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Mission Statement

The Society for American Sign Language (SASL) is a professional association with the credentials dedicated to basic and applied research about American Sign Language. SASL's goal is to expand linguistic accessibility. Linguistic principles are emphasized for understanding the signed language along with its aesthetics and role in literacy development and learning. SASL's scope and forum include theory, policy, and practice considerations, as well as addressing how an alternative language modality fulfills the needs and well being of all citizens in society.

Society for American Sign Language Journal
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**Retrospective on Socially Impactful ASL/Deaf Studies Research and Scholarship
from 1960s to 2000s**

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Concluding Remarks

Carrying the Torch for American Sign Language

Jody H. Cripps
SASLJ Editor-in-Chief
Clemson University

I am pleased to reveal the first special issue for Society for American Sign Language Journal (SASLJ) entitled: *Retrospective on Socially Impactful ASL/Deaf Studies Research and Scholarship from 1960s to 2000s*. After the successful release of two issues for SASLJ, I feel compelled to go back in time and celebrate some of the most socially impactful scholarly works on deaf people and their language, ASL. This includes the significance of reprinting most of the manuscripts that were not published in mainstream or well-known journals. Rather these manuscripts in question were published as a working paper, in proceedings, or as a report, or through an online blog. I do not want these publications to become more difficult to locate over time, and I also do not want SASLJ subscribers to forget about these "underdog" scholars who contributed so much to ASL and Deaf Studies. I consulted with the Society for ASL (SASL) officers and selected a total of five socially impactful papers to reprint, ranging in publication dates from 1960 to 2000. One of these selected works was never published, and has remained a doctoral dissertation to this day.

The selected papers for reprinting in this special issue are alphabetically ordered based on the authors' last names. The original full references are as follow:

Christie, K. (2009). "Black Hole: Color ASL" - A personal response. *Clerc Scar.*

Humphries, T. (1977). *Communicating across cultures (deaf/hearing) and language learning.* Unpublished Doctoral Dissertation, Union Graduate School, Cincinnati, OH.

Johnson, R. E., Liddell, S. K., & Erting, C. J. (1989). *Unlocking the curriculum: Principles for achieving access in deaf education* (Gallaudet Research Institute Working/Occasional paper series, No. 89-3). Washington, DC: Gallaudet Research Institute.

Stokoe, W. C. (1960). *Sign language structure: An outline of the visual communication systems of the American deaf.* Studies in Linguistics: Occasional Paper 8. Buffalo, NY: University of Buffalo.

Valli, C. (1990). The nature line of ASL poetry. In W. Edmondson & F. Karlsson (Eds.), *SLR '87: Papers from the Fourth International Symposium on sign language research* (pp. 171-182). Hamburg, DL: Signum Press.

I also took the initiative to invite scholars in the field of ASL/Deaf Studies from around the country to write their commentaries on one or another of the selected socially impactful papers. For each commentary, the scholars understood the task as outlined below.

1) introduction to the manuscript,
2) relevance/significance of the manuscript to the field of signed language, and
3) social impact from the manuscript.

One scholar, Richard Meier of the University of Texas, graciously accepted my invitation to write an afterword for this special issue. Dr. Meier was given the task of reading all commentaries and selected papers and producing closing remarks. I must thank Dr. Meier as well as all of the other scholars who participated in this important endeavor for ASL. The scholars who agreed to write a commentary are alphabetically ordered as follow:

Laura Blackburn, Tidewater Community College
Diane Lillo-Martin, University of Connecticut
Heidi Rose, Vanderbilt University
Samuel J. Supalla, University of Arizona
Erin Wilkinson, University of New Mexico

Finally, my action in putting together the first special issue for SASLJ helps represent SASL organization's central purpose of maintaining a socially sensitive outlook in research and scholarship for ASL. This includes taking note that the world can be dark in understanding the alternatives of how human beings develop and use language. The concept of linguistic accessibility is deemed as indispensable and extremely important concerning deaf people. The participating scholars in this special issue serve as a testimony for their commitment to supporting and continuing the work of other groundbreaking scholars on ASL. Please look closely at SASL's logo below that includes an illustration with a hand holding a torch. The flame of the torch in the logo subtly illustrates a hand flickering which represents the signed word for FIRE. This signifies bringing light to fully validate and understand ASL's role in society.

A commentary on Stokoe's 1960 manuscript, "Sign Language Structure"

The Start of a Revolution for Deaf People's Language

Diane Lillo-Martin
University of Connecticut

The publication of Stokoe's "Sign Language Structure" in 1960 started a sort of revolution, as described by David F. Armstrong in his preface to the 2005 reprinting in the *Journal of Deaf Studies and Deaf Education*. It was revolutionary in its explicit recognition that the 'visual communication systems' used by deaf Americans constituted a *language* and could be analyzed using the tools of linguistics. This view was not by any means commonly held, and it took quite some time for the news to spread. Now, informed linguists would not resist the label 'language', even though many still are misinformed or at least naïve about central aspects of signed languages. Nevertheless, many in related fields are surprised or even suspicious of this conclusion, and many who will accept the term 'language' still view signing as second class. So it has been a gradual revolution; not a flash of modernity but a slow burn that has led to a long sequence of changes in the world.

Setting

William Stokoe was perhaps an unlikely pioneer for establishing the linguistic status of signed languages. He studied Old and Middle English literature, and taught in this field at Wells College before being recruited to Gallaudet College (see Ruth Stokoe's and Gilbert Eastman's chapters in Baker and Battison, 1980 for more of the personal story). He became interested in linguistics, and received 6 weeks of training at Buffalo, where the approach to linguistics was Structuralism. On this approach, when a researcher starts to analyze a previously unstudied language, they start at the level of phonology, looking at the patterns of the sounds that comprise words. If two different words are found that are exactly the same except for one sound, the existence of such a *minimal pair* establishes the contrastiveness of the differing sounds. After all the sound patterns are discovered, the 'Discovery Procedures' allow the researcher to move to the next step of analysis. This approach to linguistic analysis drove Stokoe's primary research investigating the signs used by deaf students and colleagues at Gallaudet, and led to the basic discovery that signs have parts.

Stokoe could not do this research alone. He acknowledged primarily the contributions of deaf research assistants Carl Gustaf Croneberg and Dorothy Chiyoko Sueoka (later Casterline), who he credited "might as easily be named co-authors"; indeed, they were named as co-authors when the *Dictionary of American Sign Language on Linguistic Principles* was published 5 years later (Stokoe, Casterline & Croneberg, 1965). Not only did Croneberg and Sueoka provide and code data, they added insights that Stokoe quoted in the paper. Recognition of the role of deaf researchers in linguistics continues to be complex and uneven.

Summary

Before 1960, signs had been described and illustrated in dictionaries and other sources, but the general treatment was a holistic description of an image created by a sign. Using the structuralist approach, Stokoe identified three primary components to individual signs. He used the term 'tabula', abbreviated 'tab', to indicate the location at which a sign is made, such as the brow, neck, neutral space in front of the body, or even the non-dominant hand. 'Designator', or 'dez', was Stokoe's term for the hand configurations, most of which were represented by the English letter denoted by that handshape in the fingerspelling system. Finally, he called the movement of the sign its 'signation', or 'sig'. Stokoe aimed to identify only the distinctive components of a sign, and he grouped together those aspects that were not used distinctively. For example, he saw no minimal pairs distinguishing signs using the handshapes representing G, D, or 1, so he grouped them together with the label G. The system was meant to find contrast and groupings, not to accurately describe each component in detail.

Many of Stokoe's observations about the form of signs have stood the test of time, but not all of his ideas have been sustained. The characterization of hand configuration, location, and movement as the primary 'parameters' of sign formation is still generally accepted, although Stokoe's obscure terms for these characteristics have fallen out of usage. Similarly, while Stokoe eschewed the term 'phonology' for this level of analysis in signs, given the root *phono* ('sound'), and he proposed the use of the terms 'cherology', 'cheremes', 'allochers', etc. (using the root *cher*, 'handy'), it did not take long for linguists to drop this neologism and use the terms known from the study of the meaningless components of words in spoken languages. In addition, Stokoe made a number of observations in his long Introduction which are contrary to current understanding.

Going beyond the foundational observation that signs are composed of a small set of combinatorial pieces, Stokoe identified a number of other aspects of sign phonology that have stimulated much further research. For example, Stokoe noticed that the non-dominant hand sometimes plays the role of a co-articulator, but sometimes forms the location at which the dominant hand makes a sign. He noted that the non-dominant hand may be omitted in some signs, under some circumstances (now known as weak drop). He also noted other functions of the non-dominant hand, including its potential use in discourse to hold a sign while the dominant hand continues.

Stokoe's work on sign phonology has been the most influential, but he also made a number of observations about what is now considered morphology and syntax. For example, he recognized that some signs are (or are derived from) compounds, and that phonological processes apply to reduce the two signs of a compound into a structure closer to that of a single sign. He recognized that non-manual markings are important in ASL, and that a signer might use non-manual marking to convey both syntactic and paralinguistic functions. He also noted that there are differences in the ways that people sign when producing simultaneous English and Sign as opposed to other contexts. In other words, this is a resource dense with insights and observations that was truly remarkable for its time; modern sign linguists should read it again to remind themselves where different observations were first made, and possibly to latch onto an insight that can lead to a new research direction.

Impact

Eastman's chapter in Baker and Battison (1980) describes some of the reactions at Gallaudet to Stokoe's research and his publication of 'Sign Language Structure' in 1960. It seems that the reaction at first was not all favorable. Similarly, the field of linguistics seems not to have been sympathetic to his claims; a review of Stokoe's monograph published in the journal *Language* in 1961 is extremely negative (Landar, 1961). Nevertheless, Stokoe persevered and published his Dictionary in 1965. Around that time, the reception to his work seems to have been improving, both at Gallaudet and in the field of linguistics: for example, Stokoe gave a Luncheon Address (presumably invited) on 'Linguistic Description of Sign Languages' at the Georgetown University Round Table in 1966.

It is hard to judge how much of an immediate impact was made by the publication of a monograph in the University at Buffalo's Occasional Papers series. Much of linguistic research in general, including for ASL, in the second half of the twentieth century was published in such 'working papers' or distributed as unpublished manuscripts; the inside cover indicates that 3000 copies were made of Stokoe's work. By the early 1970's, though, repercussions were widespread. As listed by Baker and Battison (1980), the Linguistics Research Laboratory was established at Gallaudet with Stokoe at its head in 1971, and that same year the first presentation on ASL was made at the Linguistic Society of America Annual Meeting (by James Woodward, who was also directly influenced by Stokoe; see Woodward's chapter in Baker and Battison, 1980); the journal *Sign Language Studies* was started in 1972. In 1970 the Laboratory for Language and Cognitive Studies was established at the Salk Institute under the direction of Dr. Ursula Bellugi, and research on ASL conducted by lab members began appearing in prestigious journals in the early 1970's (*Cognition, Language, Cognitive Psychology*). Numerous dissertations, research symposia, articles, presentations and other output validated Stokoe's declaration that ASL is a language and can be studied linguistically. Internationally, signed language research started to develop in Europe in the 1970's, though Battison's recollections in 2000 indicate that it took more time for the linguistic approach to take hold there (e.g., Tervoort, who is often referenced as an earlier recognizer of signed languages than Stokoe, wrote in 1973 that he was not yet convinced by Stokoe's argument).

In the field of linguistics, signed languages are now widely recognized. Researchers look at every aspect of signed languages and there are growing numbers of different signed languages studied, using a wide variety of research methods. This is not to say that there is no ignorance or naivety; almost every talk to an audience of linguists who do not work on signed languages requires some overt mythbusting or at least subtle guidance to avoid misunderstanding. There is also a fair amount of insulation; mainstream linguists may recognize that signed languages exist, but they often do not try to understand or apply concepts from signed language linguistics to their own work. This is a challenge that signed language linguists need to continually work on.

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Sign Language Structure:
An Outline of the Visual Communication Systems of the American Deaf[1]

William C. Stokoe, Jr.
Gallaudet University

Preface

The present paper, available both from <u>Studies in Linguistics</u> and from Gallaudet College, offers to linguistics the first substantial part of an answer to an old question: what of sophisticated visual symbol systems examined by the rigorous methodology of structural linguistics? It likewise offers to all those interested in the deaf and their problems solid evidence that the sign language of the American deaf, unlike such secondary systems as writing or speechreading, has a language-like nature and function. Whether it is a language in the full meaning of the term is a question the linguist ought not to judge until much more evidence of the kind presented here is made available; but the majority of the deaf themselves and many who work with them know that the question was long ago settled pragmatically.

The writer is indebted to the Gallaudet College Research Committee, especially to its former sociologist member, Dr. Anders S. Lunde, and to its chairman, Dean George E. Detmold, who first suggested the study and by his efforts secured institutional support for it. A welcome grant from the American Council of Learned Societies made possible a summer of study with Professor Henry Lee Smith, Jr., as well as acquaintance with Professor George L. Trager, out of which grew the conviction that their methods of linguistic analysis are sufficiently mathematical to apply to a symbol system in a different sensory medium. The Eastman Kodak Company and Georgetown University Hospital very generously permitted us to borrow photographic equipment for the recording of data.

The writer is grateful, too, for the time and intelligent cooperation given by the several informants who sat, or rather signed, for the movie camera.

William C. Stokoe, Jr.

Gallaudet College
Washington, D.C.
April 1, 1960

0. Introduction

0. The primary purpose of this paper is to bring within the purview of linguistics a virtually unknown language, the sign language of the American deaf. Rigorous linguistic methodology

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applied to this language system of visual symbols has led to conclusions about its structure which add to the sum of linguistic knowledge. Moreover, the analysis of the isolates of this language has led the writer to devise a method of transcription that will expedite the study of any gestural communication system with the depth and complexity characteristic of language.

Second, the system of transcription presented here as a tool for analysis may recommend itself to the deaf or hearing user of the language as a way of recording for various purposes this hitherto unwritten language. Those whose work in education or other social service brings them into contact with deaf children or adults may find both the conclusions and the system of writing the language helpful and suggestive.

0.11. Communication by a system of gestures is not an exclusively human activity, so that in a broad sense of the term, sign language is as old as the race itself, and its earliest history is equally obscure. However, we can be reasonably certain that, even in prehistoric times, whenever a human culture had the material resources, the familial patterns, and the attitudes toward life and 'the normal' which allowed the child born deaf to survive, there would grow up between the child and those around it a communicative system derived in part from the visible parts of the paralinguistic, but much more from the kinesic, communicative behavior of the culture (Trager, 'Paralanguage', SIL 13.1–12, 1958). Based on the patterns of interactive behavior peculiar to that culture, the communication of the deaf-mute and his hearing companions would develop in different ways from the normal communication of the culture. To take a hypothetical example, a shoulder shrug, which for most speakers accompanied a certain vocal utterance, might be a movement so slight as to be outside the awareness of most speakers; but to the deaf person, the shrug is unaccompanied by anything perceptible except a predictable set of circumstances and responses; in short, it has a definite 'meaning'. That shrug would certainly become more pronounced, even exaggerated, in the behavior of the deaf-mute and perhaps also in that of his hearing partners in communication.

This hypothetical discussion of the origin and development of the gesture language of the congenitally deaf individual in any society is not to be taken as a prejudgment of the vexed question of language genesis. Surely total response of the organism precedes the selection of vocal or manual or facial signaling systems, but special signaling systems of the deaf, though a reversion in a way to the antelinguistic patterns of the race, can only develop in a culture, built, operated, and held together by a language, a system of arbitrary vocal symbols. The kinesic, or more broadly, the metalinguistic communicative phenomena out of which the primary communicative patterns of the deaf are built may once have been the prime phenomena, with vocal sounds a very minor part of the complex; but it cannot have been until long after the development of human speech as we know it that human culture had advanced to a point where individuals deprived of the normal channels of communication could be given a chance to develop substitutes.

