

It is of great importance to point out initially that Japanese kinship signs may be divided into two sets; a set of basic signs and a set of derivative signs, these being comparable to but not congruent with Japanese kinship terms. In the next two sections, I shall first introduce the basic signs and then the derivative signs. They are to be followed by a section devoted to the discussion in some detail of the signs thus introduced. A statement summarizing the previous sections will mark the end of the paper.

Basic Signs in JSL Related to Kinship.

The following individuals, looked at from Ego's point of view, who is deaf, form two sets of relations: 1,2, 3, and 4 versus 5, 6, and 7. The signs denoting these relations are expressed not in symbols but in English descriptions after each such individual. The signer is assumed to be a right-hander throughout.

Figure 1 shows that there is no distinction between paternal grandparents and maternal grandparents, a result that stems from ignoring the criterion of bifurcation. This is culturally natural, because the Japanese language does not make this distinction either. It would be most surprising, on the other hand, if the deaf made such a distinction but the hearing people did not. Note also that the Japanese deaf make extensive use of the thumb and the little finger in this set of kinship signs; it is not an overstatement that the basic kinship signs center in either the thumb or the little finger, with modification in the configuration itself or in respect of the position where the configuration takes place. I shall return to the discussion concerning the thumb and the little finger further below.

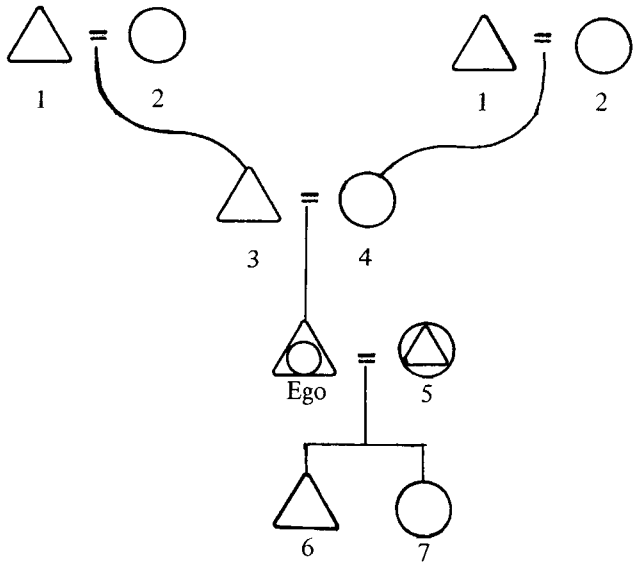
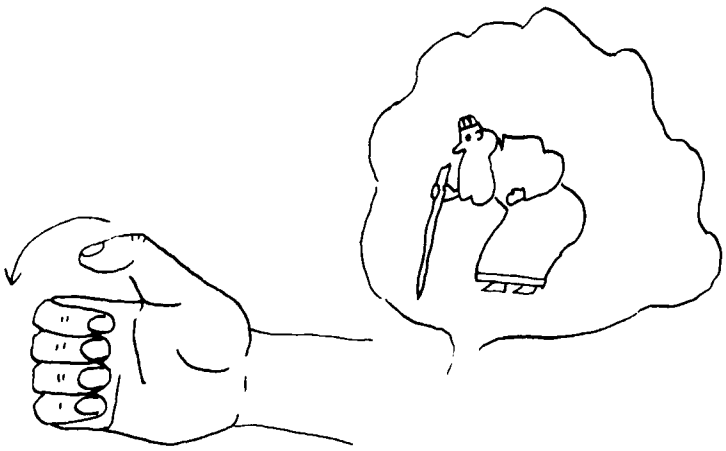


Figure 1. Nuclear Family and Vertical Extensions

---

1 = a touch on the cheek with right index followed by vertical right thumb bent at the first joint making a circle counter-clock wise, while the index and the other fingers folding together like a fist.



2 = a touch on the cheek with right index followed by vertical right little finger bent at the second joint making a circle counter-clock wise, the index and the others folded together like a fist.

3 = a touch on the cheek with right index than a straight vertical thumb without making a circle, the index and the other fingers folded together like a fist.

4 = a touch on the cheek with right index then straight vertical little finger, the index and the others folded together like a fist.

S = a straight vertical thumb stemming from a fist, if spouse is ~;

= a straight vertical small finger stemming from a fist, if spouse is 0.

6 = a straight thumb from the fist, moving down from the navel outward.

7 = a straight little finger from the fist, moving down from the navel outward

Table 1. JSL Signs for Relations 1- 7.

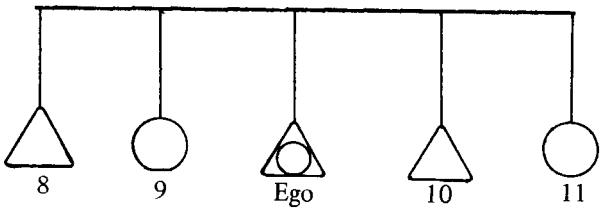


Figure 2. Ego's Siblings

8 = a touch on the cheek with right index followed by vertical straight middle finger, while the hand moves up with the index and the remaining fingers closed.

9 = a touch on the cheek with right index followed by vertical straight ring finger, while the hand moves up with the index and the remaining fingers closed.

10= a touch on the cheek with right index followed by vertical straight middle finger, while the hand moves *down* with the index and the remaining fingers closed.

11 = a touch on the cheek with right index followed by vertical straight ring finger, while the hand moves *down* with the index and the remaining fingers closed.

Table 2. JSL Signs for Relations 8-11.

Figure 2 and Table 2 show that the middle and ring fingers are now involved; each of them must also be set in motion, either going up or going down. The up-going direction indicates seniority and the down-going direction, juniority, relative to Ego, a case that distinguishes relative age of each sibling concerned. In addition, the two fingers, middle and ring, designate male and female siblings, respectively, suggesting that the criterion of sex is clearly observed not only in Table 1 signs but in Table 2 signs as well. Moreover, it may be

of some interest to point out that some kind of male dominance may be implied by the use of the relatively stronger fingers, i.e. the thumb and the middle finger, for the male sex, and the weaker fingers, i.e. the smallest and ring fingers, for the female sex. I shall have more to say in this regard later.

Both figures have in common (save for 5, 6, and 7) a touch on the cheek with right index. This denotes blood relationship, i.e. consanguinity in its technical sense. But it is not at all certain why the index, rather than some other finger, is employed; probably the index is the only finger left that is not directly responsible for assignment to a criterion. Since a spouse is not related by blood and children have blood from both parents, though consanguineal, there is no touch on the cheek for either.

The above-mentioned kinship signs, interestingly enough, are used for reference only, according to my interpreters and some informants. It may seem strange that a kinship system has no signs (i.e. terminology in a special sense) for address. Perhaps "address" is not a good word in this context. At any rate, if my information is correct, the Japanese deaf do not sign to "address" their relatives; they simply pat the shoulder to draw attention, if need be and when the person to be "spoken" to is not aware of the onset of a conversation, or start signing to the person when he is aware of sign activity directed to him. Some other informants, however, told me that they do sign to "address." Whether there is a misunderstanding on their part or on mine remains to be clarified. In the meantime, I am inclined to believe that there is no sign equivalent to a term of address; it makes sense to avoid using (or creating) signs of address because a tap on the shoulder is sufficient to get a discourse in sign language going. Perhaps terms of address are excessive and redundant in our hearing world. More will be said along this line later.

Derivative Signs in JSL Related to Kinship.

The difference between a basic sign and a derivative sign runs parallel with that between a classificatory term and a descriptive term in kinship terminology. However, Japanese derivative signs do not match one-to-one with descriptive terms; nor do Japanese basic signs correspond neatly to Japanese classificatory terms. In other words, there are fewer basic signs than there are classificatory terms, which means that there must be more derivative signs than there are descriptive terms. As a consequence, some relatives who have classificatory terms, notably *ojisan* 'uncle' and *obasan* 'aunt', among others, must receive

derivative designation in JSL. This phenomenon is a deviation from the norm of the hearing Japanese, making the study of kinship signs even more interesting.

The derivative signs in JSL result from certain combinations of the basic signs presented above. For the sake of expedience, let me divide the basic signs into five groups as follows:

I	Grandfathers	1
	Grandmothers	1
II	Father	3
	Mother	4
III	Older Brother	8
	Older Sister	9
	Younger Brother	10
	Younger Sister	11
IV	Husband	5
	Wife	5
V	Son	6
	Daughter	7

Table 3. Generational Groupings of Basic JSL Kinship Signs.

The combination of I and II would result in a set of derivative signs that designate Ego's great grandparents. But note that there are eight individuals yet only four derivative signs. These relationships are indicated in Figure 3 below and the signs described in Table 4.

The combination of I and 111 would result in another set of derivative signs, referring to

Ego's great uncles and aunts. But, again, there

are 16 individuals when only eight derivative signs are available. The same is not true, however, of the combination of 11 and 111 which should produce eight individuals and eight derivative signs, designating Ego's uncles and aunts; their spouses, interestingly enough, are referred to by combining 11, Ill, and IV. But care should be taken to note that the combination 11, 111, and IV must not yield more than eight individuals, because of the compatibility of the individuals' sex. For instance, father's older brother's husband does not exist and therefore must be eliminated from the combination. Figure 4 illustrates only the uncles and aunts. Table 5 describes the signs.

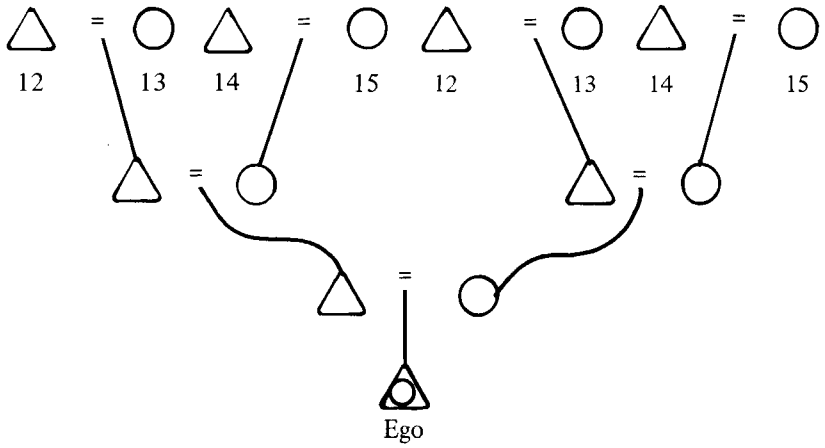


Figure 3. Ego's Great Grandparents

12 = grandfather's father (the sign for Grandfather followed by the sign for Father).

13 = grandfather's mother (the sign for Grandfather followed by the sign for Mother).

14 = grandmother's father (the sign for Grandmother followed by the sign for Father).

15 = grandmother's mother (the sign for Grandmother followed by the sign for Mother).

Table 4. Derivative JSL Signs for Relations 12-15.

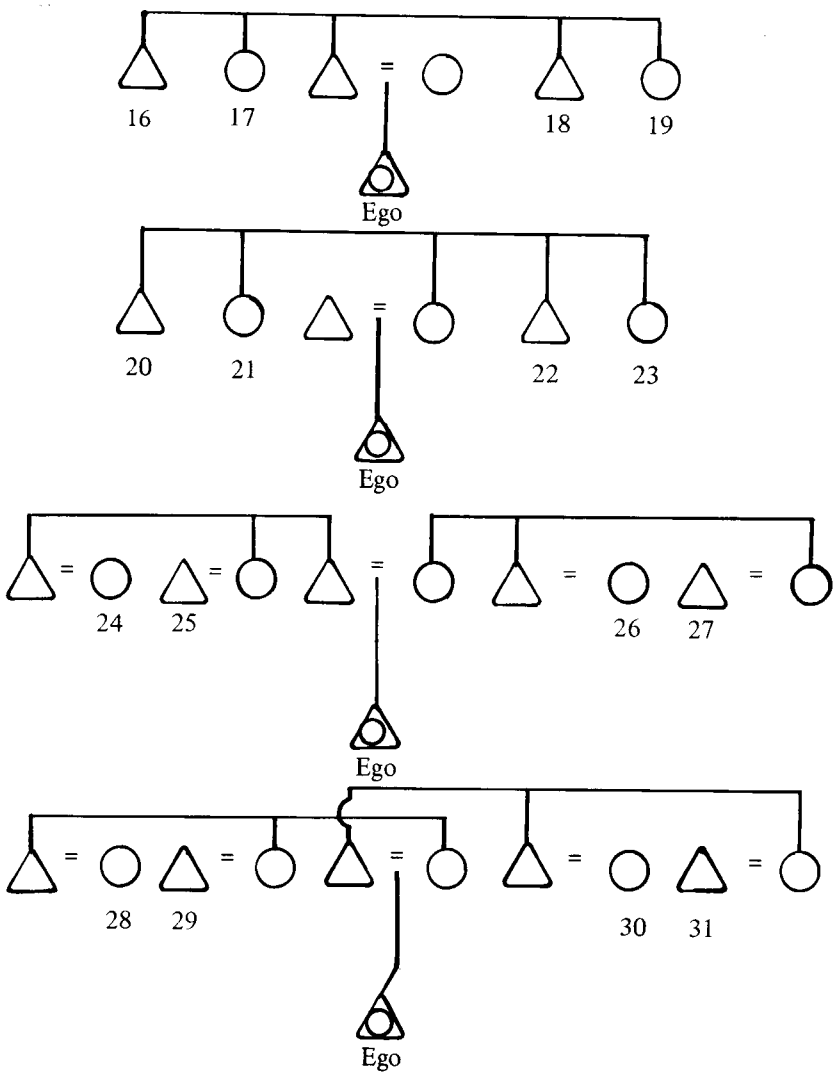


Figure 4. Ego's Uncles and Aunts

16 = father's older brother (the sign for Father followed by the sign for Older Brother).

17 = father's older sister (the sign for Father followed by the sign for Older Sister).

18 = father's younger brother (the sign for Father followed by the sign for Younger Brother).

19 = father's younger sister (the sign for Father followed by the sign for Younger Sister).

20 = mother's older brother (the sign for Mother followed by the sign for Older Brother).

21 = mother's older sister (the sign for Mother followed by the sign for Older Sister).

22 = mother's younger brother (the sign for Mother followed by the sign for Younger Brother).