Whenever such a chance of surviving and experimenting was afforded, the supposition is strong that individuals without hearing tended to group themselves, and hence to develop their visual communication systems in ways still more divergent from the communicative norm than would be the case if the deaf individual remained alone among hearing siblings, parents, or friends. To support the supposition there is both biological and linguistic reasoning. Many of the diseases which in modern times cause deafness in the infant before he has acquired speech would have been immediately or soon fatal in earlier times; but some ex-natu deafness is genetic, not only occurring in all periods of history but tending to give the deaf child one or several siblings as well as parents

or more distant relatives similarly affected. The linguistic argument is simple but telling: the effect on social grouping of having or lacking a common language is obvious and intense enough ordinarily; but when the difference is not between dialects or languages but between having or lacking language, the effect is enormously intensified.

There are records of successful attempts to teach persons deaf from birth to communicate in more socially acceptable ways, namely, by reading and writing, by manually spelling out language, and by lipreading and artificially acquired speech. But in the long stretch of time from antiquity to the middle of the eighteenth century these amount to the merest scattering of instances.

0.12. The real history of the sign language examined in this study begins in France in 1750. In that year the Abbé de l'Épée undertook the teaching of two deaf-mute sisters. What distinguished him from other brilliant practitioners in the art of teaching language to the congenitally deaf was an open mind and boundless charity. While others had instructed one or at most a handful of pupils, and seeking reputation and emolument, had paraded their successes while making a mystery of their methods, l'Épée gave his life, his considerable private fortune, and his genius to a school which in theory at least was open to every child born deaf in France, or in all of Europe. For nearly three decades he taught in and directed the school, making known its results only through monthly demonstrations open to the public until 1776, when he felt it necessary to answer criticism of his methods by rivals in a full exposition of his theory and practice.

This work, L'institution des sourds et muets, par la voie des signes méthodiques (Paris, 1776), shows clearly that the basis of his success is an amazingly astute grasp of linguistic facts. A few years before l'Épée began his career Jacob Rodrigues Pereira had come from Portugal to France and begun teaching deaf-mutes. His method was to begin with practice in articulation and much later to teach writing and reading with the aid of a one-hand manual alphabet. Although one of his pupils, Saboureaux, was a striking example of his success, composing works on the education of the deaf, and attacking l'Épée in print, there is no doubt that demonstration of it could be misleading. As l'Épée says, a pupil taught to recognize the manual alphabet and form letters with a pen could demonstrate great decoding and encoding ability without really understanding anything of what he wrote; or a pupil could pronounce fairly intelligibly every French syllable without comprehending anything. In short, the language of the Pereira method was French, taught through articulatory exercises, ordinary writing, and a set of manual symbols corresponding to the letters of the alphabet.

L'Épée also taught speech but relegated it to a minor part of the educational program. His pupils too demonstrated their ability to write correct and elegant French. But they could also reason and answer questions calling for opinions supported by an education in depth. What is more his dictations were given, not in a one-for-one symbolization of French orthography, but in one or the other or both of two very interesting sign languages.

The difference between l'Épée and all his predecessors as well as many who followed him is his open-minded recognition of the structure of the problem. He could see his own language objectively and analyze its grammar in a way which made possible its transmission to and synthesis in the mind of a bright teen-age, congenitally deaf pupil in two years. He could also see the mind of a pupil as a human mechanism functioning by means of a language, without being alarmed at the fact that until the education was complete that language was not French. His detractors seem to have treated pupils as automata into which the French language--that is its pronunciation and orthography--could be built with the aid of suitable coding devices.

Though not the first to recognize the existence of a sign language among deaf-mutes--Montaigne two centuries earlier had been struck by its precision and rapidity (Essays, 2:29)--l'Épée was the first to attempt to learn it, use it, and make it the medium of instruction for teaching French language and culture to the deaf-mutes of his country. This language of the deaf, he, like writers for the next two centuries, called 'the natural language of signs', or le langage des signes naturelles. But for teaching the intricacies of French grammar, and through it the art of abstract thought, he devised what now would be called a meta-language. This was his system of signes méthodiques.

'The natural language of signs' is a term with a long history; from 1776 to the early years of this century its denotation has varied with the metaphysical and linguistic theory of the writer who used it. Particularly interesting is the almost magical effect of the adjective natural. Some of those who use it are confident that throughout time and terrestrial space there is a necessary and unbreakable connection between a sign and its meaning. Here, for example, is Valade, who wrote some penetrating studies of the sign language (1854): 'Les signes sont naturels quand ils ont, avec l'objet de la pénsée, un rapport de nature tel qu'il est impossible de se méprendre sur leur signification. Ils ont une valeur qui leur est proper et qu'aucune convention ne peut changer.' L'Épée in his use of the term is less the metaphysician and more the linguist, but even he concludes his conspectus of 1776 with a 'Projet d'une langue universelle par l'entremise des signes naturelles assujétis à un methode.'

Actually 'the natural language of signs' is a false entity. A 'natural' sign language must be very much what is described in the first paragraph of this section. Any extremely close, non-arbitrary, relation of sign to referent will be in those few areas of activity where pantomime and denoted action are nearly identical, for instance, eating. Or it will be in the cases where pointing is as clear as language: you, me, up, down; etc. But most of the signs taken as natural, necessary, and unmistakable in the past are, of course, those parts of the total communicative activity of a culture which relate to a specific set of circumstances in that culture. This list of Arrowsmith's, in The art of instructing the deaf and dumb (London, 1819), contains some of all three kinds: 'yes, no, good, bad, rich, poor, go, come, right, wrong, up, down, white, black, walk, ride . . .' but whether a nod or some other sign was the 'natural' sign for yes in Arrowsmith's England, that sign is just as arbitrary, just as much culturally determined, as any syllable in a vocal system.

L'Épée realized that this natural language, indispensable as it was in the day to day existence of uninstructed deaf-mutes, was insufficient as a medium for teaching them French language and culture. When the language had a sign which could be used for a certain concept of French grammar he adapted it. He found that the pupils he encountered signified that an action or event was past by throwing the hand back beside the shoulder once or repeatedly. In his carefully worked out set of lessons he shows how he teaches the past tenses of French verbs in connection with the days of the week and institutes at the same time some of his signes méthodiques. He uses one backward motion of the hand, over the shoulder, for the simple past, two coups de la main for the perfect and three for the pluperfect tense. When the language of 'natural' signs lacked a sign, as it did for the articles, he invented one out of hand. The definite article le was signed by a crooked index finger at the brow, la at the cheek. For some of these signes méthodiques of l'Épée and his successors the etymologies can be accepted as with any explicit coinages. The crooking of the index finger, he says, was a reminder to the pupil that the definite article chose one of many possible instances of the noun; the brow was to recall the male custom of tipping or touching the

hat brim; the cheek is the feminine sign because the coiffure of ladies of the period often terminated (showily) there.

Another of l'Épée's signes méthodiques shows how he fashioned a bridge between natural signing and French. He found it necessary to invent several signs for the prepositions (as for other 'function words'), not that the natural sign language could not express relationships, but because the exact word demanded by the idiomatic French had no single sign equivalent. One such coinage was his sign for the preposition pour. He says it begins with the index finger pressed against the forehead, the seat of the reason or intention, and terminates with the finger pointing toward the object. The sign 'for' in American Sign Language is still made identically.

L'Épée's work shows an acute awareness of the several levels on which he was working. Gaining the confidence of his pupils by his ability to converse with them in their own 'natural' language, he could introduce them to the quite foreign French language in all its formal elegance through the meta-language of his signes méthodiques. His pupils still in school could demonstrate letter-perfect transcriptions when dictated to in these methodical signs; but his finished students, who from the first became the primary teachers in the school, had thoroughly learned French and could translate from natural sign language into literary French with a considerable saving in time; or they could just as easily transmit the import of written French to their pupils by using natural sign language.

0.13. It is greatly to be regretted that from l'Épée's day to the present his grasp of the structure of the situation of the congenitally deaf confronted with a language of hearing persons has escaped so many working in the same field. However, to continue the history, l'Épée died in 1789 and was succeeded by the Abbé Sicard who had studied under him a few years before and been put in charge of the new school for the deaf founded at Bordeaux.

Sicard is credited by some with even greater success than his master in bringing the most gifted of the deaf pupils to the highest levels of intellectual attainment. Certainly two of his proteges, Massieu and Clerc, wrote and reasoned with a skill outstanding among their hearing contemporaries. Clerc's articles in the first volumes of The American annals of the deaf (1847ff) are remarkable for their lucidity, good sense, and complete lack of mannerism of style which date the writing surrounding them in that journal. Moreover Sicard is the direct link between the French development of the sign language and the American sign language which is the subject of the present study.

0.14. In 1815 Thomas Hopkins Gallaudet was sent to Europe by a group of public spirited citizens of Hartford, Connecticut, to study the methods of teaching the deaf. Visiting England first, he found little encouragement in the Watson's London Asylum (Hodgson, The deaf and their problems, London, 1953); but Sicard welcomed him, indoctrinated him in the method of the Paris school, and sent back with him Laurent Clerc who became the first deaf teacher of the deaf in America. The American School for the Deaf was established with Gallaudet as head at Hartford in 1817, and the New York School soon after. At both of these and at many which followed all over the country, the natural sign language as well as the methodical sign system originated by l'Épée was firmly established as the medium of instruction.

0.15. Actually these two sign languages must have tended to become one from the first. The advantages of having, instead of 'home made' gestures of the uninstructed deaf-mute, a sign language similarly executed but expressly designed to translate the French language and the culture to which that was the key must have impressed every signer who knew of it even in the eighteenth

century. One may guess that some notion of the French system had preceded Gallaudet's formal introduction of it to the United States. How else to explain the rapid flourishing of the language and the schools using this method to the point where a national college for the deaf was deemed necessary and established by Act of Congress in 1864 for the higher education of the graduates of these schools?

At any rate the present language of signs in general use among the American deaf stems from both the natural and methodical sign languages of l'Épée, but even the 'natural' elements have become fixed by convention so that they are now as arbitrary as any, and users of the language today are disdainful of 'home signs' as they call those signs that arise from precisely the same conditions that generate the 'natural' signs but that have local and not national currency.

Much condensed, this brief history has not always distinguished between signs themselves, which are analogous to words, and a sign language which is a system with levels corresponding to phonological, morphological, and semological organization. Actually one might distinguish not two but three kinds of signs: 'natural' signs whether 'home' signs or the accepted signs of a sign language in use; 'conventional' signs which are coinages with or without direct borrowing from another language; and 'methodical' signs, which in origin at least were sign-like labels for grammatical features of another language and were used only in teaching that language. Toward the latter two the language of signs seems to have behaved as have other languages toward borrowings. When the social and educational revolution in the life of the deaf initiated by l'Épée flooded the visual language with new vocabulary, the language adopted many of these conventional signs. But the meta-language of methodical signs was a different system, just as the symbolic code language of electronic computers is different from English; and its contributions could be only individual signs (such as 'for') which came into the language with the same status as the conventional signs. That the French language, and later the English language, through the medium of the methodical sign language, or through persons bilingual in French and the sign language, affected the syntax of the sign language actually in use by the deaf may be suspected; but the writer's projected rigorous demonstration of such influence will have to wait until the analysis of the present sign language is complete enough to allow such historical investigation. (See p. 27)

0.16. Studies of the sign language of the deaf uncomplicated by prescriptions for its use in teaching, by controversy about the advisability of using it at all, or by special pleading for its use as a universal language are not to be found. The work of l'Épée already referred to, despite its emphasis on the teaching of French grammar and syntax, is valuable both for its scattered descriptions of the 'natural' signs of the uninstructed deaf-mutes and for its attitude: none before him and all too few after him to the present day have been willing to face the fact that a symbol system by means of which persons carry on all the activities of their ordinary lives is, and ought to be treated as, a language.

Various bibliographers have credited l'Épée with beginning a dictionary of signs which was completed and issued by Sicard. Actually this work (<u>Théorie des signes</u>, Paris, 1808) is a two volume list of French words, arranged by subject matter, with their translation into methodical signs. Most of the words require at least three signs for their rendering: a base sign for the lexical meaning; a sign showing whether verb, substantive, adjective, or other; and further signs for determining case, gender, number, etc. This systematically logical way of rendering French vocabulary and semantics in gesture and pantomime is in many ways similar to the New Sign

Language invented by Sir Richard Paget except that a word translated by his method begins with determinants, such as a sign for 'concrete' or 'abstract', and a subject-category sign, and progresses to the particular or base sign. (The new sign language: notes for teachers. London, Phonetics Dept., University College, n.d.) Both the eighteenth century and the modern systems are really methods of teaching, not languages capable of colloquial use.

Sicard also published a brief study of the method he followed in the Théorie volumes (Signes des mots, considérés sous le rapport de la syntaxe; á l'usage des sourds-muets; Paris, 1808); but this too concerns the use of 'methodical' signs for teaching French vocabulary.

A different approach is apparent in the work of Bébian. His Mimographie, ou essai d'écriture mimique propre à régulariser le langage des sourds-muets (1825) is a most ingenious attempt to devise a system of writing for the natural sign language. He was a teacher at the Paris school. His method of writing the signs is analytical, but his avowed purpose is to compose a vocabulary or dictionary of signs to serve as a regulator of the language much as the Academy and Dictionary performed that function for French. Considering the stage that linguistic analysis had reached in his time, his work is excellent in conception and execution. His symbols for rendering the hands and other parts of the body involved in the sign are representational enough to be easily remembered and read, and at the same time sufficiently conventionalized to be rapid and economical. He also used a few 'diacritical' marks to denote facial expressions: 'questioning', 'surprise', 'reverence', and so on. Movement seems the least well-handled part of his system; but there is a possibility that his writing system, as judged by one familiar with present sign language, falls short of succinct and accurate description of the language because the natural sign language itself in his time lacked uniformity in some ways. For example, the present American signs for 'chair' and 'name' are regular in every way. Both use the index and second fingers of both hands and both cross these fingers of one hand over the same fingers of the other hand at or near the second joint. The sole distinction is the orientation: edgewise (index finger uppermost) for 'name'; flat (palmar surface down) for chair. But in Bébian's time, though 'name' was signed just as now, the sign for 'chaise' was pantomimic, the signer making a more or less abbreviated attempt to sit in an imaginary chair. (The authority for 'chaise' is the picture-dictionary of Pelissier discussed below.)

In Études sur la lexicologie et la grammaire du langage natural des signes (Paris, 1854), Y.-L. Remi Valade rejects Bébian's system as too cumbersome and its symbols as too numerous. He retains, however, the purpose: a dictionary to regularize signs, to make for more uniformity, both in the language and in the education of the deaf. He understands very well why a dictionary of signs cannot be expected to resemble, or fulfill the same function as, a standardized French dictionary. What he projects in short is a French-Sign Language dictionary. Following each entry of a French word with etymological and grammatical notation would be a description of the natural sign which that word most nearly translates. Henceforth, he says, the French word would stand for the sign and could be used for it in writing sign language.

These considerations of the nature and function of the lexicological task, and the rejection of symbols in favor skillfully worded descriptions are echoed in two recent discussions of the sign language of the American Indian. C. F. Voegelin (1958) and A. L. Kroeber (1958) disagree about the importance or priority of lexicology in analysis and description of this language, which is in some ways intricately related to the sign language of the American deaf.

The Indian sign language, also, has been most often written about as a universal language, an instrument of international peace and understanding. To that and its advocates, aware of the deficiency of its vocabulary for this laudable purpose, have enriched it by borrowings, unacknowledged in detail, from the sign language of the deaf. There is also the vexed question of its origin, whether indigenous or directly caused by the sudden impact of a totally foreign culture. Its relation to other elements of some culture or sub-culture needs to be ascertained. Was it over a language in a strict sense or was it from the beginning a trade and treaty code? These and other questions need to be explored, and it is the conviction of the writer that the proper approach is not through Tomkins' (1926) or Mallery's (1880, 1881) description of individual signs. Even working with an informant, as Lamont West is reported to be doing (Kroeber, 1958; Voegelin, 1958), may not produce the kind of results intended. Kroeber's article suggests that it survives mainly as a performance for, and is even modified to meet the demands of, an audience of tourists. The surer way is through a rigorous analysis of the structure of the sign language of the deaf, which has in almost every respect the role of a language in a (minority) culture (0.2 below). Knowledge gained about the structure of the various levels of this language, the categories discovered, the nomenclature and symbology developed in the linguistic analysis of a living visual language will surely expedite the investigation of other gesture languages including the 'sign-talk' of the American frontier.

Valade's studies began with lexicography, but he also makes some interesting observations on the syntax of the natural language of signs. Like all the l'Épée school of grammarians, he is able to get sufficiently outside his own language to compare sign language with French, Latin, and English grammar objectively. For example, he states that the syntax of sign language has no need for the underline copula underline in such statements as 'the corn is green' or 'the girl is beautiful' because the visual juxtaposition of the signs for substantive and adjective serves the same purpose. Such analysis is far superior to the conclusions sometimes encountered that the language of signs has no grammar or syntax, or that the absence of systems of verb inflection argues a defect in the language or an abnormal psychology of the user traceable to his aural deficiency. On the other hand Valade's conviction, shared by later French and American writers, that the order of signs in an utterance is closer than that of French or English to the 'natural' order of occurrence or importance will not bear scrutiny.

A different treatment of signs is given in the final portion of Pelissier's L'enseignement primarire des sourds-muets mis a` la portée de tout le monde avec une iconogprahic des signes (Paris, 1856). Here he gives some four hundred drawings with dotted lines and arrows to show movement, each captioned with the French word it renders. These are now being transcribed in the system of notation introduced in the present study by the writer's associates (0.3 below); and studies of their structural and semantic relation to present signs are contemplated.

All the French writers on sign language so far reviewed are primarily educators of the deaf; l'Épée, Sicard, Bébian, and Valade are grammarians as well. Pelissier, however, writes less for the theoreticians of grammar than for a new group that must be reckoned with. In a century a linguistic community had developed, and a committee composed of deaf adults instructed in the Parisian and similar French schools, and of interested hearing persons, were making their views felt in the linguistically complicated educational controversies. Their interest was in the use, the extension, and the public acceptance of their language, which from Pelissier's iconography appears to be the 'natural' sign language with a difference. In 1856 this language retained some of the signs which

were doubtless encountered by l'Épée when he met his first uninstructed deaf-mutes; but its 'vocabulary' also included many coinages, conventional signs, and signs derived from the 'methodical' signs of the schools.

Pelissier's work, as the title indicates, attempts to use the language as a means of dispelling the mystery which had surrounded the teaching of the deaf since the middle ages. Does one wish to teach French to a deaf-mute? Let him learn the latter's language and proceed from there. This rationale as well as the language was imported to America, as this resolution of the World Congress of the Deaf held in St. Louis, in 1904, proclaims:

'The educated deaf have a right to be heard in these matters and they shall be heard.

'Resolved, that the oral method, which withholds from the congenitally and quasi-congenitally deaf the use of the language of signs outside the schoolroom, robs the children of their birthright; that those champions of the oral method, who have been carrying on a warfare, both overt and covert, against the use of the language of signs by the adult, are not friends of the deaf; and that in our opinion, it is the duty of every teacher of the deaf, no matter what method he or she uses, to have a working command of the sign language' (Annals, 1904).

American writing on the language itself may be represented by three manuals:

Joseph Schuyler Long, <u>The sign language: a manual of signs, being a descriptive vocabulary of signs used by the deaf of the United States and Canada</u>, Omaha, 1952; lst. ed., Des Moines, 1918.

J.W. Michaels, <u>A handbook of the sign language of the deaf,</u> Atlanta, Ga., 1923.

Father Daniel D. Higgins, <u>How to talk to the deaf</u>, St. Louis, 1923.

These all describe the method of making the signs and to some extent of phrasing utterances in the language. The greatest space in each is devoted to an English-Sign vocabulary using illustrations and verbal descriptions of the sign that translates the English word. Grammatical descriptions and prescriptions are implied in the linking of each sign to an English word with its inevitable relegation to a certain part of speech.

There is a similar kind of manual of the Australian sign language: <u>How to converse with the deaf in sign language as used in the Australian Catholic schools of the deaf</u>, by teachers of the schools at Waratah and Castle Hill, N.S.W. (1942). This sign language brought to Australia from the Dominican School in Cabra, Ireland, has some signs identical with present American signs, others which seem related, but a great many signs using, as do present American 'wine' and eighteenth century French 'vin', a 'letter' of the one-hand manual alphabet as an element of the sign.

Of these four handbooks, the Australian and Michaels' seem to show a greater adherence to the methodical sign system; the latter giving signs for 'verb', 'substantive', etc., in the Sicard manner; the former rendering such words as 'the', 'he', 'is' by specific signs in a manner foreign to the 'natural' sign language and having signs likewise for prefixes and suffixes of English words.

The one full length modern study of the visual communication of the deaf is Father Bernard Theodoor Marie Tervoort's dissertation Structurelle analyse ́van visuell tealgebruik binnen een groep dove kinderen (Amsterdam, 1953). This work, though an interesting exploration of such questions as spontaneous language origin and development and the psychological-linguistic implications of visual instead of visual-acoustic orientation and of esoteric and exoteric languages and their grammatical-logical categories, has actually slight bearing on the present study for several reasons: In Holland where his observations were made, signing alone, or with simultaneous spoken accompaniment as practiced in many American schools, is not used as a medium of instruction. Officially prohibited, it occurs as an 'after hours' activity among the school children he studied, most of them unacquainted with any sign language outside their own group. His conclusions show that the signs they used were developed in the school group itself and tended to vanish when the group dispersed. The signs he observed were always accomplishments of speech or silent speech-like movements and could thus be in no way substitutes for speech. He therefore analyzed stretches of this combined visual-oral language by using the categories of traditional Dutch grammar. The present study is of a sign language which has a wide geographical currency as well as a recorded persistence through more than a century, which is accepted as an educational medium, and which will in this and projected studies be shown to have a syntactical, morphemic, and sub-morphemic structure different from that of English. Moreover, for several reasons, the observations in Tervoort's study were limited to children under the ages of puberty, while the practice in the present study is to follow the principle of choosing informants from among the intelligent adult members of the language community.

The writer is well acquainted with Father Tervoort who is making Gallaudet College his headquarters while engaged in a study of the language and psychological development of students of two American schools for the deaf over a six-year period. His working hypothesis is an extension of his original thesis that the deaf child has 'two languages, an esoteric and an exoteric one; one for mutual intercourse, the other for talk with outsiders' (English summary, 1.293) and he has stated that in the first two months of the experiment there are already indications that the esoteric elements tend to disappear as the child matures in the direction of a more or less standard English. With the caveat that the writer and Fr. Tervoort disagree amicably on terminology, the writer in this context would characterize the other's work as more in the nature of a controlled experiment in the fields of psychology and educational method than strictly in the field of linguistics (Trager, 1949). The writer also believes that in the experience of the American deaf person there are two languages, not esoteric and exoteric and therefore only psychologically distinct, but linguistically different: these two are American English, known to the deaf through various substitutes for hearing, and the American sign language, the subject of this microlinguistic study.

Exploration of the possibilities of sign language for international use continues also. The World Federation of the Deaf issued at Rome in 1959 a booklet of 339 photographs (for 323 signs) captioned by numbers only, followed by alphabetical indices of English and French words keyed to the numbered pictures (Première contribution pour le dictionnaire international du langage des signes, terminologie de conférence). Some of the English-word=sign-picture correspondences seem to be identical with the word-sign equivalence generally accepted by users of the American sign language; other words are connected with quite unfamiliar signs. There is a third category of correspondences--the word translated by a sign which in American sign language usually renders

a word more or less distantly related semantically to the WFD entry. This flexibility of sign-concept relation many account for the phenomena observed by the writers (Dr. Cesare Magarotto and Mr. Dragoljub Vukotic): 'During the numerous meetings and international congresses held these last ten years, the deaf-mutes of different countries and continents have been able to hold conversations on different topics with the sign language, understanding each other without the least help of an interpreter' (p. vii).

0.2. The application of the techniques of the sociologist and cultural anthropologist to the linguistic community formed by the deaf is as new as structural analysis of their language. Much of the information about the group which is desirable as a background for strictly linguistic analysis is lacking, but the writer is most fortunate to have been associated in the first years of the new Gallaudet College research program with Dr. Andres S. Lunde whose paper 'The sociology of the deaf' is the pioneer work in the field.

Dr. Lunde has graciously permitted the quotation of substantially all of this paper, first presented at the 1956 meeting of the American Sociological Society in Detroit. Its information is most pertinent here and its delineation of areas where research is needed may lead to further collaboration of sociologist and linguist. He writes:

'The deaf as a group fall into a completely unique category in society because of their unusual relation to the communication process and their subsequent adjustment to a social world in which most interpersonal communication is conducted through spoken language. No other group with a major physical handicap is so severely restricted in social intercourse. Other handicapped persons, even those with impaired vision, may normally learn to communicate through speech and engage in normal social relations. Congenitally deaf persons and those who have never learned speech through hearing (together representing the majority of the deaf population) never perceive or imitate sounds. Speech must be laboriously acquitted and speechreading, insofar as individual skill permits, must be substituted for hearing if socially approved intercommunication is to take place. The rare mastery of these techniques never fully substitutes for language acquisition through hearing.

'With his acoustical impairment as a background, the deaf person undergoes certain conditioning social experiences which separate him from the hearing and tend to make him a member of a distinct sub-cultural or minority group.... The sociology of the physically handicapped is a neglected field; a few texts barely touch upon this subject and then, in the case of the deaf, often inaccurately. Only a handful of articles pertaining to the role of the physically handicapped in society has appeared in sociological journals....

'The deaf may be identified as a group for sociological purposes. They are to be distinguished from those who are ''hard of hearing'', or those of partial hearing who can hear with the use of mechanical or electronic hearing aids, and those who become deaf late in life after having acquired speech through hearing and associated, in normal communication, with hearing persons. By and large, the deaf group as a whole never used hearing for speech. The available evidence, which is incomplete, seems to indicate that approximately 39 per cent of the total deaf population was born deaf, that another 19 per cent became deaf by the end of two years of life and that an additional 28 per cent became deaf between the ages of three and five (Best, 1943). This means that approximately 58 per cent of the deaf never used hearing for speech and that 86 per cent of the total deaf population was deaf by age five. The social implications of this fact are

extensive; the deaf as a group have never undergone the normal experiences of socialization during the formative years.

'The deaf may be defined therefore as a group composed of those persons who cannot hear human speech under any circumstances and consequently must find substitutes (in speechreading, language of signs, etc.) for normal interpersonal communication. The definition as applied to the group discussed in this paper is to be understood to include only those persons who become deaf at a relatively early age in life (or are born deaf) and who, for the most part, undergo the special institutional experiences analyzed below. As far as can be determined from available data, this group numbers around 100,000 persons, although some estimates of a more loosely defined deaf population go as high as 180,000 persons. Censuses of the deaf were taken from 1830 to 1930 and were discontinued for reasons of inconsistency and under-enumeration. In 1930, 57,084 persons who had become deaf before eight years of age were enumerated (15th Census of the U.S. 1930, "The Blind and Deaf- Mutes of the United States 1930", Washington, D.C., Bureau of the Census, 1931). Estimates based on the U.S. Public Health Survey of 1935–36 indicated a total deaf population of 170,000 in 1950. Of these it is estimated that approximately 100,000 could be classed as not having used hearing for speech (Bachman, 1952).

'The deaf person is often taken as an individual adrift in a hearing society; while this may occasionally be the case, for the most part the deaf person is a member of a well-integrated group, especially in urban areas. How he becomes cast as a member of such a group may be investigated by means of a hypothetical life-cycle, as illustrated on page 23.

'It may first be noted that sociological research could throw considerable light upon the etiology of deafness. There appears to be a prevalence of deafness among lower income families, reflective of inadequate medical care and services in infancy and childhood. Beasley (1940) observed a direct relationship between family income and incidence of impaired hearing in the Public Health Survey of 1935-36.

'The deaf child begins his life separated from the normal associations with the hearing world to a degree not yet investigated. According to various observers, sound and hearing are extremely important for orientation from the first moment of life. The hearing child spends considerable time during the first four weeks of life ''responding'' to sound; at the end of 16 weeks the child seems to identify sounds (Gesell & Ilg, 1953). By 28 weeks he is at Esper's stage of sound imitation, vocalizing vowels and consonants, which will soon take on the status of words (Esper, 1935; Klineberg, 1940).

'Toward the end of the first year the stage of verbal understanding begins; by 2-1/2 years the use of spoken language is understood. By 3 years the hearing child begins the development of logical expression in words and sentence structuring, and through the expression of ideas, becomes aware of "self". At 4 years he asks "Why" questions, is become oriented and plays conversationally with his group. At 5 years the hearing child begins to discuss more remote and difficult problems such as war and crime in common with friends, and attacks the problems of sex, time, space, death and God (Gesell & Ilg, 1947). By the time he enters school the hearing child is equipped not only with a background of information but with the ability to express himself in language.

'The deaf child is cut off from these experiences; he lacks the orientation provided by the hearing association with his family and playgroups. As most studies of personality have been made of the deaf child in the school situation that is after the age of five or six there exists no available information on the first years of deafness. We do not know exactly how the deaf child learns,

orients himself, becomes aware of himself or of his position in the group. Further research into the operation of socialization and personality formation of the deaf is urgently required.

Social Factors in the Isolation of Deaf Persons and the Establishment of a Social Group of the Deaf

Read from the bottom up this chart shows the lines of social divergence from birth through adulthood.

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The Normal                    The
Hearing                       Deaf

                              Group Membership in Adult Life
                                 In-group identifications fully established;
        Legal status of          memberships in formal and informal groups of
        the deaf                  deaf persons.

                              Marriage
                                 Most marriages with other deaf persons.

                              Social Class, Occupation and Income
        Public Opinion            Low socio-economic position; relatively low income.
        regarding the deaf
                              Level of Education
                                 Most deaf persons not educated beyond grammar school;
        Social Role              few obtain high school education or equivalent; a
        Aspects:                 select minority attend college.
         Minority Status
                              Language
                                 Language of signs and manual alphabet serves to dis-
                                 tinguish the deaf from the hearing and to strengthen
                                 the feeling of identity with the deaf as a group.

                              Special Education
                                 Education in institutions separate from the hearing from
                                 age 5 and 6 begins the development of strong in-group
                                 identity with the deaf.  The focus of education is often
                                 different, and there is differential academic achievement
                                 as compared to the hearing.

                              Play Group
                                 Lack of normal association with peer-group.  Deaf child
                                 spends much time developing solitary interests.

                              Basic Communication Limitation
                                 (a) Lack of communication with other children in early play
                                     behavior.
                                 (b) Lack of speech and non-establishment of basic verbal commu-
                                     nication patterns within the family group.  Limitation of
                                     interpersonal interaction; no group-shared verbal symbols.
                                 (c) Lack of hearing of basic sounds; the mother's voice, etc.;
                                     problems of recognition and perception.

        Socio-Economic Status of Parents

        Birth
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A. S. Lunde

'The relation of the deaf child to his family has not been entirely investigated. It is generally understood that many parents do not learn of their child's deafness until the child is two or three years of age. Patterns of reaction ranging from rejection to over solicitous behavior have been observed. The role of the parent in the life of the deaf child, the effect of parental rejection or overprotection, the relation of the deaf child to the other members of the family (i.e. sibling relationship) . . . indeed the total family environment of the child during the first six years of life have not been adequately investigated.

'The social isolation of the deaf child may be interested in the play group experience. While few studies are available in this area it is obvious that lack of verbal communication must be a retarding factor operating to limit interpersonal experience in peer-group relationships. Brunschwig (1936) found, for example, that deaf children had a smaller number of playmates at any one time than hearing children and they engaged more frequently in solitary activities.

'The typical deaf child next enters the school for the deaf. In 1955 there were 23,033 children being taught in educational institutions for the deaf in the United States (Annals, January 1956). Of these, 66.3 per cent were full-time residential children and 33.7 per cent were day-school or day-class children. With respect to social isolation some preliminary studies have indicated that the institutional experience may further remove the child from contact with the hearing world as compared to the day school, from which the child returns daily to the normal environment of home and community associations. Some data tend to support the hypothesis that the residential school experience retards social development (Streng & Kirk, 1938; Burchard & Myklebust, 1942; Avery, 1948). Burchard and Myklebust found that the longer the period of residence in a residential school the lower the social maturity quotients on standard tests (p. 241-50). There is not sufficient evidence to warrant any conclusions concerning the effect of attending a school for the deaf; if there are negative aspects, there are also positive aspects, which should also be investigated.