23 = mother's younger sister (the sign for Mother followed by the sign for Younger Sister).

24 = father's older brother's wife (the sign for Father followed by the sign for Older Brother and then by the sign for Wife).

25 = father's older sister's husband (the sign for Father followed by the sign for Older Sister and then by the sign for Husband).

26 = mother's younger brother's wife (the sign for Mother followed by the sign for Younger Brother and then by the sign for Wife).

27 = mother's younger sister's husband (the sign for Mother followed by the sign for Younger Sister and then by the sign for Husband).

28 = mother's older brother's wife (the sign for Mother followed by the sign for Older Brother and then by the sign for Wife).

29 = mother's older sister's husband (the sign for Mother followed by the sign for Older Sister and then by the sign for Husband).

30 = father's younger brother's wife (the sign for Father followed by the sign for Younger Brother and then by the sign for Wife).

31 = father's younger sister's husband (the sign for Father followed by the sign for Younger

Sister and then by the sign for Husband).

Table 5. Derivative JSL Signs for Relations 16-31.

All these derivative signs may be abbreviated slightly in a certain way. That is to say, the second sign indicated in the parentheses need not have the "touch on the cheek" mentioned in the basic signs. In other words, for example, father's older brother could be signed as "father plus the middle finger going up" without the intervening "touch on the cheek" which must otherwise be associated with Older Brother as a basic sign. The rest follow suit.

If III combines with V, eight more derivative signs would result, denoting Ego's nephews and nieces. Figure 5 and Table 6 illustrate:

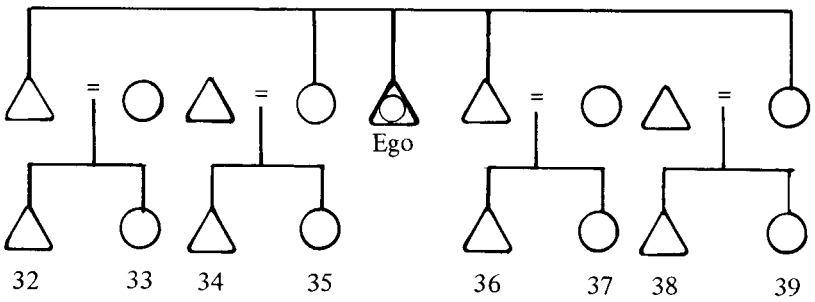


Figure 5. Ego's Nephews and Nieces

32 = older brother's son (the sign for Older Brother followed by the sign for Son).

33 = older brother's daughter (the sign for Older Brother followed by the sign for Daughter).

34= older sister's son (the sign for Older Sister followed by the sign for Son).

35 = older sister's daughter (the sign for Older Sister followed by the sign for Daughter).

36 = younger brother's son (the sign for Younger Brother followed by the sign for Son).

37 = younger brother's daughter (the sign for Younger Brother followed by the sign for

Daughter).

38 = younger sister's son (the sign for Younger Sister followed by the sign for Son).

39 = younger sister's daughter (the sign for Younger Sister followed by the sign for Daughter).

Table 6. Derivative JSL Signs for Relations 32-39.

The derivative signs for Ego's cousins would necessarily come from the combination of II, III, and V, thereby designating 16 individuals. Of these, however, only four (i.e. two parallel and two cross) cousins are depicted in Figure 6 and Table 7.

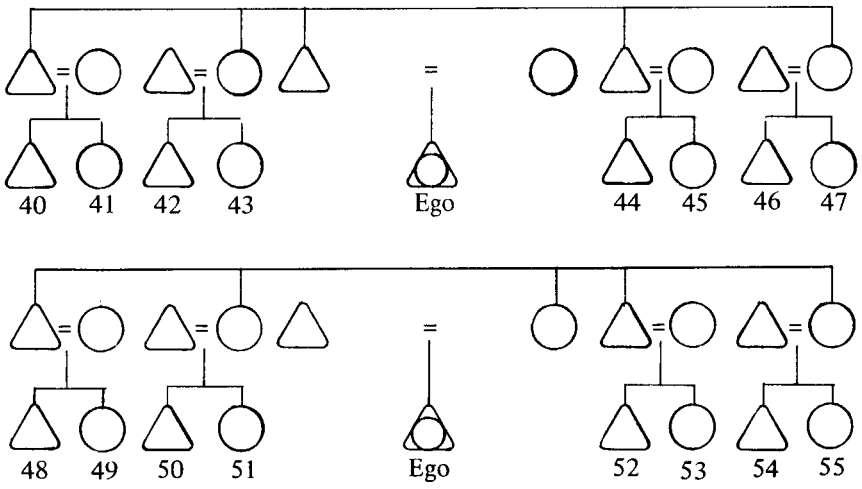


Figure 6. Ego's First Parallel and Cross Cousins

40 =father's older brother's son (the sign for Father plus the sign for Older Brother plus the

sign for Son).

42 = father's older sister's son (the sign for Father plus the sign for Older Sister plus the sign for Son).

45 = father's younger brother's daughter (the sign for Father plus the sign for Younger Brother plus the sign for Daughter).

47 = father's younger sister's daughter (the sign for Father plus the sign for Younger Sister plus the sign for Daughter).

Table 7. Derivative JSL Signs for Relations 40, 42, 45, 4~.

As in Figure 4, the derivative signs for Figure 6 may also be slightly abbreviated; i.e. the sign for each sibling after the sign for Father or Mother may omit the touch on the cheek. The abbreviated signs seem preferred by younger deaf-mutes, according to my informants.

More combinations are theoretically possible, such as 1,11, and 111, or 11 and IV. I shall omit these derivative signs, as they are either cumbersome, in the case of 1, 11, and 111, because the deaf do not encounter these derivative signs in their daily life, or nonsensical, in the case of 11 and IV, because the deaf have a different sign for Father's concubine *(mekake* in Japanese) which is signed with right little finger placed at the outside corner of the right eye.

It should be obvious that none of these derivative signs are employed for the purpose of address; in other words, they are all signs of reference.

Discussion.

Several important issues that have been raised deserve a more careful consideration here. They may be divided into two parts; one, pertaining to JSL *per se,* and the other, to the similarities and differences between Japanese kinship signs and Japanese kinship terms.

It has been pointed out earlier that the basic kinship signs in JSL make full use of the five fingers, each receiving a semantic feature or a set of semantic components vis-a-vis a kinship referent. Before I explicate the reasoning behind the use of these fingers in Japanese kinship signs, let me quickly add that the Japanese deaf are members of Japanese society at

large, albeit confined in a sub-culture of their own. Therefore, it is not at all strange that the deaf and hearing people living in the same global environment and social contexts share certain features or body movements. It would, on the other hand, be all the more odd, if the deaf and their hearing peers showed no resemblances in the use of body movements as a means of communication. With this caution in mind, let me know recapitulate the use of the fingers in Japanese kinship signs.

First, let me return to the use of the thumb. It appears thrice in the basic signs, with reference to Grandfather, Father, and Husband. It is not at all coincident that the thumb represents these referents. For Japanese culture in general attributes, on a *de facto* basis, the male sex to this finger which means either a *man* (who is the boss of a team or section), or a woman's (e.g. Geisha's) *patron* (who is usually a big business man keeping her as a secret concubine) or a strong *man* (who is number one in a competition). The three referents mentioned share certain features of these meanings, as far as the deaf are concerned. However, a modification is called for to differentiate Grandfather from Father, which is the bend of the thumb at the first joint, indicating the elder's physical shape more or less iconically. The sign for Husband, of course, sets itself apart from the other two by virtue of lacking one significant segment, viz. "the touch on the cheek" with right index. Thus, there is a three-way contrast in the use of the thumb, referring to Grandfather, Father, and Husband each of which has a deep-rooted semantic base in Japanese culture.

If we add the sign for Son to the use of the thumb, then, there is a four-way contrast, except that the thumb is now accompanied by the movement of the hand going down from the navel outward (cf. Table 1). This movement carries the meaning of "birth" which also appears in the sign for Daughter. In this sense, the semantics of the thumb may be said to be modified. Thus, the sign as a whole means "a male born" (i.e. Son). Notice that the essential component of the thumb (male) is kept intact here. The similarities in the sign for Daughter may go without saying.

Second, the same can be said of the little finger. It runs parallel with the thumb in that it appears also three times, when referring to Grandmother, Mother, and Wife. More important, however, is the fact that the little finger is more often than not generally employed in Japanese culture to indicate the female sex; it means a *woman* (who may or may not have an intimate relationship with a man), or a man's *female partner* (who could be his wife, concubine, fiancee, or a total stranger), or a *weakling* (who is a loser in a serious

competition). The last of these may be tied to this famous saying in Japanese: *"Yowai mono yo, nanji no na wa onna"* (Weakling, your name is woman).

Third, as was briefly alluded to above, the thumb resembles the middle finger in strength in the same way that the little finger resembles the ring finger in weakness. If such is the case, at least in Japanese culture, the use of the middle finger for the male siblings and that of the ring finger for the female siblings make good sense as far as JSL goes. But note that the middle finger is always longer than the ring finger, a point that is well accounted for when the average height of the male sex is compared with that of the female sex in Japan; men are usually taller than women in Japan. And recall that the up-going movement of the middle and ring fingers contrasts with the down-going movement of the middle and ring fingers for the purpose of identifying the relative age among the siblings. This contrast is in line with the general feeling in Japanese society of superior (up) versus inferior (down) status in social hierarchy and is reminiscent of the status quo in Japanese culture that a senior person is (automatically) superior (in the sense of etiquette, at least) to a junior person.

Let me now turn to the second part of the discussion. If we compare Japanese kinship signs with Japanese kinship terms, it becomes clear immediately that the basic signs do not match one-to-one with the classificatory terms nor do the derivative signs with the descriptive terms. This is because there are fewer basic signs than there are classificatory terms in Japanese kinship system, if and only if variants of terms of reference are not counted. Given this premise, it does not necessarily follow that the derivative signs are more diffuse in reference than the descriptive terms, as I may have suggested earlier.

Basic Signs	*Classificatory Terms*
1. Grandfather	1. *Ojiisan*
2. Grandmother	2. *Obāsan*
3. Father	3. *Otōsan*
4. Mother	4. *Okāsan*
5a. Husband	5. *Otto*
5b. Wife	6. *Tsuma*
6. Son	7. *Musuko*
7. Daughter	8. *Musume*
8. Older Brother	9. *Oniisan*
9. Older Sister	10. *Oneisan*
10. Younger Brother	11. *Otōto*
11. Younger Sister	12. *Imōto*
	13. *Ojisan* 'uncle'
	14. *Obasan* 'aunt'
	15. *Oi* 'nephew'
	16. *Mei* 'niece'
	17. *Itoko* 'cousin'
	18. *Mago* 'grandchild'

Table 8. Basic Signs and Classificatory Terms.

If, however, we limit ourselves to one form per term, which is for address and/or reference, and compare the basic signs with these classificatory terms, we find that several relatives who have classificatory terms do not have matching basic signs. The following is a tabulation of the correspondences (or lack of correspondences) between the two sets. In the absence of a suitable notational system for the basic signs, I shall use English equivalents (descriptive or otherwise) for the basic signs and romanize the Japanese terms with English glosses, where necessary, for the classificatory set.

Note that the romanization employed here is that used in the railroad stations in Japan. Long

vowels, therefore, are represented by either a diacritic mark above the vowel in question or a diphthong, in the case of *ei,* or simply geminated, in the case of *ii.* The suffix *-san is* a polite form which has nothing to do with the kinship terms involved; moreover, there is an honorific prefix O- that appears in I, 2, 3, 4, 9, 10, 13, and 14. Further details in the morphemics of the kinship terms are omitted here.

From this comparison, it must follow that the basic signs are fewer than the classificatory terms by six, and that those which correspond, one-to-one, are on a par with each other in terms of bifurcation, sex, relative age, and even generation. The missing signs are, of course, taken care of derivatively.

As a result of this disparity, it may be of interest to conjecture as to whether there is any difference in the cognition of these relatives between the deaf and their hearing peers. I would not be surprised if, cognitively, a *cousin* meant one thing to the deaf and quite another to the hearing Japanese, on the ground that it is a sign twice derived for the deaf but a direct term, albeit collectively, for the hearing people. The same may be said of *uncle, aunt, nephew, niece,* and *grandchild,* to a lesser degree though they might be, simply because each one of these has to be derived once through a sign indicating a connecting relative and therefore in a secondary category, as far as the deaf are concerned. But the term requires no intervening formative and hence is a primary category to the hearing people. Just how these "terminological" differences between the two sets reflect the users' cognitive behavior is an open question that must await a fuller and more empirical inquiry for a sensible answer.

On the other hand, the deaf make a sharp distinction between *father* and *father-in-law* or *mother* and *mother-in-law,* as the second category in each pair is signed derivatively, whereas the hearing people lump the members of each pair together under *Otosan* 'father' or *Okasan* 'mother'. Whether such a disparity suggests any distinguishable cognitive behavior between the deaf and hearing people is another intriguing question that calls for a thorough investigation of the social interaction among the deaf, which is next to impossible for the time being, in order to produce a well-grounded answer.

Another illuminating disparity is the lack of signs of address among the deaf mentioned earlier. Although I have said that perhaps the terms of address are excessive and redundant in the hearing world, it is precisely these terms, among others, that confirm and reassure the members of each family of their social relations. In other words, if one person calls another

person *Otosan* 'father', under whatever circumstances, their relation is reasserted each time that term appears between them. The subtlety of the relation may be discovered or even manipulated, if there is more than one form with which to address a person; the choice among the alternatives constitutes an adjustment of what I have called *communicative distance* (Peng 1974). Since the deaf do not have a set of signs of address at their disposal, using only a uniform gesture (a tap or a pat on the shoulder) instead, I wonder if the deaf adjust communicative distance differently.

What I am saying must not be interpreted to mean that the deaf are immune to subtleties or incapable of adjusting communicative distance or of detecting certain significant changes in communicative distance when engaged in a discourse, by virtue of lacking in the provision of such devices as a set of signs of address. Rather, what I am suggesting is that the deaf may well have differing, perhaps more direct and effective, devices with which to adjust communicative distance. More research is badly needed in this area about which we know next to nothing.