'The curricular programs in schools for the deaf vary and progress for each student is individualized to a considerable extent. The burden of teaching basic communication, speechreading, reading and writing, takes precedence over course work as such. The omission of sign language is significant. (Neither Dr. Lunde nor the writer knows of any school where instruction in sign language itself is part of language itself is part of the curriculum.) The deaf child, already retarded in communication ability, now is further limited in academic development. Thus the system of education as well as the institutionalization itself plays a role in comparative retardation, the deaf child being trained academically at a pace much slower than the hearing child. This further widens the gap between the hearing and the deaf, taken as groups.

'The education of the deaf is further restricted by the fact that there are only twelve accredited high schools for the deaf in the United States (Annals, January 1956). The majority of the deaf do not obtain a high-school education or its equivalent. This places them as a group on the lower levels of educational achievement, another factor in group segregation and which affects their chances for higher education and better employment opportunities.

'It is at the school for the deaf that most deaf children meet other children like themselves for the first time and enter into peer-group associations without the restrictions the special handicap imposed in their relation with hearing groups. They begin to develop feelings of identity with the deaf group and to acquire the group attitudes which tend to set them apart. Preliminary studies at Gallaudet College reveal that the deaf institutional adults recalls his first days at the school for the deaf in three categories:--first, his misery at begin taken away from home and family, second, his

fear of the institution itself (his perception of it as a "hospital" or "nut-house"), and third, his amazement and pleasure at finding other deaf girls and boys like himself. Homesickness and fear disappear as he becomes a member of the newly-discovered in-group.

'It is also here that many acquire for the first time a new means of visual communication, the language of signs, which becomes not only a special language of a sub-cultural group but serves as a means of identifying the deaf from the hearing. Although oral schools emphasize speechreading and speech, the plain fact is that the deaf as a group use the sign language among themselves. According to best, 78.2 per cent of the deaf used sign language and only 1.0 per cent used speech alone (Best, 1943, p. 203).

'In 1955, 78.6 per cent of the schools for the deaf taught by means of the oral method, only 5.1 per cent taught by the non-oral method and 14.3 percent by the combined method. However, only 19 per cent of the public schools and 24 per cent of the private schools reported restrictions upon the use of communication methods outside of the classroom which can only mean that the sign language was permitted in most of the schools using oral teaching methods (Annals, January 1956). A study of the sign language, how it is acquired and transmitted, the significance of its content, and so on, would throw considerable light upon the entire process of communication as well as indicate the thought-process of the deaf.

'Most deaf persons leave school at the end of the grammar school period, but an almost equal number leave before they have completed the work. In today's competitive market this means that they bear an additional handicap besides deafness itself; lack of schooling is one reason why the deaf are largely found in the lower-paid occupations. The deaf may therefore most frequently be found in the lower socio-economic classes, considering the prevalence of deafness among children of the lower classes and the occupational categories they largely fill in adulthood (U.S. Office of Education, 1936).

'After the school years the deaf person tends to continue his group association with other deaf persons throughout life, through alumni associations, state societies of the deaf, religious and welfare organizations, churches for the deaf and various fraternal orders. The deaf have organized their own newspaper and magazines, and they have established their own homes for the aged deaf. The extent of membership in formal organizations is not known, but it is known that the deaf will go to considerable extremes to seek each other out, that they prefer the company of the deaf to that of the hearing and feel more at ease with other deaf persons (Pinter, Fusfeld, & Brunschwig, 1937). Among the adult deaf, in-group feelings are strong and group loyalty is intense. The extent to which group solidarity might be expressed was indicated in the movement in the nineteenth century to establish a deaf-mute Utopia in the West; Congress was petitioned to set aside a state or territory for deaf-mutes only (Annals, 1858).

'Marriage patterns also indicate the tendency for the deaf to associate with each other. In the only extensive study of the marriage of the deaf, published in 1898, Fay found that 85.6 per cent of the married deaf had married other deaf persons. One preliminary study of attitudes of deaf college students shows that only 5 per cent would prefer to date a hearing person rather than a deaf person, and about the same proportion would prefer to marry a hearing person. About 65 per cent have already made up their minds to marry a deaf person.

'Among the other factors enforcing the social isolation of the deaf from the hearing world is public opinion, as expressed in the attitudes of the hearing majority. These appear to be similar to the fear and hostility patterns which appear in other dominant-minority relations; there is the

Sign Language Structure *Stokoe, Jr.*

assumption of the inferiority of the deaf and the stereotype of the deaf as "dumb". There seems to be less public sympathy for the deaf apparently because of the ignorance of the gravity of the handicap and because of its invisibility. The Social Science Research Council reported that the deaf were held more in contempt than the blind, the crippled, and the aged (Baker et al., 1953). The public is simply not aware that deafness may be the most severe, socially, of all handicaps.

'Thus the deaf, first isolated from normal social relations by the fact of physical handicap become segregated as a group through the operation of institutional patterns in the general culture. Admittedly little is known concerning the social condition of the deaf; few sociologists have been interested in the problems presented. The majority of research studies on the deaf have been made by psychologists who have often reported contradictory findings with respect to the intelligence and achievements of the deaf (Meyerson, 1955). Much of the confusion in these and other areas seems to result from a lack of attention to the social factors or variables involved in personality development and to a lack of recognition of the formation of a deaf sub-cultural group.

'The most recent experimental studies seem to indicate that the average deaf person is of normal intelligence (Hiskey, 1956). The so-called differences between the deaf and the hearing are largely the result of differential social experience (Getz, 1953).

'There is much to be explored in this entire area. Sociological research in this undeveloped field can contribute much to the understanding both of the individual problems of the deaf and of the social problems associated with acoustical impairment.'

0.21. The simplest representation of possible communication behavior of American deaf persons would be a line with these extremes: at one end of completely normal American English exchange, the 'listener' with perfect lipreading ability receiving all that the speaker with perfect articulation is saying. At the opposite end would be a completely visual exchange, the 'speaker' and the 'hearer' using only a system of gestures, facial expressions, and manual configurations as symbols. Of course, neither end is reached in actuality. Although a very few individuals can attain high proficiency at lipreading, or speech-reading, under perfect conditions, and many develop excellent speech, most deaf persons reserve this mode for contact with hearing persons. The purely visual communication with no admixture of English is rare, though it may be that the less formal education he has the nearer the individual's communication would approach the purely visual.

But here the linear representation breaks down. Besides these first two modes of communication, digital symbolization of the orthography of English is also available to the deaf. Therefore the non-oral communication of the typical American deaf person may be anything from 'pure' English printed on the air, so to speak, to sign language with or without an admixture of English words or word-derived symbols. But again, the actually observed communication is a combination in all degrees of these two with or without vocal, whispered, or silent articulation as supplement or accompaniment.

In other parts of the English-speaking world there are other ways that the manual alphabets and the signs are combined. In American sign language, as aforesaid, English words manually spelled are often treated just as if they were signs in a stretch of utterance, and some signs (fewer than one would expect) are made by a hand configuration which recalls the initial of an English word that is a translation of the sign. But here too there is regional and individual difference: the magazine of the National Association of the Deaf in a series of illustrated short articles has been advocating a greater use of the initial-sign correspondences (The silent worker). In England a quite

different manual alphabet is in use; one which requires both hands to form the letters, and thus one not so easily combined with signs.

However, the American sign language, ultimately deriving from the French, has been extended to a larger population more widely dispersed. It therefore has had a quite different development, not the least important factor of which is its relationship to 'complete' manual spelling, speech, and lipreading.

Total communication behavior is what we would seek to know, but analysis and synthesis are necessary and the present study is directed toward discovering the structure not of the whole communicative complex but of the sign language. The sign language, as the term is understood in this study, requires only a small, though radical, change in the definition of language given by Trager in his 'Paralanguage' (SIL, 1958): 'it is the cultural system which employs certain of (the visible actions of the face and hands,) combines them into recurrent sequences, and arranges these sequences into systematic distribution in relation to each other and in reference to other cultural systems' (p. 3).

The body of the paper will deal first with observed behavior corresponding with phonetic behavior in spoken languages. Then will follow the analysis of this behavior, and the analysis of the structure corresponding with the phonemic level. Next the morpheme list will be considered, then morphemic structure, and an account of the procedures now in use and contemplated for the analysis of the morphology and syntax.

Chereme, i.e. /kériym/, and allocher are proposed as names for the concepts corresponding with phoneme and allophone (The combining form, cher-, 'handy', as old as Homeric Greek has been preferred to the learned chir- or cheir-). Other terms useful or necessary to avoid confusion or false analogy will be introduced at appropriate parts of the discussion. It seems well to take sign as equivalent to word when the frame of reference is the sign language, or signs. The precise relation of sign to morpheme will be considered in the appropriate section below.

As the invention of a symbol system for the transcription of the sign language has had to go hand with the analysis of its structure, the symbology as well as nomenclature will be presented gradatim with the analysis. For convenient reference a summary of the symbols appears in an appendix.

0.3. The writer, after much consideration of the matter, has chosen to present this study over his name alone; but much of the work at all stages since the beginning has been done by two research assistants who might as easily be named co-authors. Carl Gustaf Croneberg and Dorothy Chiyoko Sueoka have analyzed and transcribed data, discussed the determination of the cheremes, and contributed ideas as well as time to the study to the point where it is difficult to determine authorship. In the detailed discussion of the data, however, the sign or notation when necessary will be identified by initials (CGC, DCS, WS).

The analysis and conclusions here presented are based on two kinds of observation of signs, extensive: for us all, contact with students, faculty, and visitors of Gallaudet College from every state, Canada, and eight or ten other nations; for CGC several years in a school for the deaf in Sweden and travel in Europe and nine years at Gallaudet as student and teacher; for DCS school for the deaf and several years work with deaf associates in Hawaii as well as four years of graduate and undergraduate work at Gallaudet; for WCS brief formal instruction followed by four years of teaching and research at Gallaudet College;--and intensive: for all of us repeated study of some

five thousand feet at normal and reduced speed of motion pictures of the signing of fourteen deaf and two hearing informants.

While no systematic attempt has been made so far to identify and classify dialects and idiolects of sign language there is clear indication that such divisions are real. We believe that the analysis to be presented is valid so far as it goes for all the sign language idiolects we have observed, but more, that it and the notational system developed with it can be used to describe gestural languages other than the sign language of the American deaf. The present study is offered as a fairly complete statement of the first level of structure of the language.

The morphology and semology, especially the syntax, of this sign language and its dialect structure are presently (February 1960) being studied by the writer and his associates under a two-year grant from the National Science Foundation. Future plans include historical studies and comparisons with sign languages of other cultures.

Fig. 1
The AMERICAN
MANUAL ALPHABET

Sign Language Structure   *Stokoe, Jr.*
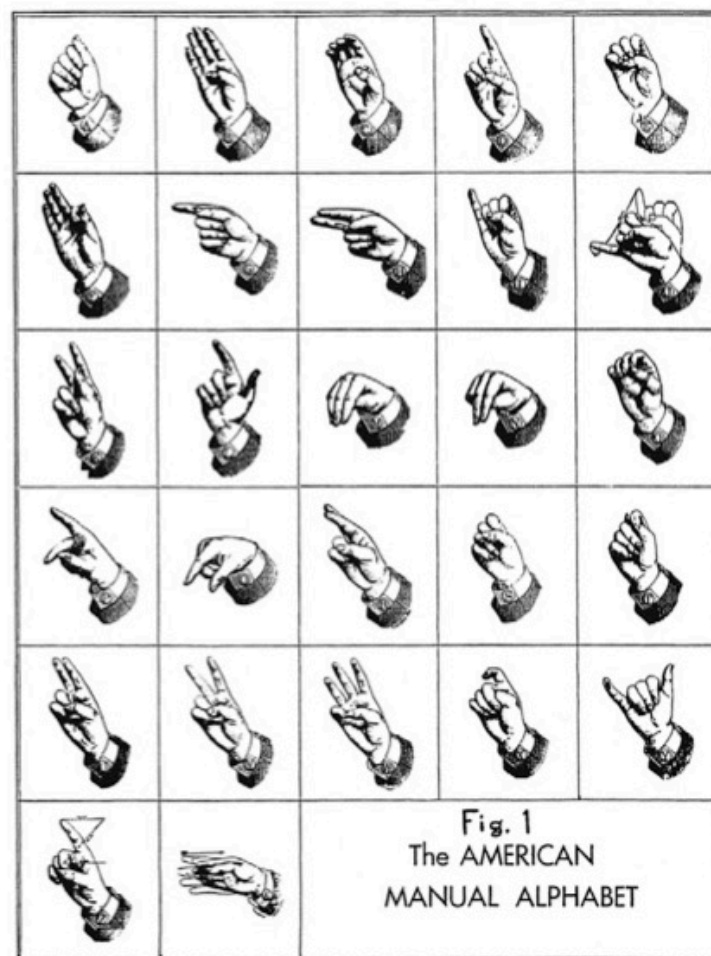
1. Cherology[2]

1.0. Sign language utterances contain both signs and finger-spelled English words in varying proportions, but structural differences make it possible to separate the two. And for the purposes of <u>cherology</u> (the sign language analogue of phonology) the two must be kept separate. The units of the syntactical system are morphemes, but morphemes of two completely different systems of structure. The finger-spelled English word is a series of digital symbols which stand in a one to one relationship with the letters of the English alphabet, but the word itself is a morpheme or combination of morphemes constructed from English language sounds on principles systematically described by the phonemics and morphophonemics of English. Though the deaf person may never have heard a sound, such is the power of symbolics and the adaptability of the human mind, he may still have acquired the ability to use the written or fingerspelled word with as much symbolic force as any speaker of English can achieve. The sign, on the contrary, is a unit of the sign language, constructed, as are all morphemes from the isolates of its own language system by principles that it will be the purpose of this part of the paper to explain.

To the signer these two kinds of morphemes may, out of awareness, be treated as equivalent because they are freely interchangeable in his utterance; but as soon as their structure is examined, the visually presented English word and the sign are discovered to differ radically. The statement, 'Yes; I know him' remains the same whether each of the four words in it is signed or fingerspelled. Thus without any change in the word order there are sixteen different ways of signing it. 'Know', for instance, is spelled by making with the fingers of the hand, successively, the configurations for <u>k</u>, <u>n</u>, <u>o</u>, and <u>w</u>; but 'know' is signed by touching the tips of the fingers of the slightly bent hand to the forehead. It is signed thus in isolation, that is, much as <u>know</u> is said /³nów¹#/ in isolation; but in sign language utterance 'know' may get only a slight movement upward of the bent hand.

The greatest communicative difference between these two structurally different kinds of morphemes available to the user of the sign language is seen in this possibility of variation within a pattern. Finger-spelling is telegraphic in several senses of the word, but the signed 'know' may have modifications which can vary the meaning of the sentence from 'Yes, I am acquainted with him'; to 'Oh, sure; it's only what I expected of him'; to give but two possibilities. The completely finger-spelled sentence has only the signer's facial expression to differentiate it from the same thing written on paper; it is at one more remove from language itself than writing and thus is a territory symbol system, not itself a sign language. There are no clear indications that the sign language of the American Indiana transcends this kind of relationship. But the structure of the sign, in the sign language of the deaf, permits considerable linguistic latitude, because the sign itself is not an isolate but a structure of elements which themselves admit of linguistic variation.

1.1. The twenty-six letters of the English alphabet are represented in finger-spelling by nineteen distinct configurations. Different attitudes of three of these configurations add five more letter symbols; and motion of two of the configurations give the last two. Thus there are three modes of symbolizing within the American manual alphabet. The letters <u>a</u>, <u>b</u>, <u>c</u>, <u>e</u>, <u>f</u>, <u>i</u>, <u>l</u>, <u>m</u>, <u>o</u>, <u>r</u>, <u>s</u>, <u>t</u>, <u>v</u>, <u>w</u>, <u>x</u>, and y are represented by unique configurations of the hand. The letters <u>d</u>, <u>g</u>, and <u>q</u> share one configuration variously oriented; as do another triplet, <u>h</u>, <u>u</u>, and <u>n</u>; and a pair, <u>k</u> and <u>p</u>. Two

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letters are symbolized by configuration plus motion. The i-hand draws a j in the air so symbolize j; and the index finger (d and g) draws the z. Fig. 1 shows these symbols and configurations.