Summary.

As the preceding examination of kinship signs and discussion pertinent to them demonstrate, there is no doubt that a distinct pattern of behavior relevant to kinship among the Japanese deaf exists. Whether this claim can be substantiated empirically remains open, however. In the meantime, I would like to appeal to my colleagues studying sign language elsewhere to see if they are in a better position to investigate kinship behaviors among the deaf in their respective communities.

A study of kinship signs in any sign language is but a small step compared with what remains to be done regarding the sign language as a whole. I have isolated a set of kinship signs for the purpose of eventually working towards a notational system with which to transcribe the signs employed in JSL.

References

Peng, Fred C. C.

1974a Communicative Distance, *Language Sciences,* forthcoming (August 1974).

1974b On Communicative Distance, *SIL,* forthcoming.

Fred C. C. Peng is Professor of Linguistics in the International Christian University, Tokyo (181), Japan. He holds the Ph.D. degree in anthropology from the University of Buffalo, is a Fellow of the American Anthropological Association, and finds the language of the deaf in Asia a valuable source in relating language to cultural systems.

PEDRO PONCE DE LEON, FIRST TEACHER OF THE DEAF

Teresa Labarta de Chaves and Jorge L. Soler

The first known school for the deaf was in the Monastery of San Salvador de Ona, located in a deep and isolated valley in the mountains of North Central Spain, in the province of Burgos. This valley lies north of the barren Mesa de Ona, which is over four thousand feet high. It is a recessed, circular valley almost completely surrounded by high mountains except to the west. The slopes are covered with oak trees and box shrubs and a bountiful spring flows through it and into the Oca River, which wends its way between the mountains to the Ebro River about three miles away.

isolation that made it appropriate for a monastery. It provided not only peaceful surroundings apt for meditation, but also it was less accessible to the attacks of the Moors. This last consideration was probably the determining factor in the choice of the site if one considers that the monastery was founded at the beginning of the eleventh century, not many years after the successful campaigns of Almansur, under whose command the Moslem army had laid waste dozens of monasteries in Spain.

From the charter of the monastery, dated in 1010, it is known that Don Sancho Carcia, Count of Castile, founded it for his young daughter Tigridia, who later became its abbess and was canonized at her death. This document lists also an almost incredible number of towns, churches, estates and other monasteries with which Don Sancho endowed his foundation. Large portions of the present provinces of Burgos and Santander were placed under the jurisdiction of the Monastery of San Salvador de Ona. The wealth of the monastery grew with the centuries, as more and more kings and noblemen donated territories and extended privileges to it. Aside from its material wealth, its library housed a

very rich collection of classical and medieval manuscripts and was a center of learning.

In the fifteenth century, the reign of the Catholic monarchs, Ferdinand of Aragon and Isabella of Castile, which brought about decisive changes in Spain, also altered life in the Monastery of Ona. The monastery lost much of its autonomy and some privileges as it was brought under the control of the Spanish Benedictine Congregation whose centralizing policy was favored by Isabella and Ferdinand. This measure gave rise to an increased exchange with other Benedictine monasteries and resulted in the transfer of Fray Pedro Ponce from a monastery at Sahagun, Leon, to the Monastery of Orla.

Although he was a member of an illustrious Spanish family, not very much is known of Pedro Ponce de Leon.' He was born in the town of Sahagun, province of Leon, and took his monastic vows in the Benedictine monastery of his home town on November 3rd, 1526.2 A contemporary describes him as a reserved, humble devout man, a keen observer who devoted much time to the study of nature, collecting herbs and investigating their uses. The Monastery of Ona was, thus, an ideal place for such a person.

It was also an ideal place for the Marquis of Berlanga, Juan Fernandez de Velasco, to keep his two deaf sons out of the sight of society. The Velasco family had been one of the wealthiest and most powerful families in Spain since the thirteenth century. One of its members, Don Bernardino de Velasco, who died in 1517, had been appointed by the Catholic monarchs first Condestable of Castile, i.e., Commander in Chief of the Armed Forces. That title became in time a hereditary and honorific one. Don Juan Fernandez de Velasco, Marquis of Berlanga, whose children were sent to Ona was the brother of the third Condestable, Don Pedro de Velasco, Duke of Frias and Count of Haro. Don Juan Fernandez de Velasco, who died in 1546, also known as Juan de Velasco and Juan de Tovar, had eight children: 3 Juliana, deaf, a nun in the Convent of Santa Cruz de Medina de Pomar; Inigo, who inherited the titles of Condestable and Duke of Frias from his uncle Don Pedro who died without succession in 1557; Francisco, deaf, sent to Orla; Ines, who married the Count of Monterrey; Pedro, deaf, sent to Ona; Isabel, who married the Count of Castrgeriz; Bernardina, deaf, nun in the Convent of Medina de Pomar; and Catalina, deaf, nun in the Convent of Berlanga. All those born deaf, were sent to different monasteries. Sending the deaf children to the monasteries served the double purpose of taking them from public view and preventing them from having offspring. Deafness, however plagued this family, probably because of their endogamous practices. Most marriage contracts of the Velascos

were preceded by special dispensations from the Holy See because the contracting parties were first cousins. 4 The reason for these consanguineous marriages was solely financial: to prevent the break up of the family estates.

Don Francisco and Don Pedro, who were around eleven and eight years old in 1545 (see note 3), had been sent to Oha before the death of their father in 1546. From their arrival at the monastery the young boys took to Fray Pedro Ponce's quiet and compassionate ways. The abbot, then, entrusted the boys to Ponce's care. Fray Pedro grew very fond of the children and contrary to the popular and traditional belief concerning deaf-mutes, found them to be mentally alert and quite capable of learning. He, then, devoted himself to teaching them not only how to read and write but also to speak. A contemporary of Fray Pedro Ponce, Don Baltasar de Zuniga gives the following account of the case:

The Condestable Don Irligo had two brothers and two sisters who were mute. A strange occurrence took place in respect to the two brothers: Following orders of their father, the Marquis of Berlanga, the boys were taken to the Monastery of Oila, of the Order of Saint Benedict, so that garbed as monks, they would live among them. It is said that from the start the boys got very close to one of the monks named Pedro Ponce and that when the Abbot noticed this he decided to entrust the boys to Fray Pedro's care. He was a monk of very saintly life, he had not had much schooling, but he was very interested in the study of herbs and of nature in general. Because he grew very fond of the boys and was very saddened about their impediment, he took to thinking of ways in which he could teach them how to speak; and finally after trying very hard, he undertook it and was successful.

The younger [of the boys] who was called Don Francisco died quite young and was able to speak somewhat. Don Pedro, the elder, who died when he was thirty some years old, had profited so much from the lessons of his teacher, that despite he could hear no more than a rock can, he would speak, like men who stutter. He was able to write in a beautiful hand, he read and understood well books in Italian and Latin, he could converse about any subject with as much common sense and good taste as any well versed person. He came to Salamanca sometimes to visit his sister, the Countess [of Monterrey] and her children which gave them great pleasure and amusement. His nephews, by express order of the monk, would speak to him using certain movements of their hands with which they formed the letters of the alphabet. 7 Fray Pedro also taught ten or twelve other [deaf] people to speak.

Don Pedro de Velasco himself summed up the work of Fray Pedro Ponce when he wrote to a contemporary humanist, Ambrosio de Morales:

I want you to know that when I was a child who knew nothing, *ut lapis* [like a stone], I began to learn how to write, first the subjects that my teacher Fray Pedro Ponce taught me, then all the Spanish words in a book of mine that had been made for that purpose. Then, *adjuvante Deo* [with the help of God] I began to spell and then to pronounce with all the strength that I could, although I spat out a great deal of saliva. Afterwards, I started to read history and in ten years I have read history about all the world and then I learned Latin. All this by the mercy of God without which no mute would have accomplished it. All learned men would bear witness that Pliny would have appreciated and extolled to no end any Roman who would have attempted and achieved so successfully such a thing which is truly so extraordinary, admirable and profitable that it deserves great esteem.

Fray Justo Perez de Urbel, in the course of his recent investigations on Fray Pedro Ponce, came across a manuscript of the *Third Decade of* Titus Livius translated into Spanish which bears the signature of Fray Pedro Ponce on the last page under an inscription that reads: "Don Pedro de Velasco, brother of the Condestable of Castile, and his teacher Fray Pedro Ponce borrowed this hook from the house of the Count of Castro. "9

Don Francisco, who had already learned to speak somewhat, died young. Don Pedro lived to be over thirty years old and earned the admiration of all those who met him. He could read and write Spanish and Latin and also write some Greek. Not only this, he was able to sing in the choir with the rest of the monks in the convent, keeping the time and the tone.

After the success achieved by Fray Pedro Ponce with Don Francisco and Don Pedro, he also taught two of their deaf sisters, Dona Bernardina and Dona Catalina. Not all the names of the deaf children that he taught are known, but among them he also taught the son of a high government official of Aragon, Don Gaspar de Gurrea, and Fray Gaspar de Burgos, who "in spite of having been been mute was an accomplished penman, being versed in many styles of characters, and also a great illuminator; and he was able to speak well enough for confessions, for reciting the Christian doctrine and other similar matters."

A document of the House of Velasco, dated after 1627, states that it is held as certain that he [Don Pedro] was ordained to the priesthood by special dispensation of his Holiness, since he was deaf, and Luis de Zarauz, a long time servant of the Condestable of Castile, Don Juan

Fernandez de Velasco, insisted that he used to serve at his [Don Pedro's] masses quite often."

The last will of Don Pedro Fernandez de Velasco 3 is an interesting document that vouches for the affection in which Fray Pedro Ponce was held by his former student. It is dated September 15, 1571 and beautifully written by Don Pedro himself. First he gives all the instructions concerning his funeral, then he goes on to tell how his belongings should be distributed. To that effect he appoints "Fray Pedro Ponce, my teacher and father [mi maestro y mi padre]" among the executors. Part of the document says:

And first I command and it is my will that the silver box that the present Duke of Alcala gave me, be given to my Lord, Lord High Condestable [ie. Don Inigo, Don Pedro's brother] and that he give its whole value in coins (100 ducats) to the Monastery of San Salvador de Ona, because I am greatly indebted to this Holy House, for the purpose of making some ornament or any other thing that the Abbot and Fray Pedro Ponce deem pertinent . . . And I order that my teacher [Fray Pedro Ponce] be given my bed with its mattresses and woodwork, blue trappings, and all bed linen and coverlets and everything else, except my white shirts and other clothes which should go to the poor. And from the silk bedspread and matching trappings [I command] that ornaments and vestments be made for Our Lady 'La Blanca' of Ona.

And I order that Fray Pedro Ponce keep for himself the silver salt container and sugar bowl that I have on my table. And I bequeath my desk and all the books I have to my teacher Fray Pedro Ponce except the ones in Italian which should be given to my valet Francisco Frenado.

Don Pedro died a few months later, in 1572.

In another interesting document dated a few years later, on August 24th, 1578, drawn and notarized by Juan de Palacios, actuary of the town of Oila, Fray Pedro founded a chaplaincy endowed with the money that he had received from his students. It reads:

. . . the aforesaid maravedis, Fray Pedro Ponce, monk of this House of Oila, have acquired by my savings and by bequeaths of gentlemen of whose wills I have been executor. and by gifts from pupils that I have had.

The latter were deaf and mute and were taught by me by means of the art that God bestowed on me in this holy monastery, through the merits of Saint John the Baptist and our father Saint Inigo. They were the sons and daughters of great noblemen and important people and they were deaf and mute from birth. I taught them how to read and write, count, pray, serve at Mass, understand the Christian doctrine, confess orally, and to some II taught] Latin and others Latin and Greek and to one even Italian. The latter was ordained and held office in Church and prayed his canonical hours; and this same one and some others learned and understood philosophy and astrology; and another who was heir to a title of nobility and was to be a soldier, was instructed in the use of all kinds of weapons and especially horsemanship. Besides, they were very knowledgeable in the history of Spain and other lands and they made use of the doctrine, politics and the discipline that Aristotle denied them.

The meaning of this last sentence is obscure.

In 1583, a well known preacher, Fray Juan de Castaniza, monk at Ona and a friend of Fray Pedro Ponce, wrote in his *History of St. Benedict:*

Pedro Ponce, a monk who took his vows at Sahagun, through his efforts, teaches the mutes to speak, in spite of the fact that Aristotle says that it cannot be done: and he has discovered by means of true philosophy its possibility and rational explanation, and he will give evidence enough of it in a book that he has written about it; and what is most admirable is that while [the deaf] cannot humanly hear, he makes them hear [sic], speak, and learn Latin and other languages and write and paint and do other things, to which Don Gaspar de Gurrea, son of the governor of Aragon and other pupils can bear witness.

It is most unfortunate that the book mentioned here was never printed. In 1848, Bartolome Jose Gallardo, deputy and librarian to the Cortes [Parliament], wrote to Don Ramon Ruiz de Eguilazl ~ that he had seen a manuscript titled *Doctrina para los mudos sordos [Instruction for the Mute Deaf]* by Fray Pedro Ponce listed in an inventory of the library of a monastery in the province of Burgos. At that time (1814) Gallardo had it copied by a friend who lived in Penaranda de Duero, province of Burgos. Gallardo had this copy and a study he made of it in Seville in 1823, but it got lost during the violent political disturbances of that year.

In 1890 in the "Historical Introduction" that A. Farrar wrote to the English translation of the *Reduction de las letras y arte para ensenar a ablar los mudos [Simplification of the Letters*

of the Alphabet and Method of Teaching Deaf-Mutes to Speak] by Juan Pablo Bonet,[19] it is stated that "M. Ramon de la Sagra, another distinguished Spaniard, who devoted himself to philanthropical work, tells us that 'Don Bartholome Gallardo, now a deputy to the Cortes and also its librarian, distributed at its session of the l9th January last (1839) a circular, containing the titles of various precious Spanish works. Amongst others appears that of Pedro Ponce de Leon, .. ~20 This discovery was announced by Carton in his monthly journal, *Le Sourd-Muet,* vol. 112 l with the addition that a copy had been promised to Degerando."2 2 Pedro Ponce's manuscript, however, never turned up and Farrar thinks erroneously that the reference made by Gallardo was to the manuscript written by Licenciado Lasso on the legal aspects of the deaf in 1550.

Juan Manuel Ballesteros in his book *Instruccion de sordomudos,* Madrid, 1845, misinterpreted Gallardo's statement also and affirms that Pedro Ponce's manuscript had appeared listed in a catalog of the library's collection of the Cortes, distributed by B. J. Gallardo. In 1857, D. M. Pinuaga, in *Memoria sobre la educaciony establecimientos de sordomudos [Report on the Education and Institutions for the Deaf-Mute],* Madrid, and Ballesteros again in 1863 in *Teoria de la ensenanza de sordomudosy ciegos [Theory of the Teaching of Deaf-Mutes and Blind],* Madrid, stated that Pedro Ponce's work was actually in the Library of Cortes. Tomas Navarro Tomas in 1924 set the record straight: what B. J. Gallardo had reported on Jan. 19, 1838 (not 1839) was that the work existed in a monastery in Burgos. 2 3

For many years during the nineteenth century, Spain was torn apart by war, first against the French occupation under Napoleon, then in civil strife. Spain underwent serious political, economical, and social changes which affected the clergy as much as all the other social groups. Monasteries like San Salvador de Ona owned vast entailed estates, that is, expanses of land which could not be sold or divided into lots and were largely not being put to any use. The disentailment or expropriation of such estates began in a small scale in 1812 and was fully decreed and carried through in 1837. During these years the monks were forced to leave the monasteries and become secularized. San Salvador de Ona ceased to be a Benedictine monastery in 1823. It was ransacked and many of its treasures taken to municipal museums. It 1835 the church of the monastery became a parish church. In 1837 part of the building collapsed. During the 1850's it was under the supervision of a local leader, Claudio Asenjo, who allowed his servants to vandalize the Gothic cloister. In 1881

the monastery was turned over to the Jesuits who made it one of their most important seminaries. 24

The papers and documents from the vacated monasteries were tied into bundles and kept in municipal archives for some time. In 1904 the bundles were sent to the National Archives. There are five hundred and thirty four bundles, out of which one hundred and sixty two correspond to the Monastery of Orla. The manuscript of Fray Pedro Ponce de Leon has not been found in any of Ona's bundles.

Fray Pedro Ponce de Leon died in 1584. He had been a monk for 58 years. His death was recorded in the monastery's registry in these words: "Fray Pedro de Ponce, benefactor of this monastery, was laid to rest in the Lord. Among the good qualities which he possessed in a high degree, he excelled in one which made him very famous in all the world, namely, teaching the mute to speak. He died in the year 1584 in the month of August."

He was buried in the transept of the church, a distinction usually reserved for abbots. His epitaph reads: "Here lies the venerable Fray Pedro Ponce worthy of eternal remembrance for the gift bestowed on him by God of making the mutes speak: This was erected in his memory in the year l 589."

In the absence of Ponce's book we can only speculate as to the method he used to teach the deaf. There are certain facts and contemporary references, however, that give us some leads as to how he might have proceeded.

Francisco Valles, physician to the King of Spain, Philip II, had become interested in the work of Ponce and had been present at some of Ponce's lessons. In his book *De lis Quae Scripta Sunt Physice in Libris Sacris, sive de Sacra Philosophia* Valles tells us how Ponce instructed the deaf children "first to write, pointing with his finger at those things that were symbolized by those characters [that he had written]; after by prompting *(prouocando)* the movements of the tongue that correspond to the letters *(characteribus).* And thus as with those who hear one begins by the spoken language, with those whose ears are closed one begins more properly *(rectius)* by writing. "28 Valles's testimony corroborates what Don Pedro himself had written to Ambrosio de Morales (see note 8).

There is the added evidence that Ponce made use of a hand alphabet (note 5). Most likely the hand alphabet that Ponce used was the same that appears in the *Book called 'Refugium*

infrmorum' [Solace for the Sick], very useful and beneficial for all sorts of people, which contains much spiritual advice for helping those afflicted by illness and assisting the children

"M. Ramon de la Sagra, another distinguished Spaniard, who devoted himself to philanthropical work, tells us that 'Don Bartholome Gallardo, now a deputy to the Cortes and also its librarian, distributed at its session of the l9th January last (1839) a circular, containing the titles of various precious Spanish works. Amongst others appears that of Pedro Ponce de Leon, ..~20 This discovery was announced by Carton in his monthly journal, *Le Sourd-Muet, vol.* II 1 with the addition that a copy had been promised to Degerando. "22 Pedro Ponce's manuscript, however, never turned up and Farrar thinks erroneously that the reference made by Gallardo was to the manuscript written by Licenciado Lasso on the legal aspects of the deaf in 1550.

Juan Manuel Ballesteros in his book *Instruccion de sordomudos,* Madrid, 1845, misinterpreted Gallardo's statement also and affirms that Pedro Ponce's manuscript had appeared listed in a catalog of the library's collection of the Cortes, distributed by B. J. Gallardo. In 1857, D. M. Pinuaga, in *Memoria sobre la educaciony establecimientos de sordomudos [Report on the Education and Institutions for the Deaf-Mute],* Madrid, and Ballesteros again in 1863 in *Teoria de la ensenanza de sordomudosy ciegos [Theory of the Teaching of deaf-mutes and Blind],* Madrid, stated that Pedro Ponce's work was actually in the Library of Cortes. Tomas Navarro Tomas in 1924 set the record straight: what B. J. Gallardo had reported on Jan. 19, 1838 (not 1839) was that the work existed in a monastery in Burgos.

For many years during the nineteenth century, Spain was torn apart by war, first against the French occupation under Napoleon, then in civil strife. Spain underwent serious political, economical, and social changes which affected the clergy as much as all the other social groups. Monasteries like San Salvador de Orla owned vast entailed estates, that is, expanses of land which could not be sold or divided into lots and were largely not being put to any use. The disentailment or expropriation of such estates began in a small scale in 1812 and was fully decreed and carried through in 1837. During these years the monks were forced to leave the monasteries and become secularized. San Salvador de Orla ceased to be a Benedictine monastery in 1823. It was ransacked and many of its treasures taken to municipal museums. It 1835 the church of the monastery became a parish church. In 1837

part of the building collapsed. During the 1850's it was under the supervision of a local leader, Claudio Asenjo, who allowed his servants to vandalize the Gothic cloister. In 1881 the monastery was turned over to the Jesuits who made it one of their most important seminaries.

The papers and documents from the vacated monasteries were tied into bundles and kept in municipal archives for some time. In 1904 the bundles were sent to the National Archives. There are five hundred and thirty four bundles, out of which one hundred and sixty two correspond to the Monastery of Oha. The manuscript of Fray Pedro Ponce de Leon has not been found in any of Ona's bundles.

Fray Pedro Ponce de Leon died in 1584. He had been a monk for 58 years. His death was recorded in the monastery's registry in these words: "Fray Pedro de Ponce, benefactor of this monastery, was laid to rest in the Lord. Among the good qualities which he possessed in a high degree, he excelled in one which made him very famous in all the world, namely, teaching the mute to speak. He died in the year 1584 in the month of August."

He was buried in the transept of the church, a distinction usually reserved for abbots. His epitaph reads: "Here lies the venerable Fray Pedro Ponce worthy of eternal remembrance for the gift bestowed on him by God of making the mutes speak: This was erected in his memory in the year 1589."

In the absence of Ponce's book we can only speculate as to the method he used to teach the deaf. There are certain facts and contemporary references, however, that give us some leads as to how he might have proceeded.

Francisco Valles, physician to the King of Spain, Philip II, had become interested in the work of Ponce and had been present at some of Ponce's lessons. In his book *De lis /Quae Scripta Sunt Physiee in Libris Sacris, sive de Sacra Philosophia* Valles tells us how Ponce instructed the deaf children "first to write, pointing with his finger at those things that were symbolized by those characters [that he had written]; after by prompting *(prouocando)* the movements of the tongue that correspond to the letters *(eharacteribus).* And thus as with those who hear one begins by the spoken language, with those whose ears are closed one begins more properly *(reetius)* by writing."28 Valles's testimony corroborates what Don Pedro himself had written to Ambrosio de Morales (see note 8).

There is the added evidence that Ponce made use of a hand alphabet (note 5). Most likely the hand alphabet that Ponce used was the same that appears in the *Book called 'Refugium infrmorum' [Solace for the Sick], very useful and beneficial for all sorts of people, which contains much spiritual advice for helping those afflicted by illness and assisting the dying to attain a Christian death; includes a hand alphabet of Saint Bonaventure. 29* The book was printed in Madrid in 1593, but it had been written earlier by Fray Melchor Yebra, a Franciscan monk.

Fray Melchor Yebra was born in 1524 in the small town of Yebra, not far from Madrid. His father, Pedro Sanhez de Alarco, was a nobleman and a distinguished soldier; and his brother, Marcos Sanchez, was the rector of the University of Alcala. Fray Melchor took his vows in the Franciscan monastery of San Juan de los Reyes at Toledo in 1546. He led an exemplary life and held office in several monasteries. He was confessor to the order of the Discalced Carmelites in Madrid where he was befriended by Dona Isabel Clara Eugenia and Dona Catalina, daughters of the King, Philip II. He died in 1586.

Although they belonged to different religious orders Fray Melchor Yebra and Fray Pedro Ponce had close relations with the Spanish court during the same years, so it is very likely that they would have met each other. Even more significant than this circumstance of moving in the same circles is the fact that the hand alphabet that Yebra describes and depicts in his book is almost identical to that used by Manuel Ramirez de Carrion in the beginning of the seventeenth century to teach another deaf member of the Velasco family. Carrion's alphabet is the same one that Juan Pablo Bonet published in 1620 in his book *Simplification of the Letters and Art to Teach the Mutes to Speak.* 31 Juan Pablo Bonet was for many years secretary to the Condestable of Castile, first Don Juan Fernandez de Velasco, then his son, Don Bernardino Fernandez de Velasco. It is likely that Carrion as well as Bonet became acquainted with this hand alphabet in their contact with the Velasco family who must have kept it in use because of the many members afflicted by deafness.

Fols. 172 to 179 of Yebra's *Refugium infrmorum* contain the alphabet of Saint Bonaventure which is a set of maxims of Christian behavior each one beginning with a different letter of the alphabet. Each is accompanied by the description and picture of how to make the different letters of the alphabet with the hand. The introduction to this manual alphabet on Fol.172 reads:

Grave authors, especially Saint Augustine, have said that each person will die as he has lived. In case anyone wishes to set his life in order, so that he may die as he has lived, we are including an alphabet of Saint Bonaventure or a brief formula for living well. It can also be used to assist the dying and for this purpose each letter is accompanied by a hand

depicting the letter. Those who should assist the dying will find it useful to learn to speak by making the letters with their hand, because it is common that many people know it. I am moved to persuade about this by the fact that a devout priest who was called in an emergency to hear confession and assist a dying man, found that although he could not speak, he had no loss of mental faculties. The sick man looked at every one in silence and wept, begging for assistance with sign language, because he knew how to speak this way, but since there was no one who could understand these signs, it was not possible to give him help. This situation went on for two days, but as no one came who could help him, he died in anxiety and without fulfilling his wishes of communicating.

The knowledge of these letters will also be advantageous to confessors in order to communicate with very deaf penitents who know this hand alphabet. This way the confessor can respond to what the penitents say without the danger of shouting during confession. Besides its use in confession, this alphabet can be of use in comforting other deaf persons who pressed by necessity learn the hand alphabet to be able to communicate with people. This is a work of charity.

The account of the contribution of Fray Pedro Ponce to the education of the deaf would not be complete if it lacked the background of the customs of the Benedictine rule. Life in the Benedictine abbeys was characterized by silence, the observance of which was of utmost importance. In order to communicate without breaking their silence the Benedictines developed signs.

There is evidence that signs were widely used even before the eleventh century by the monks of the Order of St. Benedict. Several manuscripts describing the ancient customs or rites *(ordines, constitutiones, consuetudines, disciplinae,* etc.) of Benedictine monasteries were published in Paris in 1726 in a volume with the title *Vetus Disciplina Monastica,* i.e. *Old Monastic Discipline or COLLECTION of AUTHORS of the Order of St. Benedict, for the most part unpublished, who wrote concerning monastic discipline more than six hundred years ago in Italy, France and Germany.*

These manuscripts were edited by Benedictine monks of the Congregation of St. Blaise in the Black Forest under the direction of Dom Marquand Herrgott. This book contains, among others, the following rites or customs:

1. Disciplina Casinensis, eighth century, Monte Casino, Italy;

2. Ordo Cluniacensis, tenth century, Cluny, France;

3. Constitutiones Hirsaugienses, eleventh century, Gegenbach,

Germany .

It seems that the rites in use at the monastery of Monte Casino were established by St. Benedict himself. They are described by Peter the Deacon in his short commentary to the rule of St. Benedict. Although no specific signs are mentioned in his brief manuscript *(Disciplina Casinensis),* Peter the Deacon mentions that "no one is allowed to ask for anything in the refectory unless by means of signs. "33 Our eighteenth century editors point out here in a footnote that it is for this reason that the monks of Cluny and those of Gegenbach invented *(excogitarunt) so* many signs.

The customs of the Monastery of Cluny were given the name of *Ordo Cluniacensis* They were compiled in one manuscript by Bernard, a Benedictine monk of Cluny. Although in use at Cluny in the tenth century, they were not adopted in Germany until the middle of the eleventh century. Bernard 34 gives a detailed description of the signs used by the monks of Cluny in the tenth century. 35 In the late seventies of the eleventh century Wilhelm (d. 1091) abbot of the monastery of St. Aurelius, in Hirsau, requested *om Udalric, monk of Cluny, an elaborate description of the customs of Cluny. In 1079 these were introduced by Wilhelm in Hirsau, and later still, to more than one hundred German monasteries reformed by him.

The chapters on signs of Wilhelm's *Constitutions,* also known as *Constitutiones Hirsaugienses,* or *Gengenbacenses,* follow literally in many places those described in the *Ordo Cluniacensis.* However, they are richer in detail and number of signs, because Wilhelm was visited by Bernard and sent six of his own monks to Cluny in order to gain first hand knowledge of Cluny's ways. Wilhelm points out that his *Constitutiones* reflects those of Cluny, with hardly any changes or omissions, 36 even though Hugo, Cluny's abbot, had suggested this possibility.