Except for j and z the symbolization of letters is by static show of configuration. Motion is non-significant and is limited to that needed to change attitude and configuration. But this is true only for the alphabet considered as a set of symbols mutually contrasting. In use for spelling, one hand symbol may need to contrast with itself as is the case when a doubled letter occurs. There are three ways of signaling this occurrence, their choice structurally determined. With j and z doubling is simply a matter of making the necessary movement twice. Configurations which require an opposition of thumb and fingers, or a grip, are doubled by opening or relaxing the fingers and repeating the configuration. Other configurations are moved to the side with a slight shake to show double occurrence.

Word endings are marked by holding the terminal letter an almost imperceptibly longer time than the others. Word beginnings may be marked by a displacement of the hand from a previous position. These observations, however, approach the region of individual preference and style and should be so considered.

Here is a tabular summary of the contrastive system of the American manual alphabet:

Contrast by configuration,

normal attitude:	a b c d e f i k l m o r s t u v w x y				
and inverted attitude:	q	p		n	
and horizontal attitude:	g			h	
and motion:	z	j			

A great deal of the contrastive load is put on the differences of configuration so that the other two resources of the system, attitude and motion, are very slightly used. So slight are some of the differentiating features that the system is less effective for communication over distance, to large groups of viewers, and in poor light than for tête-á-tête use. Nevertheless it is workable, useful, almost indispensable, and in heavy use by the deaf; and what is more it is an excellent means of communicating with the deaf-blind. The writer, introduced to a deaf-blind man after two or three years experience with using the manual alphabet with deaf persons found that a conversation was not only possible but also amazingly rapid and easy. The deaf-blind person reads the alphabet by holding his hand lightly against the front or back of the speller's hand. The relatively small use of motion and attitude change is an advantage under these conditions by reception.

The nature of finger-spelling, evanescent though the symbols are, is that of a graphemic system. And as any grapheme may have allographic forms, so the configurations of the manual alphabet actually observed in use show variations. For example, the pictured e of the manual alphabet has all four fingernails touching the edge of the thumb, but frequently seen is an allograph in which only the first two fingers meet the thumb, the others being tightly folded into the palm. Other allographic differences are the result not only of individual preference but also of the conformation, flexibility, and muscle tons of the signer's fingers. A difference between the appearance of men's and women's formation and articulation of the 'letters' is noticed even by observers who are not familiar with the system, and this difference, it may be noted, runs through

all sign language activity. Subjectively at least, it is a difference as great as that of timbre and pitch of men's and women's voices.

      1.11. Closely related to the manual alphabet is the system of digital numeration used by the deaf. There is less uniformity in finger numbering than in finger-spelling; but a similar combination of configuration, attitude and motion is characteristic of both. The first five cardinal numerals are often but not invariably made with the palm of the hand toward the signer, while the six through nine configurations are often done with the back of the hand toward the signer. Ten is made by slightly shaking or jerking the flat with thumb uppermost. The system is strictly decimal, the tens symbol being repeated, in full form or vestigally, through the second decade. Eleven through fifteen and sixteen through nineteen may show the same reversal of attitude as the first and second group of digits. Multiple digit numbers are signed by shaking the hand slightly forward at successive points on a line from left to right in front of the signer.

      In the following table, prepared by CGC and DCS shows many of the features of the numeral system.

Table of Numeration

Number	Configuration (Fingers: tb, 1, 2, 3, 4)	Attitude	Motion
0	o of manual alphabet	edge of palm toward viewer	none
1	1 upraised	palm usually toward signer;	"
2	1, 2 upraised	this is the case with 1-19,	"
3	tb, 1, 2 upraised	except that, for emphasis or	"
4	1, 2, 3, 4 upraised	visibility, 6-9 and 16-19 may	"
5	tb, 1, 2, 3, 4 upraised	be signed with palm toward	"
6	tb, 4 tip contact; 3, 2, 1 upraised, slightly relaxed	"	"
7	tb, 3 tip contact; 4, 2, 1 upraised	"	"
8	tb, 2 tip contact; 4, 3, 1 upraised	"	"
9	tb, 1 tip contact; 4, 3, 2 upraised	"	"
10	tb upraised from fist a*	back of thumb to signer	shake or twist to right
11	fist s, (1)** [see Motion]	palm usually toward signer	(1) snaps up from under thumb
12	fist s, (2) "	"	(2) snaps up from under thumb
13	fist s, (3) "	"	(3) snaps or opens from fist
	[DCS: (3) upraised		nod 1, 2 together]
14	fist a or s, (4) "	"	(4) snaps or opens from fist
	[DCS: (4) upraised		nod (4), tb in palm]

15	fist <u>a</u> or <u>s</u>, (5)	"	(5) snaps or opens from fist
16-19	[DCS: (5) upraised <u>a</u>, appropriate unit digit	"	nod (4), tb upraised] <u>a</u> changes rapidly into appropriate digit unit
20	relaxed <u>L</u>, closed <u>L</u>	palm toward viewer; this is usually the case from 20 -99	<u>L</u> closes to pinch; may move slightly to right
21, 23-29	<u>L</u> and unit digit	"	<u>L</u> into unit digit; may move slightly to right
30	(3), closed (3)	"	(3) closes; may move slightly to right
22, 31-99	(first digit), (second digit)	"	(first digit) into (second digit); may move slightly to right
100	(1), <u>c</u>	edge of palm toward viewer	(1) into <u>c</u>
1000	palm of left hand; (1), <u>m</u> on right hand	left palm held out; palm of right hand toward signer	(1); then <u>m</u> tips touch palm of left hand
1,000,000	as above	as above	as above, then repeat <u>m</u> touch farther from wrist

   *'Fist a' and 'fist s' refer to configurations of the manual alphabet; see Fig. 1.
  **Figures in parentheses refer to configurations already described above.

   Approximations by decades: The equivalents of the English 'forties, in his 'thirties', 'doing seventy', are signed by shaking the configuration for the decade (30 through 90) in small arcs from the wrist. A facial expression accompanying such signs also helps to indicate that the number is approximate.

   For numbers over one hundred, use digits and signs in the order corresponding to the number. Example: 257,100 is signed: (2) (hundred) (57) (thousand) (1) (hundred). There is no standard rule for signing long numbers; the requirements for clarity will dictate the practice. Where long numbers are not separated into groups, the common practice would be to 'read' off the number, registration numbers, etc., may be read off as above, or may be separated into groups by the signer, without signs for hundred, thousand, etc., as is the usual case with years: 1959 is signed (19) (59).

ORDINALS:
   The sign language employs as visible ordinal system only a limited group of numbers (1-9 or 10): The fingers in configuration desired, tips toward viewer, make slight, repeated twisting motions. There is also a second system, used to indicate position on a chart or list, such as a chart of baseball league standings: with fingers in configuration, palm toward signer, finger tips pointing left, the hand moves to the right.

   For higher ordinals, these two systems are not used, probably because the movements in these systems, if added to the movements that are elements of all numerals containing more than one digit, would produce awkward combinations. Instead, the ordinal is understood by context or indicated by the addition of a finger-spelled 'th'; spelling for the three lowest ordinals, 'at', 'nd', and 'rd', however, are rarely seen.

Sign Language Structure   *Stokoe, Jr.*

FRACTIONS:

    Simply sign the numerator as shown in the table of numerals, then sign the denominator below the place where the numerator was signed. For decimal fractions, first indicate decimal point by pecking forward with a closed x̲ hand, then sign the numerals sequentially to the right.

MONEY:

    While there is a sign for 'dollar' in the language, it is often omitted, one to nine dollars being signed by the configuration for the number desired moving quickly from prone to supine position. 'Cents' is spelled manually, with few exceptions. (1), (2), (3), (4), (5), (10), and (25) cents (and the synonyms for the latter three values: nickel, dime, and quarter) are signed by first touching the right part of the forehead with g̲, palm toward the signer, and then signing the numeral in front of the forehead while the hand maintains the same attitude. One to five cents can also be signed with the fingers already forming the configuration when the thumb tip of manual g̲ touches the forehead.

    The statement of the formation of the ordinals is not exhaustive. The following table of equivalents of the English ordinal and adjective second will show something of the possibilities:

Washington was <u>second</u> in the league.	Fingers 1, 2 in a horizontal 'V' are drawn from left to right a short distance.
What's my grade on the <u>second</u> test.	Fingers 1, 2 in a vertical 'V', the hand makes a quick twist or flick in supination.
First the bell rang; <u>second</u> the door opened; and then the lights were out.	Thumb, finger 1 upraised from fist, thumb vertical, the index of other hand touches Finger 1.

    The English verb <u>second</u> in a parliamentary context is signed by moving forward the upright forearm, thumb and first finger upraised from the fist. This sign has an interesting antonym: the same configuration swung back (even until the thumb touches the signer's chest or shoulder in some instances) signifies 'I'm next'; or 'I want to follow you'.

    Manual spelling and numeration as shown operate in part by static presentation of visibly different configurations, in part by motion. In general the static mode of manual symbolizing seems to be used with symbols themselves fairly well fixed, as letters and numerals are; while the symbolization of relationships, such as the ideas expressed by <u>second</u>, tends to find expression in motion.

    1.2. In sign language proper the signs always have a component of motion. In fact the structure of signs is identical with that of the two exceptional letters of the manual alphabet j̲ and z̲. The nature of the symbolizations, however, is radically different. The essential features of z̲ are that the hand having a certain configuration, in a certain place, makes a certain motion. In the context of other alphabetical symbols this action will symbolize simply the letter 'z'. But when the same configuration, in the same position, is moved in a very slightly different way, the context being <u>signs</u>, the action symbolizes not a letter but the idea expressed in English by the word <u>where</u>.

    The sign clearly is, as the morpheme, the smallest unit of the language to which meaning attaches. That is, as the foregoing example shows, the significance resides, not in the configuration, the position, or the movement but in the unique combination of all three. The sign-morpheme, however, unlike the word, is seen to be not sequentially but simultaneously produced. Analysis of the sign cannot be segmented in time order but must be aspectual. The aspects of the sign which

appear to have the same order of priority and importance as the segmental phonemes of speech are the aspects of configuration, position or location, and motion.

Other features of sign language appear to operate with these basic aspects in some such way as do pitch, stress, and juncture with the segmental phonemes. One such feature is facial expression already noted above. It seems likely that behavior of the kind classified as <u>kinesic</u> when it accompanies speech (Trager, 1958), may have a more central function in a visual language. That is, the same activity which is kinesic with respect to American English may actually be suprasegmental, or <u>metaspectual</u>, in sign language. But analysis of these features presents many difficulties, and if the assumption of the writer and his research associates is correct, this analysis will be much more feasible after the analysis of the basic aspects.

Like consonant and vowel, the aspects position, configuration, and motion may only be described in terms of contrast with each other. Position may be signaled by proximity of the moving configuration to a part of the signer's body: a fist moved at the chin, the forehead, and the chest, makes not one, but three distinct sign--'ice cream'; 'Sweden'; 'sorry'. But when the marker is the non-moving hand, position is signaled by configuration of that hand: for example, let the configuration of the moving hand be the index extended, the motion be brushing down or out across the tips of the fingers of the non-moving hand; if the non-moving, position-marking hand has all fingers outstretched one sign is made, 'what'; but if only the little finger is held out, a quite different sign is made, 'last' (for some signers). Configuration is here a feature of both the moving and the marking hand, but it is serving configurationally for the one and positionally for the other.

Similarly the aspect of motion may be observed to be sometimes a change in configuration without movement in space. But a change in configuration will still be motion as determined by the language, because it has the same function structurally as movement through space.

1.21. The aspects of the structure of the sign need more convenient terms than position, configuration, and motion; and it will be as well to avoid the suggestion of mutual exclusiveness these words have in their ordinary uses. <u>Tabula,</u> <u>designator,</u> and <u>signation</u> may be easily shortened to <u>tab</u>, <u>dez</u>, and <u>sig</u>, and we may define them thus:

A <u>tab</u> is that aspect of the unanalyzed visual complex called the sign which by proximity to a part of the signer's body, by position in space, or by configuration of the non-moving hand signals position as contrasted with <u>dez</u> and <u>sig</u>.

A <u>dez</u> is the configuration of the hand or hands which make a <u>sig</u> in a <u>tab</u>.

A <u>sig</u> is the movement or change in configuration of the <u>dez</u> in an otherwise signaled <u>tab</u>.

1.22. This order: tab, dez, sig, is used throughout this paper. Although it corresponds to no certain time sequence in the occurrence of sign language phenomena, the order adopted permits some nice economics of notation. Like the hundreds, tens, units of decimal numeration, the tab, dez, and sign places permit the same symbol to have more than one denotation. Many of the configurations of the tab hand are identical with those of the dez hand. A three place notation permits the same symbol to be used to stand for either aspect with immediate distinctness. Sig symbols likewise have a different value in tab or dez place. One sign, for example, is the motion of turning the dez in pronation. If a tab or dez differs from another only by the attitude of the hand, a subscript (in this case the symbol for pronation) to the tab or dez symbol will indicate that the configuration is thus presented.

1.3. A number of signs are marked positionally by contact with or proximity to a precise point on the signer's body. Forehead, temple, cheek, ear, eyebrow, eyes, nose, lips, teeth, chin, and

neck may be touched, pinched, brushed, struck, or approached by the dez in the making of signs. However, examination of many pairs of signs for minimal contrast indicates that some of these markers are but allochers in complimentary distribution. For example, the forefinger of the dez hand can easily brush the tip of the nose in passing across the front of the face, but when the sig is motion outward from the same region, particularly when the dez is such that the sign is interpreted as 'see', the signer and viewer tend to think of the marker as the eyes. Since no significance attaches to a contrast solely between nose and eyes as tab, these are analyzed as allochers of the tab <u>mid-face</u>. Their selection is determined by dez and sig.

Similar consideration of all the signs observed leads to the isolation of six tabs above the shoulders. The six with the writer's symbols: the whole face or head ◠, the upper face or brow ⌒, mid-face ⊔, lower face ◡, cheek or side face ⸮, and neck ⲧⲧ.

The signer's trunk also figures as a tab, but large as this part of the body is relative to the face, it is not divided into smaller regions contrastively, that is cheremically. One or both hands as dez may touch the top of one shoulder with the fingerstips (to make the sign 'responsible' or 'responsibility'). Yet both hands may be placed on the hips (suggesting the kazatsky dancer's attitude and signifying 'Russia'). These two signs use the extreme upper and lower allocheric limits of the tab <u>trunk</u>, but the contrast is all in the dez and sig, and not even the whole distance separating the shoulders from the hips is significant. The trunk tab symbol is [ ].

The non-dez arm makes the tab for some signs. The upper arm is tab for 'hospital', 'Scotland', and the slang expression 'coke'. It's symbol is \ . The writer has observed signers occasionally making one or other of these signs as low as the muscle of the forearm, but always in casual, informal circumstances where a colloquial or relaxed manner of speech would be equally congruent.

The arm from the elbow outward is used in a different group of sign--that is, with dez or sign different from those of the signs made on the upper arm. And it is used in three contrasting ways, upraised, prone, or supine. The symbol for the upraised forearm, the elbow making an acute angle, is ✓. The symbols for the last two of these tabs are the same as those used for the movement of dez in pronation, ⱱ, or supination, ɑ. Again the aspect is all important. As tab, the symbol ɑ denotes the forearm presented supine; as sig the same symbol denotes that the dez is rotated in supination.

In all these arm tabs the hand is ignored by the language; it may be open or closed, tense or relaxed depending on the signer's habit of signing, his state of mind, or muscle tone. But there are other signs with tabs signaled by the hand opposite to the dez hand in which configuration is the only important consideration. As configurations, these tabs differ not at all from dez configurations. The different is in their use: when the hand having the configuration moves or changes, it is acting as dez; when it acts as point of origin or termination of motion or otherwise marks position, it is acting as tab. Any of the configurations used as a tab may also be used as a dez, but not all dez configurations are used as tabs.