It is obvious therefore that the signs introduced in German monasteries by St. Wilhelm and described in his *Constitutiones* are the signs used in Cluny, and probably also by the Benedictine monks of San Salvador de Ona several centuries later, since the Spanish monasteries were reorganized mostly by Cluny.

Wilhelm's *Constitutiones* discuss signs in connection with the training of novices, since once admitted to the monastery proper *(conventum)* they could speak in exceptional circumstances only *(licet ei[s] rarissime loqui.* The twenty one chapters on signs contain 620 lines with an approximate number of 6200 words (more than four hundred signs). These chapters have the following titles:

V Areas where silence must be observed

VI Signs for bread (six kinds)

VII Signs for legumes (3 signs)

VIII Signs for fish (19 signs)

IX Signs for diverse foods (18 signs)

X Signs for fruits (12 signs)

XI Signs for exotic fruits (3 signs)

XII Signs for spices and vegetables (23 signs)

XIII Signs for aromatic herbs (2 signs)

XIV Signs for liquids (11 signs)

XV Signs for vessels, china, cutlery, etc. (20 signs)

XVI Signs for clothing, toiletry (27 signs)

XVII Signs for religious objects (20 signs)

XVIII Signs for masses, canonical hours (12 signs)

XIX Signs for religious vestments (12 signs)

XX Signs for the parts of the mass (11 signs)

XXI Signs for books, pulpit, candle holder, etc. (27 signs)

XXII Signs for people (monks, laymen, relatives, etc.) (37 signs)

XXIII Miscellaneous signs (only actions, not things included) (30 signs)

XXIV Signs for buildings *et alia* (28 signs)

XXV Signs for tools, metals, animals, etc. (42 signs)

Since most of these signs were composite in nature, a detailed analysis would reveal more than 500 signs. However, it is not within our scope to give a detailed description of these signs. Be it sufficient to point out that the Benedictine method was to start with a generic sign followed by one or more specifying signs. Thus one may safely conclude that most signs were simply descriptions or definitions of the objects involved by way of genus and difference. The generic sign is called *signum generale.* The specific signs required the invention of many signs for actions (verbs) and qualities or characteristics (adjectives). Thus the refectory is "building" *(signum generale) plus* "eating" *(signum comedendi).* It was then presumably possible to carry on a simple conversation using these signs. This however is not mentioned. There is no mention either of any manual alphabet.

In the world of silence of the Benedictine monasteries the lack of speech of the deaf children was less noticeable. It is most likely that Fray Pedro Ponce made use of these signs with the Velasco boys.

Mankind will always be indebted to Pedro Ponce for his perceptiveness in recognizing the intellectual capabilities of the deaf children and for his ingenuity in availing himself with the existing elements of communication to carry out their education so successfully.

Notes

[1]This article has been based partially on the research done by Tomas Navarro Tomas in the early 1920's and published as an article titled "Manuel Ramirez Carrion y el arte de enseilar a hablar a los mudos," Revista de Filologia Espailola, XI, (1924) 225-266. It will be referred to as *TNT-MRC.*

[2] Fray Romualdo Escalona, *Historia del real monasterio de Sahagun,* Madrid, 1782, p. 206.

Taken from Fray Justo Perez de Urbel, O.S.B., *Fray Pedro Ponce de Leon y el origen del arte de ensenar a hablar a los mudos,* Madrid, 1973, pp. 16- 17. The authors are indebted to Fray Justo for additional data on Pedro Ponce and especially on the Velasco family. Any further reference to this book will be abbreviated as *JPU-PPL.*

[3]Don Juan's testament dated November 9, 1545 lists the names of his children presumably by order of birth and states that the eldest son, Iiligo, was 14 years old and that the others (except Juliana, the first born) were under 12 and that the Countess was expecting. *(JPU-PPL, p.* 45)

[4] *JPU-PPL,* pp. 41-42.

[5]*Sumario de la descendencia de los condes de Monterrey,* Biblioteca Nacional, Madrid (no date) MS. 13319, fols. 137-138. *(TNT-MRC,* pp. 234-235).

[6] This statement is erroneous as D. Francisco was the elder of the two.

[7]Ruth Bender unaware of the existence of this document found it difficult to accept that Pedro Ponce communicated with his pupils by conventional signs. *The Conquest of Deafness,* Cleveland-Boston, 1970, p. 41.

[8]*Antiguedades de Espaiia,* Alcala, 1575, fol. 29, taken from Fray Antonio de Yepes, *Cronica general de la Orden de San Benito,* III, ed. by JPU, Madrid, 1960, pp. 10-11.

[9]*JPU-PPL, p.* 100.

[10]Licenciado Lasso, *Tratado legal sobre los mudos,* 1550, ed. by A. Lopez Nuilez, Madrid, 1919, p. 23.

[11] Fray Antonio de Yepes, *Cronica general de la Orden de San Benito, Vl,* fols. 428-429 *(TNT-MRC, p.* 232).

[12]JPU-PPL, p. 109.

[13]Enrique Herrera, S. *J. "Pedro Ponce d e Leon en el monasterio de Oiia" La Paraula,*

numero extraordinari, Barcelona, 1920, pp. 334-337. .

14 *Compendio genealogico de la noble casa de Velasco,* MS. 1010, fol. 44, Archives of the Duke of Frias, *(JPU-PPL,* .105)

15p. J. Feijoo, *Cartas eruditas,* Madrid, 1770, pp. 74-76 *(TNT-MRC,* pp. 231-232).

16 Monetary unit used at the time in Spain.

17Salamanca, 1583 (Herrera, op. cit. p. 314).

18*Breves disertaciones sobre algunos descubrimientos e invenciones debidos a Espaiia [Short Papers on Some Discoveries and Inventions Owed to Spain],* Madrid, 1849, pp. 48-49.

19 Translated by H. N. Dixon, London, p. 36.

20Ramon de la Sagra, *Voyage en Hollande et en Belgique,* 1839, 1, p. 152 (Farrar, op. cit., p. 36).

21 1'838-39, p. 31. The editor of *L'Ami des Sourds-Muets* [not *Le Sourd-muet]* was Piroux, not Carton. The item published under "Nouvelles" said: "Nous avons le bonheur de pouvoir annoncer quc l'on vient de retrouver les ecrits de Pedro Ponce, benedictin d'Ona, inventeur de l'art de faire parler les sourds-muets, mort en 1585. Une copie en a ete promise a M. Ie baron Degerando, qui en fera hommage a l'institution de Paris."

22Farrar, op. cit., p. 36.

23 *TNT-MRC,* pp. 236-9.

24 Luis M. Viana, *Real monasterio de Ona,* Vitona, no date.

25 *TNT-MRC, p.* 238.

26 "Obdormivit in Domino Frater Petrus de Ponce, huius Onniensis domus benefactor, qui inter caeteras virtutes, quae in illo maxime fuerunt, in hac praecipue floruit, ac celeberrimus toto orbe fuit habitus, scilicet, mutos loqui docendi. Obiit anno 1584 in mense Augusto." P.

J. Feijoo, *Cartas eruditas,* Madrid, 1789,1V, p. 98.

2 7 "Aqui yaze el venerable Fray Pedro Ponze, digno de eterna memoria por el don que Dios le dio de hazer hablar a los mudos: llego el dia en que fundo su memoria ai;o de 1589." Herrera, op. cit. p. 337.

28 "Petrus Pontius monachus Sancti Benedicti, amicus meus, qui (res mirabilis) natos surdos docebet loqui, non alia arte quam docens primum scribere, res ipsas digito indicando, quae characteribus illis significarentur, deinde ad motus linguae qui characteribus responderent prouocando. itaque vt audientibus a loquela, ita auribus captis, rectius incipitur ab scriptura." Lugduni, 1592, p. 78. First published at Turin, 1587.

29Libro llamado Refugium infirmorum, muy util y provechoso para todo genero de gente, en el qual se contienen muchos aviesos espirituales para socorro de los afligidos enfermos, y para ayudar a bien morir a los que estan en lo ultimo de su vida; con un Alfabeto de S. Buenaventura para hablar con la mano. Compuesto por el Padre Fray Melchor de Yebra, de la Orden del Serafico Padre S. Francisco. Dirigido al Padre Fray Antonio de Mendoza, Padre de la dicha Orden. Madrid, ano MDXCIII. (P. Andres Ivars, O.F.M. "Cuestionario historico," *Archivo Iberoamericano,* Xlll (1920) 385-396.

30Juan Bautista de Morales, *Pronunciacionesgeneralesde lenguas, ortografia, escuela de leer, escribir y contar y significacion de letras en la mano,* Montilla, 1623. This book can be considered older than Bonet's *Simplification* because its imprimatur is dated 161 X

31*Redvction de las letras y arte para enseiiar a ablar los mudos,* Madnd, 1620.

32*Vetus/Disciplina/Monastica/seu/-OLLECT10 AUCTORUM Ordinis S. Benedicti/maximam partem INFDITORUM, qui ante/sexcentos fere annos per Italiam, Calliam atque / Cernaniam de Monastica disciplina tractarunt./* . . . Paris, Charles Osmont, 1726. We are indebted to Rev. Don Anselm Strittmatter, O.S.B. for the use of this rare work, which is in the library of St. Anselm's Abbey, Washington, D.C. For a scholarly analysis of the voluminous *Corpus Consuetudinum Monasticarum,* Siegburg, 1963, cfr. Dom Strittmatter's artide in *Traditio,* volume XXV, 1969, pp. 431-57.

33"ln Refectorio nullus audeat aliquid quaerere, nisi cum signo." *VetusDisciplina*

Monastica, p. 3.

[34]Not to be confused with St. Bernard of Clairvaux (d. 1153) who instituted a branch of thc Cistercian order.

[35] *VetusDisciplinaMonastica, pp.* 169-173.

[36] " pauca quaedam mutantes, multo autem pauciora recidentes, . . . *Vetus DisciplinaMonastica, p.* 376.

Teresa Labarta de Chaves, profesora en el departamento de idiomas extranjeros, Federal City College, tiene el Ph.D. de la Universidad de Maryland y el Doctor de Filosofia y Letras de la Universidad de La Habana. Sus obras publicadas se tratan de la literatura espailola de los periodos medieval y del renacimiento. Actualmente es presidente de la division en Washington, D.C., de la Asociacion Americana de Profesores de Espanol y Portugues.

Jorge Leoncio Soler (B.A., Colegio de Estudios Clasicos Superiores, Zaragoza, Ph.L., Collegium Maximum S.F. Borgia, Barcelona, Ph.D., Universidad del estado de Nueva York) es profesor asociado de filosofia de la Universidad de Gallaudet. Su interes en las raices historicas le lleva desde la obra *De Anirna* de Aristotle hasta los primeros experimentos el la instruccion de los sordos.

Teresa Labarta de Chaves, Professor in the department of foreign languages, Federal City College, has a Ph.D. degree from The University of Maryland and doctorate in philosophy and letters from The University of Havana. Her publications deal with medieval and renaissance Spanish literature. She is currently President of the Washington, D.C., chapter of the American Association of Teachers of Spanish and Portuguese.

Jorge Leoncio Soler (B.A., Colegio de Estudios Clasicos Superiores, Zaragoza, Ph.L., Collegium Maximum S.F. Borgia, Barcelona, Ph.D. University of the State of New York) is Associate Professor of Philosophy at Gallaudet College. His interest in beginnings takes him into Aristotle's *De Anirrta* as well as the early ventures in instructing the deaf.

CATEGORIZATION OF CHEREMIC ERRORS IN SIGN LANGUAGE

RECEPTION

Jerry B. Crittenden

Abstract.

The question of the relative importance of the cheremic dimensions of configuration, direction, and position to receptive sign reading was tested here. Direction, configuration, and position, in that order, were posited as the critically important cheremic dimensions. The results of testing two groups of college students who had recently learned a basic sign language skill supported the Position taken here.

Problem.

Interest in sign language, in general, and the American Sign Language, (AMESLAN) in particular, has grown recently. Quigley (1972) noted that this is the case in preparation programs for teachers of the deaf where now more than 50 per cent of such programs offer training in manual communication.

The impetus for this interest has come from many sources. The deaf community through the National Association of the Deaf and the Registry of Interpreters for the Deaf has exerted a strong influence. Research has contributed through studies in sociology (Meadow 1967); education (Moores 1972; and Moores, Weiss, and Goodwin 1973); and psychology (Mindel and Vernon 1971; and Schlesinger and Meadow 1972) which demonstrate that the use and encouragement of sign language systems including American Sign Language contributes to the overall development of deaf subjects.

Finally, linguists are providing evidence opposing the view that sign languages and American Sign Language, in particular, are merely visual gestural extensions of the English language (Stokoe 1960; McCall 1965; Bellugi and Klima 1972; and Stokoe 1972).

Stokoe (1960 and 1972) has provided the interested reader with a first stage linguistic analysis of ASL. Stokoe developed a descriptive system for signs in a manner analogous to the phonemic description used in a spoken language. This system which Stokoe labeled

cheremics enables any and all signs in ASL, to be specified by three dimensions: (1) *configuration* of the hand in production of the sign, e.g. the use of an "A" handshape in the sign for tomorrow; (2) *location* of the hand configuration relative to the body, e.g. "A" handshape proximate to the chin to produce the sign tomorrow; and (3) the *action* which the hand makes in production of the sign, e.g. "A" handshape proximate to the chin taking a slight forward and downward motion in the sign tomorrow. Consideration of all three cheremic dimensions, configuration, location, and action, is necessary to differentiate one sign from another. The signs tomorrow and yesterday are similar in two dimensions, configuration and location, but differ in direction taken relative to the chin. In TOMORROW the hand goes forward and downward slightly while in yesterday the hand goes toward the ear parallel to the mandible and touches once. Similarly all signs can be differentiated and described using the cheremic dimensions of configuration, location and action. Indeed slight cheremic variants labeled allochers can account for regional or personal differences in sign production, e.g. some individuals produce tomorrow by moving the "A" handshape downwards and inwards the clavicle rather than in the manner described above. However, both would be read by native signers as the sign TOMORROW.