1.40. When the visual aspect of 'position', that is the tab chereme, is marked neither by a precise anatomical point nor by difference in attitude, the sole determinant of position is the hand's configuration. As stated in 1.1 nineteen configurations are used to represent letters in the American manual alphabet. All of these and more might be used as structure points in sign language, but actually only sixteen configurations are used contrastively. However, the number of distinct

configurations (allochers) which may be observed is limited only by the criteria of difference the observer wishes to adopt.

The differentiating kind of analysis, analogous to phonetics, has never been attempted for sign language. But it is quite obvious that the phenomena of the language could be thus treated were there any need for doing so. The visible phenomena of sign language need be no more limited in variety than the phonetic phenomena of speech. The findings of clinical psychology would seem to indicate that the sense of sight could discriminate more differences than the sense of hearing. But the activity is language, not vision, and that economy noted in all cultural activity operates here. Moreover, for the sign language, analysis is only beginning, while vast amounts of data have been collected and extremely fine techniques of discrimination have been employed in phonetic analysis.

At this time an extensive description of the configurational data is not needed, for the operating principles of phonemic systems are well established. It is not the absolute value, the precise curvature or direction of a finger that determines the structure point, but the fact that each structure point is one of a set of such points treated as different from the others in the set by all users of the language.

The configurational structure points of the American sign language are parts of a primary symbol system which has linguistic structure and so are not equivalent to the configurations of the manual alphabet, a secondary graphemic system. Although both are made visually perceptible by the hand, their relationship has some features of the relationship of the phonemes of one language to the graphemes of the writing system of another language. If this non-congruence of configuration cheremes and alphabetic configurations is kept in mind, we may for convenience still make use of letter symbols to represent the cheremes of the sign language.

1.401. In the American manual alphabet a, s, and t are all represented by a fist, the thumb respectively lying alongside the closed fingers, clasping them, or thrusting between the index and second finger. It is apparent that conditions of visibility must be good for these differences of configuration to be distinguished. The sign language, however, never makes a significant contrast solely on these differences. Instead the contrast is between any fist-like hand and all other (non-fist-like) configurations. Hands looking like a, s, and t will be observed to pattern, however, in allocheric ways. For example the tab and sig of 'sorry' select an s-hand as the usual dez allocher; but the tab and sign of 'other' select the a-allocher; and some signers may use t-allocher in 'try'. The one symbol 'A' would suffice for the first chereme, but convenience of transcribing and reading suggests a closer notation here as in some other cases to indicate allochers in complementary distribution; therefore we label this chereme: A/S, using the S when the allocher of the fist-like chereme is closer to the s-hand of the manual alphabet. The symbol A_t may be used if it is desired to note the occurrence of the 't'- like allocher of the fist chereme.

1.402. The flat hand is the second chereme in our arbitrary ordering. It has allochers resembling the b-hand of the manual alphabet: the hand is a prolongation of the wrist or is slightly bent back to display the palm, the fingers together and parallel, and the thumb bent across the palm. The sign language hand may however appear more similar to the 4-hand of one system of manual numeration in conventional use: this is the same as b except that the four fingers are spread. It may be quite like the 5-hand, thumb and fingers spread tensely or loosely. And finally it may be combine b and 5 by keeping the fingers closed, but the thumb extended. This we label the B/5

chereme, using B for its close, and 5 for its spread forms; also B for dez when the sig requires palmar contact, 5 for dez when sign calls for thumb contact.

1.403. It will be disturbing at first for one familiar with the manual alphabet to see the c and o hands equated; but in signing, as distinguished from spelling, the recorded and observed data leaves no doubt that the sign language does not take the difference as cheremic. Both configurations make a curve, fingers joined and thumb opposed. Symbols: C, C# (#, 'close'; see 1.54).

The allocheric forms of this configuration chereme might be described as the shapes the hand would assume in grasping balls of different sizes. Picking up a grapefruit would require a 'c'-like configuration. A smaller diameter sphere would let thumb and fingers meet as in spelling o.

1.404. The E chereme is used in relatively few signs, and might perhaps be treated as a tense, retracted allocher 'C'. Its basic form is the tight closing of the fingers and thumb against the palm; in one form the nails of the aligned fingers rest on the edge of the first joint of the thumb, in another a space separates thumb and fingers, in still another the first two fingers rest on the thumb and the other two fingers are curled into the palm. It's use in such frequently occurring signs on the Gallaudet campus as 'Europe', 'street-car', 'emperor' and the 'name-sign' for President Leonard M. Elstad give it the status of a chereme at least in the Gallaudet College dialect of the American sign language.

1.405. The chereme: 'F' is clear-cut and easy of isolation, not because it shows any lack of variant forms, but because none of those resemble allochers of other cheremes. 'F' is characterized by the joining of thumb and index finger at the tips or by crossing the thumb over the bent index, with the other three fingers extended.

1.406. The pointed index, as would be expected, is frequently used as tab and dez. The forms of this chereme may be close to the manual alphabet's g, index projecting from the fist; or to its d, index raised, second finger and thumb touching at tips; or to its 1, thumb and index extended from the otherwise closed hand. The symbol adopted for this chereme is 'G', though occasionally in transcription 'D' may be used to show the allocher resembling the finger-spelled d.

1.407. The index and second fingers extended side by side and touching from the clasped hand also make a distinctive configuration which furnishes the manual alphabet three symbols u, n, and h; but here the difference in the two systems is immediately apparent. Variously presented, pointed up, down, and to the side, the alphabetic configuration is read as three different letter symbols. But sign language uses motion as well as configuration significantly, so that once the hand is moved, this three-way distinction is lost; the three different symbols become one dez, which has meaning only in association with a tab and sign used with it. The symbol 'H' is used for this chereme.

1.408. The little finger extended from the fist makes a configuration not easily mistaken for another, although when the thumb is lax or separated it may look like the manual alphabet y. This chereme, designated 'I', is used in many frequently occurring signs as dez and in a few as tab.

1.409. The configuration used for k in the manual alphabet actually resembles a Roman letter 'K' (when made on the left hand and viewed from the thumb side). The index finger forms the back, the second finger the upper limb and the thumb the lower. With the hand retracted in

pronation the letter p is represented by the same configuration in finger-spelling. As with the 'H' described above, the cheremic use of this configuration is quite unlike its alphabetic, and the symbol 'K' is used for its cheremic employment.

1.410. The 'L' chereme formed by making a right angle with thumb and index finger, the other fingers closed, may have forms appearing identical with some allochers of 'G'. However the dez and sign (when 'L' is tab) make clear the essential features of the 'L' are the angle between thumb and finger, or its digital duality, while the essence of 'G' is its pointing, or its singularity.

1.411. The bent hand chereme is essentially a dihedral angle at the knuckles. Made with three or four fingers, with thumb folded, across palm, along hand, or extended, this group of configurations clearly contrasts both with the flat hand, 'B', with the curved hand, 'C', and with the two joined fingers of 'H' in its bent allocher. The allochers of the bent hand are all more or less similar to the various individual forms of the manual alphabet m; hence the symbol, 'M'.

1.412. The crossing of the first two fingers is a distinction configuration permitting only the variations occasioned by the individual signer's bone and joint strictures. This is the r of the American manual alphabet (x in the Swedish system of finger-spelling, CGC) and since it serves as dez in only a few signs, and those obviously related to its alphabetic use (e.g. 'rule', 'reason', 'right', 'ready') it is likely to be a fairly recent addition to the dez list. The symbol for it is 'R'.

1.413. The v of the alphabet gives us the next configuration, which is the V-for-Victory made famous by Winston Churchill. But while the sign 'visit' is an obvious alphabetic coinage, unlike the 'R', this configuration, 'V', figures in a great many signs with no alphabetic origins. It might be thought to represent the eyes or light rays as the dez in 'read' or 'see'; its use seems quite arbitrary in 'mean', 'purpose', and 'misunderstand'; the intersection of the fingers of this configuration is the point of origin when it is tab in 'begin'; but its obvious duality is apparent in the dez of 'double' or 'twice'.

1.414. The distinctive feature of the chereme 'W' is the extended spread of first, second, and third fingers. There is some overlapping of allochers of this and the chereme 'B'. Whether to assign the configuration made by the four spread fingers, the thumb folded across the palm, to 'W' or 'B' is a problem however only when one is viewing the overall chereme system. The distribution in an informant's sign idiolect is easy enough to determine.

1.415. The bent forefinger raised hookwise from the fist is one of the allochers of the 'X' chereme. Another, frequently seen, is formed by bringing the tips of the index finger and thumb together so that the loop thus formed projects from the fist. These two appear to be in free variation. There is another allocher in complementary distribution. When the sig calls for a flicked or snapped opening of this dez it is formed by momentarily trapping the thumb nail under the bent forefinger.

1.416. The last of the manual cheremes is 'Y', most commonly seen as thumb and little finger projected oppositely from the fist, but the three fingers between may also be loosely held or even barely bent. A very different looking allocher of 'Y' is formed when the spread hand has the middle finger bent in from the knuckle. See 'morphocheremic change' below.

Two other formations are observed to be used as allochers of 'Y'. The first described 'Y', with the index also extended, is seen along with statistically more normal 'Y' as dez of 'airplane' and 'fly in an airplane'. And a configuration not in the American manual alphabet, though it is the h in Australian finger-spelling, appears in some signs. This is formed by keeping the index and little fingers upright from the hand while the other fingers and thumb close.

1.42. One most important tab remains to be considered. When no overt signal of position is made, when the sig does not require the dez to move toward or away from any specific body part, when the dez is in a neutral position in front of the signer's body, when the position is a natural or comfortable one for holding and moving that dez, then the tab is 'neutral' or 'zero'. The symbol used is ∅; but when the whole sign is written it is equally clear and easier to show this tab of a great many very frequently used signs by leaving the tab column blank.

1.5. The motional aspect of the sign would present a bewildering maze of movement were it not possible to apply to this visual system the clearly formulated methods of modern structural linguistics. Operating for each user of the language, in the midst of an almost infinite variety of movement, is the principle of significant contrast.

1.51. Circular motion, for example, may be large or small, may lie in any plane the signer's anatomical limitations permit, may be interrupted or complete; but none of these variations is called upon to carry the primary burden of significance. When a configuration of the non-dez had is tab, the dez circles it as center, the plane of that circle being vertical and perpendicular to the frontal plane of the signer's body. When the tab is zero or neutral, the circling movement is made in a plane convenient to the dez configuration. When the tab is some other part of the body, it serves as center for the circular sig. But these are aspects of a more or less simultaneous action, and it may be as illuminating to say that the center of the circle which the dez describes serves to locate the tab. The symbol for the circular movement sig is ☉.

1.52. Some of the other movements of sign language behavior can be reduced to motion essentially vertical, side to side, and to and from. The exactitude with which these approximate directions coincide with the coordinates of three dimensional space is immaterial. Polarity is important, and in some signs the opposite direction of sig motion is used to make a pair of antonyms: 'borrow' and 'lend' differ in sig only, the motion being respectively toward the signer and away. But both directions may combine in the sig of other signs, as in 'explain' where the dez moves to and fro.

Each of the three ways of using the sig requires a symbol:

"∧" up
"∨" down   ⎫ vertical sig
"~" up and down   ⎭

">" right
"<" left   ⎫ lateral sig
"⇌" right and left ⎭

"⊤" toward
"⊥" away   ⎫ to and fro sig
"⊥" to and fro   ⎭

1.53. A similar three-way use is characteristic of the rotation of the forearm. Supination is symbolized by ɑ, pronation by ʋ, and both, or 'twisting', by ω.
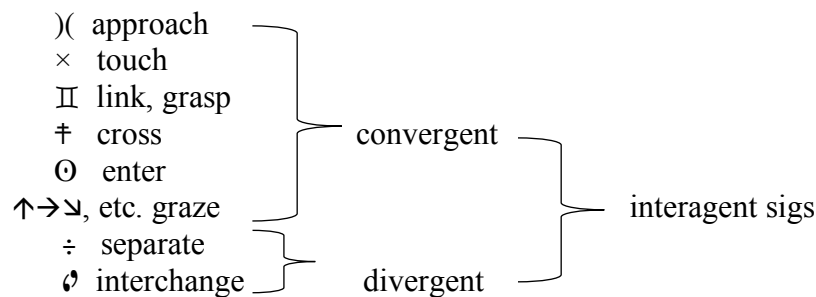
These twelve symbols, or four kinds of contrastive motion, with the circle, constitute the grosser sig movements, those made with elbow or shoulder as fulcrum.

1.54. Two smaller movements using the wrist as fulcrum are the nod or carpal motion, symbolized ŋ, and the open-close, or foral motion, in which the hand spreads or contracts changing configuration. Symbols: #, close; □, open.

A still smaller motion is digital, a wiggle of the fingers from the knuckles, which is symbolized ꭥ.