These three dimensions of configuration, location and action and their relative contribution to the receptive understanding of signs are considered in this paper. The writer, whose parents were deaf, is considered a "native speaker" of ASL by many deaf individuals. Recently, the writer has been teaching college courses in basic signing. In these courses, it became clear to the writer that signs which should have been easily differentiated receptively by the students were not being so differentiated. The signs "TELEGRAM" and "NUDE" were seen as the same as were the pairs "TOMORROW/YESTERDAY", "BLUE/BROWN", "LECTURE/FUTURE", and so forth. This observation raised the question: Do the cheremic dimensions described above have a relative value when perceived by individuals learning signs or using signs for the first time? That is, are those cheremic dimensions more or less important in the receptive understanding of sign language?

An a priori expected order of frequency of cheremic dimension errors was predicted. This expected order was based upon the writer's observations in the classroom. The predicted order was as follows:

a) Errors of action (most frequent);

b) Errors of configuration;

c) Errors of both action and configuration;

d) Errors of both action and location;

e) Errors of both configuration and location; and

f) Errors of location (least frequent).

The subsequent sections of this paper will discuss two investigations of the question presented here.

Method

Two investigations were completed to test the question of the relative value of the cheremic dimensions upon the receptive understanding of signs by students in a basic sign language course.

Experiment 1.

In experiment one, thirty (30) subjects who had completed an introductory course in basic signs using O'Rourke's (1970) text were presented a videotape of 77 signs individually given. The 77 signs were randomly chosen. Each sign was given with a ten second delay to allow the Ss time to record the meaning of the sign on an answer sheet provided for that purpose. All the Ss individually viewed the video tape on a 17 inch monitor from a distance of not more than five feet.

Each response on the answer sheet was then scored by the writer for errors using the following categories:

1. Errors of action only;

2. Errors of location only;

3. Errors of configuration only;

4. Errors of both action and location;

5. Errors of both action and configuration; and

6. Errors of both configuration and location.

Any response which was wrong on all three cheremic dimensions was eliminated since there could be no meaningful comparison. We were looking for signs where the dimensions appeared to differentiate.

Experiment 2.

In experiment two, the procedure was essentially the same with the following exceptions. The data derived for experiment two was obtained from twenty-nine (29) Ss who took the course in the term following the data gathering for Experiment One.

The number of signs administered to the Ss in Experiment Two was reduced to 25 because evidence had been gathered that this reduction in the number of signs would not effect the results in any statistical manner (Knight 1973). The selection of the signs for experiment two was done by consulting a table of random numbers. Otherwise, the administration, response making, and scoring conditions were replicated.

A Friedman two-way analysis of variance by ranks (Siegel 1956) was used to test the data.

Results, Experiment 1.

The 30 Ss in Experiment One committed a total of 412 errors across the six categories of cheremic dimension errors.

Percentages and ranks were assigned to the data (Table 1). These rankings conform perfectly to the a priori expected order. Fully one third of the errors were errors of action while configuration errors contributed an additional 25 percent to the total. And taken together with the combined category of action/configuration errors, 80 percent of the errors committed by the students were accounted for.

The results of the Friedman two-way analysis of variance by ranks yielded a Xr2 value of 73.133 which was significant at the .001 level of confidence.

Cheremic Dimension	Number of Errors	%	Rank
Direction	143	34.7	1
Configuration	107	25.9	2
Configuration/Direction	83	20.1	3
Position/Direction	31	7.5	4
Configuration/Position	28	6.8	5
Position	20	4.9	6
Total	412		

Table 1. Experiment One Subjects–Cheremic Dimension Errors by Category, Percentage, and Rank (N=30).

Results, Experiment 2.

The 29 Ss in Experiment Two committed a total of 75 errors across the six categories of cheremic dimension errors. Percentages and ranks were assigned to the data (Table 2).

It will be noted that there was considerably less conformity by rank to the a priori model. However, direction and configuration were still the significant error dimensions contributing 33 percent and 25.3 percent of the errors respectively to the total. Taken together with the third category, action and configuration errors, these three contributed 60 percent of the total errors.

The Friedman measure for this experiment yielded a Xr2 value of 13.69 which was significant at the .02 level of confidence.

One can only speculate as to the reasons for the apparent critical importance of the cheremic dimensions of action and configuration. It may be that they are discerned with less facility than is location. Certainly location appears to be less ambiguous because it is the most global of the cheremic dimensions. Recognition of the hand placement at the forehead, in front of the chest, or elsewhere is, it appears, less critical to receptive understanding while the dimensions of configuration and action appear to have elements of confusion inherent in them. It appears here that the old saw, "the hand is quicker than the eye" operates substantially to confuse.

Correction of this situation should be left to the sign instructor, and with careful delineation of the signs through instruction, a substantial gain in receptive understanding should be achieved.

It is also possible that consideration should be given to an amplified model of cheremic categories. Perhaps through contrastive pairing within each of the cheremic dimensions, critical distinctions of configuration and action could be achieved. There is an analogy in the acquisition of sign meaning where, for example, the sign WORK can be distinctively produced to yield a connotative difference within the meaning of the signed phrase 'I worked' in the hurried sense or in a laborious sense or a prolonged period of work. These distinctions are at a different linguistic level but they demonstrate the possibilities of contrastive differentiation of signs within the cheremic model.

There is the possibility that the writer's bias entered these experiments subtly in the decisions made to categorize the cheremic errors. It is suggested that the experiment be replicated with the scoring being done independently by a group of deaf individuals or interpreters. Then interscorer reliability could be determined and the hypothesis of critical differences in cheremic dimensions could be further validated.

Discussion.

The results presented above confirm the hypothesis that at least in the case of novice, hearing signers the cheremic dimensions proposed by Stokoe (1960 and 1972) possess a ranked importance as far as receptive understanding of signs is concerned.

The magnitude and consistency with which errors of action contributed to the error total

makes it clear that the receptive understanding of signs depends considerably upon the clear differentiation of action as a discrete variable in sign teaching.

Additionally, clear configuration distinctions will substantially reduce the receptive errors made by naive signers. And, taken together, it appears that elimination of errors of understanding in the three categories combined will reduce sign ambiguity by at least two thirds.

References

Bellugi, U., and E. S. Klima

1972 The roots of language in the sign talk of the deaf, *Psychology Today* 6: 1,60-64,74.

Knight, B. J.

1973 A Comparison of the Angle of Presentation of Signed Material and Receptive Understanding. (Unpublished master's project, Department of Communicology, University of South Florida .)

McCall, E. A.

1965 A generative grammar of sign. (Unpublished master's thesis, University of Iowa.)

Meadow, K. P.

1967 The Effect of Early Manual Communication and Family Climate on the Deaf Child's Development. (Unpublished doctoral dissertation University of California.)

Mindel, E. D., and M. Vernon.

1971 *They Grow in Silence.* (Silver Spring, Maryland: National Association of the Deaf).

Moores, D. F.

1972 Recent research on manual communication. *Division for Children with Communication Disorders Newsletter* (Spring) 8: 2,13-24.

Moores, D. F., K. L. Weiss, and M. W. Goodwin

1973 Receptive Abilities of Deaf Children Across Five Modes of Communication,

Exceptional Children, 40: 1,22-28.

O'Rourke, T. J.

1970 *A Basic Course in Manual Communication* (Silver Spring, Maryland: National Association of the Deaf).

Quigley, S. P.

1972 Educational Implications of Research on Manual Communication. *Division for Children with Communication Disorders Newsletter* (Spring) 8: 2,4-12.

Schlesinger, H. S., and K. P. Meadow.

1972 *Sound and Sign* (Berkeley: University of California Press).

Siegel, S.

1956 *Nonparametric Statistics for the Behavioral Sciences* (New York: McGraw-Hill).

Stokoe, W. C., Jr.

1960 Sign language structure: An outline of the visual communication systems of the American Deaf, *Studies in Linguistics, Occasional Paper ~.*

Stokoe, W. C., Jr.

1972 *Semiotics and Human Sign Languages* (The Hague: Mouton and Company, N.V., *Publishers)=Approaches to Semiotics* (ed. T. A. Sebeok) 21.

Jerry B. Crittenden has the B.S. degree from Eastern Michigan University and M.S. and Ph.D. degrees from Michigan State University, the latter in 1969. He is an Assistant Professor at the University of South Florida in the department of communicology and serves as coordinator of aural rehabilitation. His particular research interest centers in variables affecting the acquisition of sign language by hearing adults.

CHILDRENESE AS PIDGIN

Dennis R. Cokely and Rudolph Gawlik

Perhaps one of the most frustrating experiences for parents and educators of deaf children is not being fully able to understand the sign language behavior of the deaf child. This frustration is echoed in statements like, "that's not what the book says," or "that's not how we learned it in sign class", or "my child's signing seems to be *different!"* This communication gap is experienced even by parents and educators who have been using signs for several years. The explanation that the children "just sign too fast" does not account completely for this gap, for there are many parents and educators who have gained proficiency in the use of American Sign Language (Ameslan) and who are not bothered by the signing speed of deaf adults, yet they still confess a lack of understanding of children's sign language. The feeling is that perhaps the children are speaking a totally different language--different from what is taught in the numerous sign classes throughout the nation.

The thrust of what follows is that, in fact, deaf children are speaking a different variety of sign language. This language, *childrenese, is* neither adult Ameslan nor is it signed English.

This fact should not be surprising. There are many factors which would lead children to develop a sign language that is neither full Ameslan nor standard English. First of all, it should not be surprising that childrenese is not Ameslan. Most of the children currently enrolled in schools for the deaf (with the exception of deaf children of deaf parents) do not know and use adult Ameslan because: (I) hearing parents and educators, for the most part, lack the skills to be effective models of Ameslan; (2) in most schools for the deaf there are only a few deaf teachers who consistently use Ameslan; and (3) in most schools for the deaf the pressure is to model English and *not* to model Ameslan.

It should not be surprising that childrenese is not English either, because: (1) few schools have a fully implemented policy of consistently signing English (this also applies to the homes of the deaf children); (2) few teachers have the skill to clearly and correctly present English in signs at various linguistic levels and to effectively monitor and adjust to the individual child's attempts at English; (3) only a small percentage of English is visible on the lips of those non-signers (parents, teachers, etc.) who have regular contact with the child.

Childrenese as a pidgin. If childrenese is neither Ameslan nor English, what is it? In an attempt to describe "childrenese" it is useful to draw upon the linguistic notion of pidgins. In a paper entitled "Some Characteristics of Pidgin Sign English" Woodward says: "It is generally agreed that pidgin languages are reduced in structure, contain a partial mixture of structure of two to several languages, and contain structure common to none of the languages in the communication situation" (1973:39). Figure 1 may be helpful in understanding the notion of pidgins.

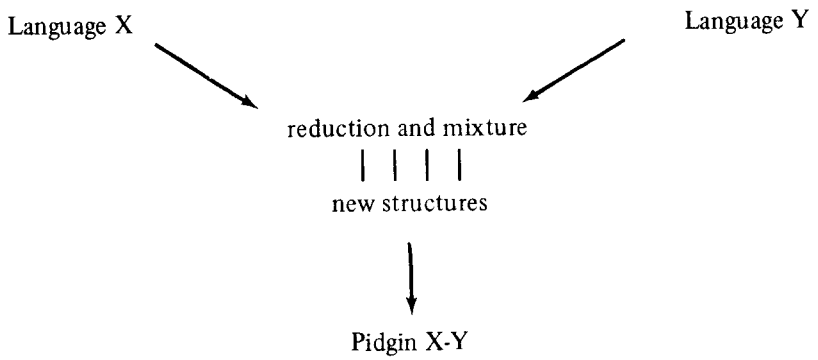


Figure 1. Diagram illustrating pidgin languages generally.

Stokoe (1969-70), and others have already noted that there is a continuum of language varieties between Ameslan and English: this Woodward (1973d) calls the "deaf diglossic continuum" Woodward has proposed that some of the language variations that occur between Ameslan and English on this continuum may be properly called Pidgin Sign English (PSE) (1973 :40). It is illustrated in Figure 2.

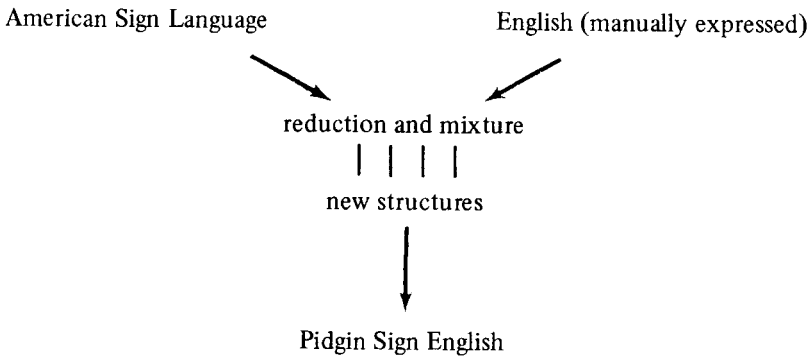


Figure 2. Diagram illustrating pidgin of Sign and English.

Bernard Bragg of the National Theater of the Deaf, says that adult users of sign language actually sign a mixture of Ameslan and English which he calls, "Ameslish" (1973:673). He adds:

The crux of the whole thing, however, is that neither of us, high verbal or low verbal, really utilize English or Ameslan in its purest possible form. Our true vernacular is always made up of varying percentages of literal and nonliteral aspects of expression, which works exceedingly well for us as individuals--both expressively and receptively For some of us who are high verbal, it is always English that dominates over Ameslan; for others who are low verbal, it is the other way around.... It [Ameslish] embraces actual speaking, or word-mouthing, fingerspelling (abbreviations and "slurrings" tolerated), gestures, ASL grammar, pantomime, SEE-devised signs, body English, facial expressions, acting. and what have YOU.

Childrenese can also be placed in the category of Pidgin Sign English. Figure 3 may serve to suggest relationships between the language varieties we have mentioned.

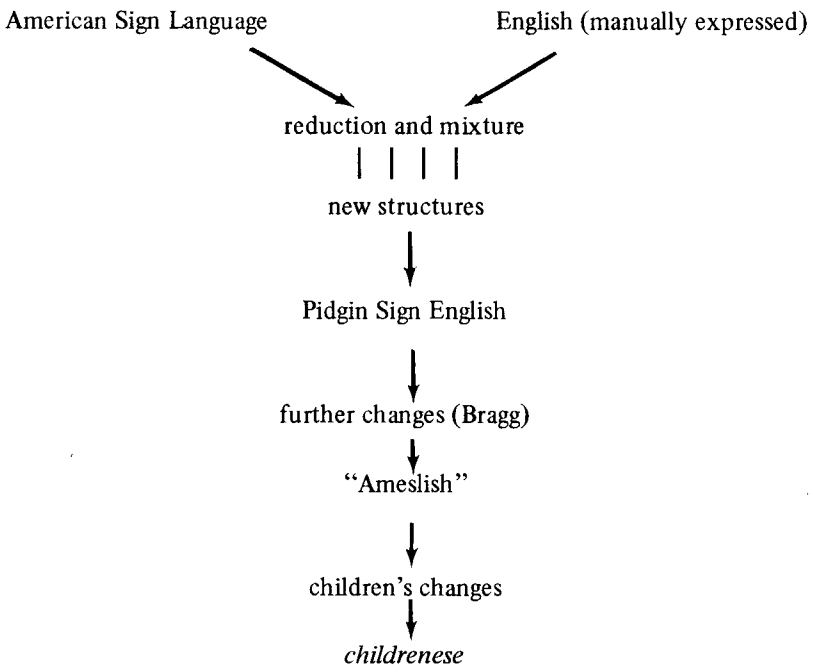


Figure 3. Diagram illustrating further changes in Sign-English pidgins.

Characteristics of childrenese. The following examples of childrenese have been gleaned from two years of observation and approximately 50 hours of transcribing videotapes of children's signing at the Kendall Demonstration Elementary School, on the Gallaudet College campus. Possibly what is described here would more properly be called "Kendallese". However, some of the following characteristics and patterns will be found in the signing of children in the vast majority of schools for the deaf in this country.

ASL	*ENGLISH*
ASL has signs that are used to indicate: who, what, when, where, why, how, what-for, etc. Facial expression is also used to indicate a question.	English has specific question words and also uses facial expression, pitch, intonation, and stress.
E.g. WHY (YOU) HIT LARRY ASK-YOU	E.g. Why did you hit Larry?

CHILDRENESE

The signs: FOR-FOR and the idiomatic DO-DO are used almost exclusively for questions.

E.g., FOR-FOR HIT LARRY FOR-FOR

Table 1. Question Forms.

ASL	*ENGLISH*
Has signs for: past, during, since, before, after, future, tomorrow, yesterday, next year, last year, last week, next week, everyday, every week, etc.	Has all of the ASL possibilities plus periphrastic constructions and verb tenses.
E.g. LAST-WEEK TUESDAY (I) SICK	E.g. Last Tuesday I was sick.

CHILDRENESE

For the most part incorporates only the following:

TOMORROW = 'anytime in the future'
YESTERDAY = 'anytime in the past'
EVERYDAY = 'something that happens regualrly'
NOW

E.g. YESTERDAY TUESDAY ME SICK.

Table 2. Time Indicators.

Furthermore, because there are such limited time concept signs, there is a tendency (and a need) to relate incidents in chronological order. Consequently, an entire series of events often has to be related before a main point can be made. Another factor is the lack of connectives. Observation reveals that the only functional connectives are "then" and "finish". Idea-to-idea relationships are simply chronological and there is little or no subordination of ideas.

ASL	*ENGLISH*
Has signs for: no, not, don't, nothing, none, not yet, can't, don't care, doesn't matter, refuse, etc. Also headshake and signs with built-in negation, e.g., DON'T-WANT.	Has all of the ASL choices plus headshake, pitch, stress, and intonation.
E.g. I LATE STEAL CANDY (with headshake)	E.g. I didn't steal the candy.

CHILDRENESE

Uses: NO, NOT, NONE, REFUSE, and also the headshake; there is also a tendency to negate an entire utterance by ending it with NOT.

E.g. LATE-LATE ME CANDY STEAL NOT

Table 3. Negation.

ASL	*ENGLISH*
According to Fant, tends to place the visually most important item first or last in the utterance; also ASL uses pause or juncture to help make the meaning clear, along with the use of positioning of signs and use of the "sight line"; these are especially important in making dialogue clear (1972:2,62).	Has very definite word order using pause or juncture to aid in clarity of phrasing; dialogue is indicated by pitch, intonation stress and juncture.
(Obviously it is hard to know how a speaker of ASL would sign the example as it translates into English, but positioning, pausing, use of facial expression and the "sight-line" would be operative.)	E.g. I didn't. (You) think I did? I'll ask Ira. I don't hit Glenn every-day of the week, do I? Ira says, "No, you are right".

CHILDRENESE

Has few fixed patterns; visual importance is often not a factor; there is little pause or juncture and no use of the "sight-line" to clarify dialogue.

E.g. ME LATE-LATE THINK ME ASK-TO WHEN ME HIT ME EVERYDAY EVERYDAY WEEK HIT G-L-E-N-N SAY I-R-A RIGHT-TALK YOU.

Table 4. Suprasegmentals.

Lexical items. In childrenese, we note that specific lexical items (although they may be authentic Ameslan signs) sometimes have very limited meanings or take on entirely new meanings. For example, in the above childrenese passage, LATE-LATE is a denial (of the act of hitting someone); THINK-ME is a common idiom that means 'do you think that I'd ...' RIGHT-TALK is the most emphatic affirmation of a statement. Other examples at Kendall of an even greater departure from the ASL lexicon are: TEMPT (tapping the underside of the elbow with the index finger of the opposite hand) means 'talking behind someone's back' and the common ASL sign BRIBE has come to mean 'going off the point', or 'changing the subject'. Of course, idiomatic vocabulary is common to every school for the deaf and is usually referred to as "local" signs.

In addition to the above characteristics, which may or may not be peculiar to Kendall Demonstration Elementary School, there are other obvious qualities of children's signing that could be pointed out. There is in children's conversation, variable and inconsistent use of articles, plurals, forms of the copula and verb inflections, depending on the amounts of standard English the children attempt to incorporate into their conversation. Woodward cites these same characteristics as common to pidgin languages; he says: "In most pidgins, articles are deleted; the copula is usually uninflected; inflections such as English plural are lost and most derivations are lost, just as they are in PSE. Perfective aspect in pidgins is often expressed through *fmish* or a similar verb like *done" (1973:42).* Teachers and parents of deaf children will surely recognize the reference to the ever present FINISH sign in children's signing to show completed action .

The above examples are enough to suggest that childrenese is linguistically different from Ameslan and from English. And it is worth noting that while some of the structures in childrenese may occur in Ameslan, Ameslan offers more variety, specificity and precision of expression. In childrenese, there is evidence of a reduction and mixture of structures of both Ameslan and English; there is evidence of a limited choice of linguistic structures, and there are new structures that are common to neither English nor Ameslan. It is therefore, reasonable to conclude that childrenese as described does fall within the category of a Pidgin Sign English.

Perhaps finally we should suggest some kind of development in the children's language and

relate "home signs" to the rest. In Figure *3,* then home signs would appear just below childrenese.

Implications of childrenese.

Identifying Childrenese as a pidgin and placing it on the deaf diglossic continuum is hardly enough. The fact that childrenese is a different language variety has, or should have, several important implications for any school. Obviously someone in every school should study the everyday language of the children and do some basic analysis of it, so that teachers, staff and parents will have a working knowledge of the language actually used by the students. Teachers, staff and parents who are unfamiliar with the structures of childrenese cannot adequately model or teach appropriate English equivalents.

For example, a six-year-old hearing child says, "Maybe we will get thirsty or eaty!" The expected reply would be "Yes, maybe we will get thirsty or hungry!" Suppose, however, that a teacher or parent in this situation didn't understand what the child meant by "eaty". Then the reply might have been, "Yes, maybe we will get thirsty or hot". Similarly, when a deaf child signs, ME FINISH BATHROOM, FINISH ART, FINISH EAT, and the teacher replies, "No, you can't go", it becomes obvious that the teachers lack of understanding of the use of the word-sign FINISH in childrenese not only destroyed communication, but eliminated the opportunity for teaching the correct English.

Besides the fact that pidgin language has attracted the attention and study of linguists today, the simple truth is that pidgins work--they are useful. People who do not understand the native language of those with whom they must communicate have need of a common language and so they readily (an unashamedly) turn to a pidgin. Considering the current situation--deaf students may not be able to communicate perfectly in English or in Ameslan--teachers, parents and staff should enthusiastically utilize childrenese as an aid toward mastery of English and Ameslan.

At the very least, each school for the deaf should discover and inform teachers, staff and parents of the idioms, local vocabulary and patterns of the children's language. Such knowledge is a necessary and invaluable tool for communication and instruction. This merely follows the widely accepted principle of effective communication and instruction--meet the student at his own level-linguistically too.

References

Bragg, Bernard

1973 Ameslish: Our American Heritage. *American Annals of the* Deaf 118,673.

Fant, Louie J.

1972 *Ameslan, An Introduction to American Sign Language* (Silver Spring, Md., National Association of the Deaf).

Stokoe, William C., Jr.

1969-70 Sign Language Diglossia, SIL 21,27-41.

Woodward, James C., Jr.

1973 Some Characteristics of Pidgin Sign English, *SLS* 3,39-46.

1973d Implicational Lects on the Deaf Diglossic Continuum (Georgetown University doctoral dissertation; in press).

Dennis Cokely, instructor, and *Rudy Gawlik,* counselor, at the Kendall Demonstration School for the Deaf (Kendall Green, Washington, D.C. 20002), constitute a productive team. Their "Options, a position paper on the relationship between Manual English and Sign", appeared in *The Deaf American* (May 1973); and their *Rock Gospel* has been produced on several stages and now is available on tape to stations of the National Educational Television network. Their research interests are Sign syntax and grammar and the use of sign languages in educational settings.

BOOK REVIEW: PSYCHOLINGUISTICS AND TOTAL COMMUNICATION

Harry Markowicz

Psycholinguistics and Total Communication: The State of the Art, ed. Terrence O'Rourke,

Washington, D.C., American Annals of the Deaf, 1972. vii +] 34 pp. (paper) $4.95.

The eleven papers in *Psycholinguistics and Total Communication: the State of the Art,* resulted from a series of lectures presented at a special study institute for educators of the deaf in the Summer of 1971. The topics discussed include various aspects of sign language structure, and sign language acquisition, as well as educational implications of the nonlinguistic aspects of sign language. It is encouraging to find a growing number of linguists and social scientists engaging in research which largely supports the aspirations of the deaf community, particularly with regard to the acceptance of sign language as its language, the only one which can be mastered normally by pre-lingually deaf children, and in which they can achieve native competence.

In this review I will not attempt to discuss all the papers thoroughly as they cover a great variety of subjects and fields; instead I will limit myself to describing linguistic research undertaken by some of the authors that has implications for the education of the deaf. In addition, I will make a few criticisms of some of the views presented, although generally I agree with these authors.

Recently many educators have begun to accept manual communication to some degree as a result of the "total communication" philosophy being adopted by a growing number of schools for the deaf. The advantages inherent in such an approach have long been recognized and argued for by the deaf community as the publications of the National Association of the Deaf eloquently attest. Unfortunately, the deaf minority does not control the schools which are the initial foci for enculturation of most deaf children into the deaf community. The situation of deaf children, 90 percent of whom have hearing parents, is at once similar to and different from that of children from other minority groups. It is similar in that they are expected to conform to the cultural values and standards of a majority with which they cannot identify. It is different because deaf children of hearing parents, unlike their counterpart in other sub-cultures, are not enculturated as minority group members in the nuclear family. Inasmuch as they do not share a language with their hearing parents and teachers, they grow up in a world where all the adults are 'outsiders': the adults belong to an alien culture to which admission is strictly limited for deaf children. In his contribution to this volume Denton states: "many deaf children have never had a satisfactory, truly meaningful relationship with a hearing adult" (57). Generally, deaf children of hearing parents do not feel that they are an integral part of the family, unless their parents learn to

communicate manually. Moores refers to the suggestion made by Falberg, "that sign language, in its broadest sense, is the only language extant which has been passed down from child to child" (2). In itself, this observation is startling, but one could add that, by and large, deaf children are the only children who are enculturated into a child culture, being largely cut off from both the hearing and deaf adult communities Society, through its schools, keeps them in this child culture until they are released as young adults, at which time most join the adult deaf community, in which they then become acculturated.

In the literature on deafness, reference is often made to studies which portray the deaf as emotionally immature, as characterized by their egocentricity and impulsivity. In her paper (92-102), Schlesinger refers to investigations which show that deaf children of deaf parents are psychologically better adjusted than deaf children of hearing parents. As she states, this superiority is probably due to a more positive acceptance of deafness, and to the possibility of real communication between parent and child. In this regard, Schlesinger fails to mention the distinction stated above, namely, that the deaf child of deaf parents is socialized in an adult community, unlike the deaf child of hearing parents who is socialized largely in a child's world. It is, therefore, not surprising to find that deaf children, particularly those who attend residential schools and for whom meaningful relations are frequently limited to other deaf children, may show signs of immaturity compared to hearing children of the same age. However, the value judgments based on this sort of comparison may be invalid or misleading since it could be based on cross-cultural differences.

Schlesinger's paper describing her work on language acquisition of deaf children is an important contribution. It shows that where deaf individuals are concerned, sign language is the most suitable medium of communication. Her studies show that the linguistic development of a deaf child exposed to sign language parallels very closely that of a hearing child. By contrast, the deaf child who is not exposed to sign language in infancy suffers from a retarded linguistic development. Schlesinger's further investigations of mother-child relations show that a mother who signs with her deaf child has a relationship which is like that of a hearing-mother hearing-child dyad. Mothers who do not choose to use sign language may encounter great difficulty in communicating with their deaf child, resulting in a strained and often joyless interaction (101). In her clinical observations, Schlesinger found that deaf children whose mothers use sign language resemble more closely hearing children in their happiness, their creativity, and their achievements. This is further corroboration of

evidence that deaf children of deaf parents are superior academically and psychologically to deaf children of hearing parents.