1.55. The sigs so far described are all motions of the dez seen as moving freely, the nature of its movement determined by the muscles and joints involved. A second class of sigs is characterized by interaction between dez and tab. This includes approach, touching, crossing, entrance, joining, and grazing, as well as action in some ways opposite: separation and interchange. These are symbolized as follows:

```
)(  approach ┐
 ×   touch    │
 Ⅱ  link, grasp│
 ╪   cross     ├─ convergent ┐
 ⊙   enter     │             ├─ interagent sigs
↑→↘, etc. graze┘             │
 ÷   separate ┐              │
 ↻   interchange ┘─ divergent ┘
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2. Morphocheremics

2.0. If every sign of this sign language were simply composed of a tab, a dez, and a sig, the morpheme list of the language could be simply determined by the formula:

no. of tabs X no. of dez X no. of sigs = no. of morphemes

But there are several different patterns of sign formation, not to mention compound signs and contractions; and the language in true linguistic fashion allows certain combinations of elements and not others. That is to say, the structure of morphemes in the system is not mathematical or mechanical but linguistic, and this level of organization truly constitutes the morphocheremics of the language.

2.1. When the tab is zero the dez is free to make any of the sigs except those of interaction with a tab. These signs cannot, however, be considered tab-less because every sig is defined as motion of some dez somewhere; and also by definition the 'somewhat', however signaled, is the tab. The zero tab is less precisely located than the others but it is still a place, that space in front of the signer's body, where the hand can freely and comfortably move.

2.2. The tabs signaled by parts of the body are more or less precisely located depending on whether the sig calls for contact by the dez or only motion in their vicinity (Some older informants and a 1911 motion picture of a sign language rendering of Lincoln's 'Gettysburg Address' indicate that body tabs were never actually touched in formal signing. CGC). With body tabs any dez may be used and the following single sigs: circle, approach, touch, and graze. Sig clusters are also found: circle followed by touch; touch and motion up, down, or away; touch and wiggle; and touch and circle (rubbing). There are even some triple clusters: touch, right and wiggle as in 'dream';

and touch, close, and up, 'because'. One or two apparent quadruple sig clusters are perhaps better analyzed as compound signs.

2.21. Another most important morphocherermic feature of the language may be an example of shift. The practice of some signers, particularly those taken as paragons of usage by many, is to make the tab clearly visible in such a sign as 'see'. Both by approaching the <u>mid-face</u> (really <u>eyes</u>) closely, and by pausing perceptibly between this indication of the tab and the outward motion of the sig these signers achieve a 'classical', 'formal', or 'pure' style of signing much admired but not always followed by a younger generation of sign users. The informal or colloquial style of these latter signers, however, sometimes seems to indicate a structural more than a stylistic change.

The writer would analyze the 'classical' sign for 'see' as mid-face tab, v-dez, and (particularly the platform articulation of the sign) approach sig, followed by outward movement sig: in symbols, ⊔ V$^{)(\perp}$. The much more frequently occurring, informal, or perhaps more recent, sign is composed of zero tab, v-dez, and outward sig: ∅V$^{\perp}$ or V$^{\perp}$. Apparently signs in very frequent use, sufficiently distinct in dez and sig from other signs, tend to shift from a body tab to zero tab. 'Know', to take another example, is formally, or in older signers' idiolects, upper face tab, flat hand dez, and touch sig: ∩B$^{\times}$; but a form often seen is flat hand dez, upward sign, in zero tab: B$_a$^.

2.3. With configuration of one hand as tab and the same or another configuration of the other hand as dez, the sigs are the interagent motions, or are clusters of sigs beginning with one of these, with separation, linear motion, or interchange as the terminal chereme.

2.4. At this point the aspects of the sign, tab, dez, and sig need to be more precisely defined. These aspects are but ways of looking at phenomena, which to its users is unitary. A sign is the basic unit of the language to the signer, just as the word is the basic unit to the naïve speaker. The original definitions of tab, dez, and sig permit such classifications of the structure of signs as the foregoing: but when two hands are in use, there may be difficulty in deciding whether one had is tab and the other dez or both hands are a double dez in zero tab. This area of doubt can be narrowed by a decision to call one hand the tab when its motion is negligible or minor compared to that of the other hand; and to call both a double dez when they move parallel, symmetrically, or oppositely. The tab-dez analysis seems more likely when the configurations of the hands differ. The double dez is indicated when both are the same; but as some signers make it, the sign 'show' is of the latter kind: the flat hand, B, and the index hand, G, meet directly in front of the breastbone and move forward together, the fingertip pressed into the other palm: BG$^{\times\perp}$. However, others hold up the B, palm outward, touch its palm with the other hand's G and press it forward. With respect to the touching sig the B is tab and G dez, but with respect to the outward sig the hands together become dez, pushing forward. This might be written cheremically: BG$^{\times(\perp)}$, with the parentheses to show that the hands in contact now act as dez performing the second sig.

The double dez, identically configured, in tab zero often requires another symbol, which though written in (second or third) sig place is a morphocheremc, not a cheremic symbol. This is the symbol, '~', for alternating movement of the hands of the double dez.

The F-hands held about six inches apart and moved downward, FF$^{\vee}$, make the sign which renders English 'decide' or 'decision'. The same double dez moved alternately up and down, FF$^{N\sim}$, makes the sign for 'if' or 'judge'; and again moved alternately to and fro, FF$^{\perp\sim}$, this double dez makes the sign translated 'explain'.

The double dez hands may operate first as if they were tab and dez with an interagent sig, then move. Such a sign is 'habit', the tab zero, dez (double) the fist, first sign cross, and second

sig downward, AA⁺ᵛ. Another example is 'slavery', AA⁺ᶻ. A sign similar in structure shows the use of another morphocheremic symbol, the dot, to indicate repetition of a sig or sigs. With the same double dez the sign 'work' repeats its sig so that the wrists touch twice, AA⁺. Some signers are careful to touch the insides of the wrists together. This formation of the sign would be written: AₐA⁺. It is not necessary to show that the second A is prone, as knuckles-upward is the normal way of holding the cheremic fist.

2.51. The common structuring of physical behavior of many kinds by the left-right opposition is completely superseded by the tab-dez and other contrasts of the sign language. Generally the right-handed person will use his right hand for dez, left for tab, when a hand tab is required; but he may reverse this at will. Fatigue, visibility determined by relative positions of signer and viewer or by direction of light source, and as yet undiscovered favors may occasion the right-handed person's use of left hand as dez. Since, however, there is no morphophonemic significance attached to right-handedness, some signers utilize the right-left opposition for rhetorical purposes. The allocation of right and left hand to two characters in a signed anecdote, for instance, may be most effective, not only for the separation which English pronouns cannot easily accomplish but also more graphically. One may imagine the right hand dez as one person of the story and its sig as his action. If the sign is 'hit' the left hand tab may be imagined momentarily to symbolize the other person as object, suffering the action; the action of the right fist in striking the left palm thus gains graphic physical force and effect in addition to its arbitrary linguistic denotation.

In the writing system employed in this study the dez symbol will be read as right hand, and the tab, if it is a configuration of the hand, as left. In transcribing signs as they are observed, a reversal of hands that seems important will be indicated thus: ЯØAᵃ. This would be 'other' made with the left hand, the first rotated in supination, but, because it is left-handed, the motion to the signer's left.

2.52. Just as body-tab signs in frequent use may become zero-tab signs, two handed or double dez signs in zero tab may become one-handed. Three such signs in very frequent use are examples of three different kinds: 'what?' is, made with a (left) hand tab; 'why?' with a body tab; and 'how?' in zero tab, with double dez. The formal or standard forms of these are written: BGˠ, ⌒Yˣ⊥, and MMˣᵃ. But in colloquial use they may appear thus: 'what?' Gᵃ (with the dot above the sig symbol to indicate a staccato movement); 'why?' Yᵛ or Yˣ (the 'wiggle' sig shows that the allocher of 'Y' is the one with which a wiggle is possible, the spread hand with one or more of the medial fingers bent inward); and 'how?' Mᵃ.

The one-handed form of signs of which 'how' and 'what' are representative examples may be selected for other reasons than those which determine whether a situation is formal or informal. One of the signer's hands may be occupied in a way that has nothing to do with the act of communication except that it will be apparent to both parties that two handed signing is impossible or inconvenient, and therefore allowance made. The signs used as examples above are questions, so that is may happen that the signer's other hand will be extended beyond the zero tab space even to the limits of interpersonal distance and there as an index be admonishing or fixing the person questioned, or by grasping a lapel, wrist, or arm be imploring or extorting; that is, one hand may be paralinguistically (to sign language) or kinetically used while the other makes the strictly linguistic symbol.

Again, the signer may have a rhetorical use for the non-signing hand. The left hand may hold a dez used in a sign for naming a person or object while the right hand alone 'says something' perhaps about what another person did to the first. Some of the signs in this recital will be one-handed anyway and some will have body tabs. In this context a sign or two which should have a hand tab or a double dez will be understood perfectly, though the left hand is still marking an element of previous discourse.

There is still another factor to be considered in the occurrence of one-handed signs which were formerly, or are formally, made with two hands. Economy of effort as a principle of language change will always be checked by need for ready intelligibility. As was noted above in connection with shift from body tab to zero tab, the dez and sig may be sufficient to distinguish a sign from others; but is quite possible that signers without being aware of doing so tend to drop some of the distinguishing features of a sign when its contexts alone, or syntactic distribution, would suffice or almost suffice to determine it. This is not simply the counterpart of the '*** **** **', said I' of Tristram Shandy although both are cases of visible symbols; but it has the features of the processes by which languages come to tolerate numbers of homonyms which formerly were distinct phonemically.

2.6. Although the typical signer, like a speaker of any language, may appear to be quite conservative about neologisms, there is evidence of rapid and widespread change in the two hundred years since the sign language was recognized, used in teaching, and partially recorded. The difference between the methodical signs in Sicard's Theroie (1808) and the signs now in use in the United States is large, but still apparently evolutionary. But even in the sign data observed in this study there is evidence of structural change. This is nowhere more apparent than in the language's treatment of signs which may be termed compounds and contractions.

The principle of the methodical or consciously invented sign, as noted in the Introduction is multiple signaling of structural and semantic information. A base sign for the lexical meaning would be followed by signals for designating the part of speech, number, gender, degree, etc. Detailed historical studies are so far only in the planning stage, but it seems reasonable to suppose that the methodical signs underwent considerable change as they moved from the text-book and the systematic course in French grammar into the colloquial language. There are many signs now in use which show this kind of origin and presumably many more not obviously so derived will be found to have some from the same source. A direct link between the French methodical signs and the signs used in the United States is the preservation in manuals by Long, Higgins, and others of traditional etymologies. In addition the American sign language has or had until recently a large toleration for compound or complex signs--which all the methodical signs had to be.

2.61. As described and illustrated in the manuals, 'brother' is signed 'man-same'; that is, the signer makes the sign for 'man' and immediately follows it with the sign for 'alike' or 'same': $\cap M^{\times\#\perp}/G_\perp G_\perp^\times$. 'Son' is signed, according to the same sources, as 'man-baby': $\cap M^{\times\#\perp}/aa^{\text{ш}z}$ (the supine arms are laid together and the mimed baby is rocked). 'Father' is 'man-generation before': $\cap M^{\times\#\perp}/B_a B_a^{\wedge<}$. 'Lady', according to the manuals, is 'woman-polite': $A^\downarrow/[~]5^\times$.

All these signs are true compounds in the terminology of this paper. Each one is not only treated syntactically as a single sign but is often accompanied in simultaneous utterance by speaking the single English word equivalent in meaning. Although each element of the compound is complete with tab, dez, and sig of its own, the elements form a syntactic and semantic unit. But these are 'classical' signs, their form defined, their etymology recorded, and their meaning

translated in one or more manuals. They are also to be observed still in use by some signers, particularly in lectures, sermons and prayers, or from chair and floor in formal meetings. In colloquial use they have changed. The first, 'brother', is least changed; the tab of the second element may appear in readiness even as the first element is signed. The others show more clearly the process of contraction. 'Son' becomes ⌒M$^{×\#ˇ_<^a}$; that is the right hand dez closes thumb to fingers at the brow and turns in supination as it descends. All this is done by the hand in a continuous, smooth motion; the supination and descent component of the motion are all that remain of the sign 'baby'.

The sign for 'father' is still more changed in contraction. The tab is still upper face, but the dez may be the spread hand, '5', or a loosely held fist, 'A', which opens to the '5'. The sigs then are touch and wiggle or touch and open: ⌒5$^{×ᵒ}$, or ⌒A$^{×□}$ (the point of contact in both cases being the thumb). This and an analogous contraction, 'mother', ⌣A$^{×□}$, or ⌣5$^{×ᵒ}$, in turn give a new (colloquial) compound, 'parents': ⌒A$^{×□}$/⌣A$^{×□}$.

Another contraction is the colloquial 'lady', which incidentally seems to have the same kind of distribution with 'woman' in class dialects, as do the two words in English. The sign for 'lady' as it is usually seen is written in our symbols: ⌣[ ]5$^{ˇ×}$; the thumb of the spread hand brushes the chin as it moves downward to touch the breastbone or collarbone. Here we have a different kind of sign from the other contractions. In 'son', colloquial, the sigs of the contraction combine parts of the sigs of both elements, while tab and dez remain those of the first element. In 'father' and 'mother' the dez is either from the second element, the spread hand, or from the first element of 'mother', the thumb-up 'A'. The tab comes from the first, although the chin, not the cheek is actually grazed in 'mother', and the sig is a new motion which suggests or combines in a way both original sigs. In 'lady', however, there are actually two tabs. While some signers may make the sign so as to miss grazing the chin with the thumb, the tab is still there for the user of the language; and this sign with its downward motion from the face region will still contrast with 'fine' or 'polite' in which the 5- dez moves directly, and often from below, to its point of contact on the breastbone. Whether the graze on the chin is real or apparent, the first tab is definitely signaled and ⌣[ ]5$^{ˇ×}$ or ⌣[ ]5$^{ˇ×}$ are correct transcriptions, not [ ]5$^{ˇ×}$.

2.62. Another example of compounding and contraction will illustrate the morphophonemic change the Y-dez may undergo. The sign for the color yellow[3] is the same in colloquial and formal signing. The y̲ configuration of the right hand is given a twisting shake in zero tab: Y^{ω}. 'Gold', for which the traditional etymology is 'earring-yellow', is formally a pinch on the ear lobe followed by the sign for yellow: ʒX^{ᵚ}:Y^{ω}. This sign also has the metonymic meaning 'California', and the most frequently observed from of it is a contraction in which the chereme Y has a configuration quite unlike y̲ in appearance. 'California colloquially is signed: ʒY$^{×⊥ω}$. Although shown with three symbols, the sig motion is continuous because the dez configuration permits the touch even as the hand is moving forward and twisting. The Y-dez in this sign and many others has the allocheric configuration of spread hand with only the middle finger bent. The

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[3] The principle of forming some color signs by shaking or twisting the configuration for the initial letter of the color's name is older than the American sign language. Pelissier (1856) shows these equivalents: v̲e̲r̲t̲, v shaken; j̲a̲u̲n̲e̲, j̲, i.e. i shaken. But r̲o̲u̲g̲e̲ and present 'red' is ⌣G^{ˇ} (finger brushes lips); n̲o̲i̲r̲, 'black', is ⌒B$_ᵥ^{→}$ (edge of hand moves across brows); and b̲r̲u̲n̲, 'brown' is ʒB$^{×⊙}$ (edge of hand, palm out, rubs cheek).

tip of the middle finger can thus be used for contact sigs in a way the more nearly y-like allocher cannot.

2.7. The choice to analyze the phenomena just discussed as the result of compounding and contractive tendencies or processes to some extent rules out the treatment of such partials as the touched or grazed upper face and lower face tabs as prefix morphemes which simply add the motion 'male' or 'female' respectively to a base morpheme. The treatment of the cheremes in the compound-contractions already examined is too various, and there are not anywhere near enough other evidences of a prefix-base structure.

However, the contrast between brow and lower cheek, tabs for so many signs which have 'man' and 'woman' as part of their semantic content, is enough to make two distinct signs for 'cousin' in the language. The dez is C, the hand a little more in pronation than for spelling c. The sig is ʘ, a small circular motion, with or without slight contact with tab. This dez and sig at the brow and at the cheek or jaw make respectively 'male-cousin' and 'female-cousin'. 'Nephew' and 'niece' use the same sig and the same two tabs, but their dez is H$_v$, the n of the manual alphabet.

2.8. Before discussing the fairly large class of initial-dez signs, of which the foregoing are examples, a few remarks may be made in summary. Morphophonemic change such as the English word 'knife' shows, the final phoneme appearing as /f/ or /v/ according to morphemic structuring, has a counterpart in sign language; the M-dez of 'man' and 'brother' becoming the 5-dez of 'father' and 'grandfather'. Likewise the Ɜ-tab of 'woman' becomes the ◡-tab of 'lady'. Prefix morphemes are not a fixture of the morpheme pattern, but compounding and contraction with concomitant morphocheremic change of several kinds are. Only one true suffix appears to operate; it is almost precisely analogous to the agentive suffix /-ɚr/ in English.

The sign for 'body' is made by dropping the flat or bent hands down along the sides of the body: tab [ ], double dez BB or MM, and sig v or ↓. The signs for 'individual' and 'person' are similar: BB^v, and KK^v or KK^ŋ; made a little out from the body, they may be taken as zero tab signs. The suffix sign, which will make 'teacher' of 'teach', 'student' of 'learn', 'cook', n. of 'cook', v., etc. is perhaps more nearly the zero-tab, BB^v, but rapid signing and individual differences (allocheric as well as stylistic) make it hard to determine whether the suffix signed alone would be the sign for 'individual' or 'body'. Some of the manuals describe the agent-noun as signed by base sign plus 'body sign'. It seems likely that this sign, of French origin, may have developed into two by exploiting the trunk-zero tab contrast. For what it is worth, the jesting comment of an informant may be added. He chided the writer for being introverted because he made the suffix sign with M-dez instead of B.