Vernon's contribution on the relationship of sign language to non-linguistic aspects of sign language introduces another element to Schlesinger's study. Vernon contends that present-day theory of schizophrenia predicts that the isolation resulting from deafness could impair affective functioning seriously enough to cause schizophrenia. The fact that adult deaf are relatively healthy psychologically provides evidence that body motion as well as proper sign language play an important role in affective development, particularly in the interaction between the parents and the deaf child. At the same time, the revelation through body language of unconscious and repressed feelings provides an explanation to the irrational opposition to sign language. Unlike spoken languages, sign language and non-linguistic communication are both expressed through the same channel. They are therefore inseparable, making the signer more 'transparent'; his real feelings and unconscious thoughts may be revealed more than in a person who is talking.

While the deaf accept as natural the explicitness of sign language, hearing people, being unaccustomed to it, often react negatively to such frankness. It is the hearing world which has ruled out the use of sign language in the education of deaf children and which condemns its use in the deaf community. Another interesting observation made by Vernon concerns a personality trait commonly attributed to the deaf--tactlessness. Deaf people, as one would expect, depend on body language more than hearing people. Without understanding what a hearing person is saying, they often respond to the body language message, although it may not have been the one intended consciously by the sender. This may explain at least in part the frequent characterization of deaf people as tactless. As mentioned above, cross-cultural differences probably account for negative attitudes towards deaf individuals.

The evidence presented by investigators such as Stokoe and Bellugi continues to provide credence to the claim that American Sign Language (ASL) functions largely like spoken language, and that it is, therefore, a natural language. Comparing ASL with English, Stokoe points out that the process of linearization is different in these two languages. While English depends largely on word order to indicate grammatical function, in ASL syntactic relations such as 'subject of' and 'object of' are marked by features like eye movement and directionality of the sign itself. Without change in the signs or their ordering, eye movement can indicate the actor as opposed to the receiver of a sentence. Likewise. the direction of

some signs determines the surface subject/object relationship, or the meaning of the sign. These aspects of sign language, because of their complete absence in spoken languages, have only recently been recognized by linguists investigating the linguistic code of sign language. While the linguistic features are different in ASL and English, they function in similar ways to specify the meaning of an utterance.

Bellugi reports on a limited experiment conducted by her Salk Institute researchers in which hearing and deaf people were compared in short term memory tests, based on lists of words for the hearing subjects and videotaped lists of signs for the deaf subjects. In both groups subjects were asked to reproduce the lists which ranged from four to nine items. Deaf people were asked to sign as many signs as they could remember in the order presented. In a different condition, they were asked to translate the signs into English words and to write them down. Hearing people performed similar tasks with words. An analysis of errors made by hearing people showed that they often replaced words by others which are phonologically similar, such as "means" for "beans." For the deaf subjects, the errors were based on similarity of formational properties, even when the signs were written down as English words. For example, the sign "father" was remembered as "deer". The two signs use the same hand configuration and similar movements, but 'father' is made with one hand touching the forehead, while "deer" uses two hands touching either side of the forehead. Although only a preliminary study (in 1971), the results show that most incorrect responses made by deaf subjects differed from the sign presented by one of these major parameters--configuration, place of articulation, and motion, which together compose sign-morphemes. Thus, Bellugi's experiment provides independent validation for Stokoe's (1960) description of signs in terms of these three aspects of the formation of signs. More recent research in which distinctive feature analysis is applied to sign phonology, has shown the need to add a fourth parameter called orientation to the original three (Battison, Markowicz, and Woodward 1974). Thus Bellugi's study demonstrates that signs are processed in the short term memory on the basis of these formational units, not on the basis of concepts. Oral languages are also processed in terms of (sound) formative units. (Bellugi and Siple 1971).

Bellugi's research with native signers whose parents are deaf, but who are themselves hearing and therefore coordinately bilingual, points out the following differences between spoken English and ASL. She notes the use of space to locate a person or object being

signed about, that location assuming grammatical function. Locating people or objects in space, according to Bellugi, reduces redundancy, without loss of clarity. This investigation involved a comparison of two versions of a story--one told in English and one told in ASL--by a coordinate bilingual. The time required for the speech and sign stories was about the same. However, in the same period of time, the storyteller had used 274 signs as against 405 words; thus making a sign requires more time than saying a word. (Or else more time is used up in transition from one sign to another than from one word to another.) In other words, the same message requires fewer signs than words, but an important point to note is that speaking and signing express propositions at the same rate. The type of research conducted by Stokoe and Bellugi, only part of which has been reported here, demonstrates that ASL serves the deaf community in the same way spoken English functions in the hearing community.

Lenneberg's paper concerns language establishment as the result of a maturation process as spelled out in his classic book, *The Biological Foundations of language.* With the limitations of aural input in mind, Lenneberg suggests that the establishment of language knowledge could be greatly facilitated in deaf children by exposing them to written language. To illustrate his point, he states that very young deaf children could be introduced to graphics by labeling all the objects in the home. He suggests further that a young child unable to write because of insufficient motor coordination might be able to communicate by combining cards bearing the names of objects around him. In this paper, Lenneberg ignores sign language entirely, except for a subtitle which states that it is subsidiary to language, along with lip-reading and articulation. Lenneberg's suggestions appear extremely naive, in view of what is known about the reading process (e.g. Mattingly and Kavanagh 1972). Although it is not completely understood how this process takes place or how it is learned, it is fairly evident that for the deaf, reading English differs qualitatively from the reading of a hearing person. Written English is a partial representation of the spoken language; important features such as intonation and stress have no graphic counterpart. The hearing reader supplies the missing information from his knowledge of language. This information is lacking in the deaf who have no access to spoken English. There is another important way in which reading differs for hearing and deaf people. While reading specialists (Smith 1973) claim that, for a skilled reader, it is not essential to perceive all the letters to read a word, and all the words to read a sentence, there is evidence from the study of aphasia that, in reading, the hearing individual processes the written symbols auditorily before

comprehension takes place (Markowicz 1973). This kind of processing is, of course, impossible for the prelingually deaf. The question which has been ignored by Lenneberg is whether a deaf person can learn English through a writing system which is a limited representation of that language, and whose complete comprehension may depend on a phonological interpretation.

The application of the concept of diglossia to sign language by Stokoe has been one of the milestones in the research on this language. Moores and Meadow refer to it in their papers: the former to pose the question regarding the possibility of developing 'standard English usage' through the use of signs, the latter in her thorough discussion on code switching in the deaf community. The diglossic continuum is comprised of two varieties of manually expressed language, ASL and signed English. Like many others, Moores and Meadow have equated signed English with standard English; it consists of a mixture of two languages, namely, sign language and English. It derives most of its grammatical structure from English, while its vocabulary comes generally from sign language. Woodward (1972, 1973) has pointed out that signed English in all respects can be called a pidgin. Pidgin Sign English, like other pidgins, differs from natural languages in some important aspects.

Languages serve three social functions: communication, social integration, and personal expression (Smith 1972). Pidgins, on the other hand, develop solely to allow inter-group communicating between two or more speech communities when such communication is essential, usually for economic reasons. Pidgins do not have native speakers. Those who use them normally have another language as their native tongue. Pidgins are adequate to meet some of the communicative demands placed on them, but their lack of complexity and limited choice of alternate structures makes them unsuitable for the other two main social functions of language (Markowicz 1974). Regional, social, and stylistic variations are necessary for the integration of an individual in his social group, and to allow personal expression, both of these being dependent on the selection of variants in a language. Differences probably exist in pidgins, however they do not usually correlate with social and stylistic levels. Social integration and personal expression thus cannot be satisfactorily achieved in a pidgin, but these needs are satisfied in the native language which remains the language used within the group.

A pidgin speaker who does not also belong to a natural language speech community finds himself in the position of not belonging to any group or community The social and

psychological needs of such a person would tend to remain unsatisfied, for in such a situation affective relations are difficult, even with other pidgin speakers. Signed English, as an example of a pidgin, may be adequate for communication between hearing and deaf people and for formal situations within the deaf community. However, it lacks the complexity and variation necessary to meet the social integration and personal expression requirements placed on natural languages. The possibility exists that, given a number of native pidgin signers, creolization would take place resulting in a full language with the functional potential of a natural language. This process may already have taken place among some signers, particularly among those who are highly educated (Woodward 1973). It must be pointed out that the difference in channels which separates a spoken language from a visual-manual language seems to create a barrier which prevents signed English from taking on more features of English. Such creole would not satisfy the desire for a sign language which would be a close approximation of spoken English.

Furthermore, it seems unlikely that the dynamic process of creolization can be planned and forced on a social group. As stated above, Pidgin Sign English could creolize without becoming either more like ASL or English. However, should it decreolize, it would probably move in the direction of ASL because of the formational and syntactic constraints.
In the 18th century, L'Abbe de l'Epee (1776) wrote that deaf people can achieve native competence in sign language only, and that all oral languages remain foreign languages to them. Recently, the suggestion has been made that prelingually deaf children learn English as a second language (Charrow and Fletcher 1973). Consequently, educators of the deaf need to consider Alatis' claim that any program for teaching English to speakers of other languages "that ignores the children's first language is likely to be ineffective." (132) In his paper (122-134), Alatis mentions the close historical relationship between the teaching of English as a second language and the field of linguistics. Thus, linguists contributed a scientific attitude towards language which included the view "that each language was specifically well suited to carry on the business of the culture whose vehicle of communication it was." The relevance of this perspective on language and culture can readily be appreciated by those who have encountered the myths and misconceptions often expressed by teachers of the deaf, as well as other professionals who may have come into contact with deaf children or adults without understanding the important role American Sign

Language plays in the deaf community. Alatis points out also that for linguists, the essential character of a language resides in its spoken version. The implications for the teaching of English through its written representation, or through a manual-visual code such as sign English to those who cannot perceive auditorily remain to be investigated (Markowicz 1974).

In Nemser's paper (103-121) one aspect of the teaching of English as a second language is discussed in greater depth. Contrastive analysis and error analysis, two methodologies of contrastive linguistics, are described. Some practical suggestions applicable in the deaf educational setting are made.

Whereas, traditionally, interpreting for deaf people had been performed by relatives, teachers and religious workers operating under stigma, interpreting has become a respectable occupation in the past decade. Neesam's paper (62-67) describes the change of attitude toward interpreters which has led to the inception and rapid growth of their professional organization--The Registry of Interpreters for the Deaf. The greater availability of interpreters is providing new opportunities for deaf people to take part in vocation rehabilitation programs, as well as pursuing academic studies previously inaccessible to the hearing impaired.

Perhaps a minor point, but one which may bear important implications in the controversy concerning 'artificial' sign systems which have been developed in the last few years; both Moores and Meadow attribute correctly the origin of American Sign Language to the French Sign Language. However, there is no evidence for stating as they do, that ASL consists partially of the methodical signs invented by the Abbe de l'Epee to incorporate French grammatical features into the sign language of that period. To my knowledge, from the point of view of structure there is no more correspondence between ASL and the French language than there is between ASL and English.

Even the most sympathetic supporters of sign language as the natural language of the deaf people sometimes make statements which contradict their main arguments. In the introduction to the book, O'Rourke states that the background knowledge of a teacher of the deaf should include "an understanding of the rationale for the use of fingerspelling and signs as an adjunct to speech and speech-reading." (v) Considering that sign language is the only language in which most pre lingually deaf persons can function normally in their own

community, and that speech, speechreading and written English remain largely inaccessible to the majority of the deaf, it is surprising to find an argument for sign language as an adjunct to spoken language rather than vice versa (Markowicz 1972).

The publication of this book demonstrates a positive change in attitudes with regard to the deaf sub-culture and its language. The intended audience for the series of lectures published in this volume consisted of teachers of the deaf who no doubt benefited extensively from the insights of some of the leading researchers in the field. The written version merits a wide readership among linguists, social scientists, educators, as well as others who are concerned with the interests of the deaf community

Linguistics Research Laboratory

Gallaudet College

References

Battison, Robbin, Harry Markowicz, and James C. Woodward, Jr.

1974 A good Rule of Thumb: Variable Phonology in ASL. In New *Ways of Analyzing Variation in English,* 2, ed. Shuy & Fasold (Wash., D.C., G.U. Press).

Bellugi, Ursula, and Patricia Siple

1971 Remembering with and without Words. Paper presented at the International Colloquium of C.N.R.S., Paris Conference on "Current Problems in Psycholinguistics," Dec., 1971.

Charrow, V. R. and J. D. Fletcher

1973 *English as the Second Language of Deaf Students.* Technical Report No. 208, Institute for Mathematical Studies in the Social Sciences. Stanford, Cal.: Stanford University.

Epee, Abbe C. M. de 1'.

1776 *L'Institution des Sourds et Muets, par la Voie des Signes Methodiques* (Paris).

Lenneberg, E. H.

1967 *The Biological Foundations of Language.* (New York: John Wiley & Sons).

Markowicz, Harry

1972 Some Sociolinguistic Considerations of American Sign Language, *Sign Language Studies 1,* 15-41.

Markowicz, Harry

1973 Aphasia and Deafness, *Sign Language Studies* 3, 61-71.

Markowicz, Harry

1974 Is Sign English English? Paper presented at the First Annual Sign Language Conference, Gallaudet College, April 27, 1974.

Mattingly, Ignatius F., and James Kavanagh

1972 *Language* by *Ear and by Eye.* (Cambridge. Mass.: MIT Press).

Smith, David M.

1972 Language as Social Adaptation. In *Working Papers in Language and Linguistics* #4, edited by D. Smith and R. Shuy (Washington, D.C.: Georgetown University).

Smith, Frank

1972 Psycholinguistics and Reading (New York: Holt, Rinehart, & Winston).

Stokoe, William C., Jr.

1960 Sign Language Structure: An Outline of the Visual Communication Systems of the American Deaf, S.I.L.: O.P. 8.

Woodward, James C., Jr.

1972 Implications for Sociolinguistic Research among the Deaf, *Sign Language Studies 1, 1-7.*

Woodward, James C., Jr.

1973 Some Characteristics of Pidgin Sign English, *Sign Language Studies 3, 39-46.*

Harry Markowicz (SLS 1, 15-41; 2,61-78) is completing his doctoral studies in The

Georgetown University Program in Sociolinguistics while continuing as research associate in the Linguistics Research Laboratory, Gallaudet College. Work in progress includes a case study of a native signing hearer who faces difficulty between two (sub) cultures, and a study of popular and careless professional misconceptions about sign languages.