2.9. The use of a configuration for the initial letter of the word which most often translates the sign is a clear indication of a borrowing by the sign language from another language, but it cannot be taken as an indication of date. As noted (2.62) the French sign vocabulary of the nineteenth century used this principle for color signs, and l'Épée's and Sicard's methods, using both 'natural' signs and hand alphabet led to other 'initialed-signs'. Sometimes the change from a French to an English environment brought a systematic revision: V-dez to G-dez for 'green', etc. However, the dez of the sign now in use may preserve a forgotten French borrowing: 'stupid; ⌒A $^×$, perhaps for 'asine'.

The important points about this kind of sign formation, borrowing, or coinage are 1) that it does not argue a simple subordination of the one language to the other as the hand alphabet is subordinate to the graphemic system; 2) that a sign formed in this way may often be one of a group

with related meanings and similar structure, as with 'cousin', 'nephew', 'uncle', 'aunt', or 'law', 'rule', and 'principle': $BL^{\times}$, $BR^{\times}$, $BK_{\vee}^{\times}$; and 3) that although as old as l'Épée, it is still a living principle of formation. Additions to the lexicon of the language by this means are not a fair indication of its use, as local groups of signers find it most useful for making place and personal names into signs, but only some of these achieve general currency, for example $C^{\dot{\partial}}$, 'Chicago'; $K^{\dot{\partial}}$, 'Philadelphia', – (the $^{\dot{\partial}}$ to show an abrupt arc, a ?-shaped movement).

Such signs, especially those using zero tab, might be considered as abbreviations of the finger-spelled word. As a matter of fact that way of analyzing them will be as good as the cheremic when they are being considered as units in utterance. As has been remarked the sign language sentence is about equally tolerant of finger-spelled words and signs proper. The difference is analysis is important, though, when the sign or word itself is being examined, and the difference in motion—in signs significant, in spelling not so--is enough to show a different order of structure. Signing and spelling are also distinguished by their treatment of space or position. Although finger-spelling may be said to occur in the region we call zero tab, only j and z are structurally like signs. And while some initial signs have zero as tab, others may have a body or configuration tab. In order words they structure exactly like signs.

3. Morphemics

3.0. Once the outlines of the cheremic system have been established and the patterning of cheremes into signs has been explored, a way is open to morphology proper, including syntax. Having described a sign cheremically or morphocheremically, the investigator may go to stretches of unanalyzed utterance and look for recurrent patterns. One of the first features to emerge from such investigation is that on the syntactic level other signals than the aspectual cheremes are operating. The analogy with the superfixes and intonation patterns of English (Trager & Smith, 1951) is not necessarily exact; but there is a clear indication that here in sign language a different level of structure has been reached.

3.1. A striking example of similarity with a significant difference is to be found in an extensive conversation (several hundred frames of 16 mm film taken at a film speed of 48 fps) among the project's filmed data. The two informants are discussing a trip taken a year before. Their face and bodily attitudes, though relaxed, show much interest and animation in recollecting various details of the experience. The general pattern of the conversation is that one signer recalls an episode and begins or concludes his narrative with the sign 'remember'. The other replies with 'remember', and goes on to relate something he connects with the episode, perhaps concluding also with 'remember'. And so back to the first for several such exchanges.

The form of the sign 'remember' both use is not the formal or isolated one a teacher-informant might give: $\cap B^{\times\#\vee}$:$AA^{\times}$, which is composed sign made from 'know' and 'seal'. Instead they use the colloquial sign $AA^{\vee\times}$. (The right fist moves downward in an arc, finishing with the ball of the thumb pressed on the nail of the left thumb. Most likely the arc-downward sig, which may actually cross in front of the face, is a vestige of the first element of the compound.) But while both informants in the filmed sequence use this colloquial form of the sign, both use it in ways which visibly contrast, and the order of the sign in each utterance is not the determining factor. To clarify the discussion, let us make an anticipatory jump and say that one of the two uses is equivalent to the English sentence, $^{2}Re^{3}m\acute{e}m\ ber^{3}\|$; and the other to $^{3}\hat{I}\ ^{2}re^{3}m\acute{e}m\ ber^{1}\#$. The double-

cross terminated form is always used in a response-like way, at the beginning of a signer's utterance; but the double-bar form, question-like, may occur at the beginning or the end.

Differentiating these appearances of the sign AA$^{v\times}$ is a kind of activity which would be termed kinesic, if it accompanied speech, but here it must be linguistic in a strict sense because it operates to distinguish morphemes which are identical cheremically, yet syntactically in sharp contrast.

The sign 'remember' is signed with the hands identically by both informants, but the portion of the utterance equivalent to 'Remember?' or ^{2}Re^{3}mém ber^2|| is a combination of the sign with a distinctive 'look'. The signer looks directly at the person asked and slightly opens his face, that is, his eyebrows raise as his chin lowers. There may also be a slight jerk of the head backward.

The portion of the utterance, however, which equates with: 'Yes, I remember'; or 'I remember'; or . . . ^{3}Î ^{2}re^{3}mém ber^1#, consists of the sign accompanied by or even slightly proceeded by a slight lowering of the eyes, or a tiny nod downward, or both these minute eye and head movements.

The slightness of these movements cannot be over-emphasized. They are small and quickly done and stubbornly remained outside the writer's conscious observation until attention was focused on them by the problem of the two 'remembers'. Of kinesic behavior Birdwhistell (1952) notes that the time for signal and for response may be of the order of 1/10 second; and in conversation with the writer (1957) hazarded a guess that the deaf, communicating entirely through vision, might actually signal and respond in this fashion with a speed and prolixity beyond the ability of the untrained hearing person.

3.2. The writer is aware that the deaf are sometimes popularly supposed or even seriously said to exaggerate facial expression. Here is Tomkins trying to make status for the Indian sign language by disparaging the users of the sign language which may have supplied a large part of the other system's lexicon: 'The deaf use a great deal of facial contortion and grimace' (1958, p. 8). This is not even as accurate as a charge an Italian might make that 'the English use a great many consonant clusters and splutter'. The latter statement contains a partial truth about the phonological structure of a language, but any truth the former has is confined to observation of the style of 'speech' of atypical users of the language. Attempts to teach articulation in the past sometimes led to strange or contorted facial movements, but speech therapists of today are as careful to teach 'normal' appearance as right pronunciation to their deaf pupils. The filmed data as well as all the communication behavior observed at Gallaudet College confirms the conclusion that the kinesic behavior of the educated deaf in American culture is nowhere sharply separated from the cultural norms. Indeed the dramatic productions of the college (presented entirely in sign language with a spoken translation read in approximate synchronization for the non-deaf) have shown large audiences that the appearance made by signers is not only 'normal' and pleasing but intensely and effectively dramatic as might be expected when both dialogue and action are visibly expressed in the body of the actor.

3.3. In this visual language system, facial activity need not all be employed on one level. The eye lowering and head dip that signify the response, not the question, function of 'remember' are on the order of 'suprasegmental' signals. But in one or two occurrences of the response use there is a smile visible for about the same time that the dip and the sig require. This smile which clearly indicates that the signer's memory is pleasant, even ecstatic, would seem to be paralinguistic with respect to the sign language. Its presence is not called for each time the sign

itself is used response-wise, so that it has not the linguistic status of the head-eye dip; but its physical structure keeps it much closer to the visual linguistic activity than kinestic activity is to speech. However, considered by itself this level of visual behavior would seem to be very like kinesics in structure and 'meaning', as it is perhaps the closest communication link between the deaf and the hearing.

This part of the communication of the deaf, that is both the dip and the smile kind of activity, needs much more investigation; for it is the key to syntactical structure. Moreover, it is perhaps a very large part of what the earlier students termed 'the natural sign language'. Thomas Hopkins Gallaudet (Annals, 1847) writes of an experiment in this vein. Without using hands at all he 'signed' a story to a class in The American School. One way suppose that this successful communication is the close counterpart of the game that the linguistically curious play by applying stress, pitch, and juncture to a continuous and unvarying vocalization, a hum say, even carrying on fairly intelligible conversations in this way.

3.4. Having found that some of this visible activity has patterned syntactical uses, the writer looked back over much of the data and in retrospect reexamined many remembered sign language utterances. Many questions besides 'Remember?' were signed simply by the 'questioning look' with a sign. Another way of asking a question also appears, which is more formal and less frequent; that is 'making a question mark': the index hand draws the shape of the punctuation mark, or the finger crooks and straightens with a thrust, $G^{(?)}$, or, $G^{\#\square}$. This question mark sign permits an English question sentence order, and indeed that order and sign are most often observed in simultaneous English-Sign use, especially in lecture or faculty meeting situations. The facially signaled question will often have a genuine sign language word order.

For example an informant on film signs:

$⊔F^{×>×}$ f-o-r-d $⌣M^{\#\wedge}$ $AA^{N\sim}$

Word-for-sign this is

'pontiac' 'ford' 'better' 'which'.

He makes it a question by the 'look' that means question to anyone in our culture. If we show that look symbolically by 2, the sign sentence may be written:

$⊔F^{×>×}$ f-o-r-d $⌣M^{\#\wedge}$ $AA^{N\sim}{}_2$

and translated now:

Which do you like better, Pontiac or Ford?

The translation is still approximate because one cannot be sure whether 'like better' and 'be better' are distinct in this teen-age signer's thinking.

The same kind of checking for patterned occurrences of the eye-head dip shows that it not only marks a response as in the 'remember' use but also serves as a much more frequent way to

signal first person singular than the sign "I". A student to whom the figurative use of the word <u>backlog</u> was unfamiliar suddenly interrupted the explanation, signing in a split second:

$$[\,]B^{\dagger} \quad AA^{\text{т)(}}$$

That is, 'have' and 'behind'. But the head-eye dip beginning at the same time as the first sign indicated he was saying what might be translated as

I have [something] behind; or
I'm keeping [something] in reserve.

Even with only these two signals, the 'dip' and the 'query-look', a beginning can be made in defining verbals in the language. Those signs which pattern with both appear to be verbal; those with the dip may be; those with the dip may be; those with the query-look may be, but are also likely to be query signs like 'how', 'why', 'what', and 'who', which do not pattern with the dip.

Another signal functioning on the syntactic level is the negative head shake. This movement is for the deaf as well as the hearing in our culture sufficient answer alone to some questions, and with other kinesic signals may range from a decisive denial or refusal to a confidential assent. But the head shake as a kinesic signal is a grosser movement than the movement which in a sign sentence signals negation. The sign $X^{\text{п}}\cdot$, 'should' is also 'should not' when this minute head shake accompanies it. So small is this non-kinesic, syntactical head shake that the writer and his associates scanning and transcribing a filmed conversation missed it until the self contradiction of the informant's utterance without a negative sent us back to look beyond the tab, dez, and sig signals.

This shake, symbolized 3, patterns with many of the signs which the dip, symbolized 1, makes into first person singular verbals, but with 3 they become first person singular negative verbals. Some examples:

The illogical but often heard 'I don't think it's a good idea', has a close equivalent in signs:

$$_3\!\wedge\!G^{\times\oslash} \quad B_aB_a^{\vee\times} \quad \wedge I^{\times\wedge}_{\perp}$$

'I don't have it', is but one sign with the negation signals: $_3[\,]B^{\top}$
A signer asked, 'How was the movie?' might reply either:

	$[\,]\,B^{\times\oslash}_1$	'I enjoyed it.'
or:	$_3[\,]B^{)(\dot{\perp}}$	'I didn't enjoy it.'

Here it will be noted that the sig of 'enjoy' also differs in the two replies. The change from rubbing the heart region with a small circular motion to approaching it and moving the hand sharply away two inches may be occasioned simply by physiology. Like patting the stomach and rubbing the head, the head shake and circular rubbing may be difficult for some persons to do. Or the change may be to shorten sig duration so the head shake will be seen. Or it maybe more symbolic; just as the sign $G_\wedge G^\times$, 'to', contrasts directionally with the sign $G_\wedge X^{\times\div}$, 'from', so the sig of 'not-enjoy'

may be an approximation of a directional opposite of the 'enjoy' sign's sig, the rubbing motion being opposed by the quick, checked retreat of hand from chest.

3.5. The isolation and description of the sign language sentence as a syntactic unit await further study, but it seems likely at this point that the patterning of the aspectual cheremic elements with the head and eye kind of supra-aspectual elements will furnish the clues to the syntactic structure. For instance, a kind of 'terminal juncture' in signing is to be seen perhaps in a general relaxation at the end of an utterance of one sort. It may be taken as similar to the 'dropping' of the voice, but the dropping of the hand or hands that made the last sign is more a feature of the general somatic change than it is a separate signal. Similarly, the utterance which is followed by a reply, which seeks perhaps an opinion on what has just been signed, ends with a kind of upward or outward 'focus': eyes, face, hands may join in passing the conversational ball to the viewer.

Much more remains to be done also in establishing exactly what are the structural principles of the sign language sentence, the overall pattern, and how dialect and idiolect patterns utilize one or another part of the total possible pattern. For it is apparent now that just as any speaker's variety and complexity of syntactical patterns will vary according to his age, intellectual habits, and education, to name a few factors, and the extent of his vocabulary will be similarly determined, so the sign language user will differ in his employment of the resources of the language. But there is another way that signers may show difference in selection from the overall structural patterns. Presumably his language habits will be more or less affected by the extent to which English is his second language. The bilingual person may only in an occasional 'slip of the tongue' superimpose the patterns of one language on another; but two languages, which can be used simultaneously, may be more strongly drawn into syntactical conformity.

Again, more study is needed. Some informants, members of the college faculty, whose sign sentences may often be translated into idiomatic English sentences by a word-for-sign rendering without change in order, say frankly that they sign 'differently' in other situations. The difference may be analogous to the writer's different ways of speaking with superiors, subordinates, family, children, intimate friends, and others; but there is also the strong possibility that along with the usual stylistic differences there is a greater or less similarity to English syntax in these different situational levels of sign use.

3.6. While the cheremic analysis of the sign language seems to be complete enough to make a number of observations about the formation and use of signs, the writer is aware that the period of the study is all too short to have arrived at a complete and exhaustive analysis. Other ways of analyzing cheremes are likely and possible; and judging by the list of symbols, more may still be done to establish the true isolates or structure points of the language.

The other kinds of signals, such as the head dip or 'questioning look' are only beginning to be analyzed, and a number of pre-linguistic, paralinguistic, and to coin still one more term, dualinguistic data remain to be considered.

Nevertheless, the work so far accomplished seems to us to substantiate the claim that the communicative activity of persons using this language is truly linguistic and susceptible of microlinguistic analysis of the most rigorous kind. And the cheremic and morphocheremic analysis at its present stage will make possible the preparation of a lexicon, now in progress, which can be more than an English-Sign language word-list. The lexicon will arrange entries according to the sign language elements, or cheremes, and will give some indication of morpheme class and

function class, as well as etymologies based on structural and historical principles and approximate translations.

Moreover, the analysis here presented seems to offer a sound basis, whatever its faults and inconsistencies, for further analysis and description of the structure of this unique, most useful, and linguistically interesting language. Perhaps it is not futile to hope that this work and what it will lead to may eventually make necessary the change of a famous definition to read: 'A language is a system of arbitrary symbols by means of which persons in a culture carry on the total activity of that culture.' Important as speech and hearing are in human culture, the symbol using capacity in man is anterior, as this symbol system of those deprived of hearing demonstrates.

4.1. Glossary of Terms

ALLOCHER, any one of that set of configurations, movements, or positions, i.e. cheremes, which signal identically in the language.

ASPECT, a structural division (analogous to 'segment') of sign language activity, into constituents for position, configuration, and motion (analogous to 'vowels' and 'consonants').

ASPECTUAL CHEREME, a tab, dez, or sig (see below).

CHEREME, that set of positions, configurations, or motions which function identically in the language; the structure point of sign language (analogous to 'phoneme').

CHEROLOGY, the structure, and its analysis, of the isolates or units of the phenomenon level of the sign language of the deaf.

DEZ, designator; that configuration of the hand or hands which makes a significant motion in a significant position.

FINGER SPELLING, communication activity involving perception of or presentation of successive hand configurations representing the letters (and ampersand) of English orthography.

GESTURE, unanalyzed communicative movement.

MANUAL ALPHABET, a set of 19 configurations, three orientations, and two movements which give 27 visible symbols for the alphabet and ampersand, used for communication by deaf, and by deaf-blind persons who have a knowledge of a language and its writing system.

SIG, signation; the motion component or aspect of sign language activity; specifically motion of a significant configuration (dez) in a significant position (tab).

SIGN, the smallest unit of sign language to which lexical meaning attaches (analogous to 'word'); one of the two kinds of morphemes out of which sign language utterances are constructed (the other being the finger-spelled English word).

SIMULTANEOUS METHOD, a communicative activity, the official teaching medium at Gallaudet College, in which the speaker at the same time speaks (with or without audible voice) and signs utterances which are a translation of each other.

TAB, tabula; the position marking aspect of sign language activity; specifically the position in which a significant configuration (dez) makes a significant movement (sig).

4.2 Table of Symbols

4.21. Symbols for cheremes of position, TAB only:

Name	Symbol	Description
Zero tab	Ø (or blank leftmost space)	the space in front of signer's body where hand movement is easy and natural; allochers--regions within the whole space
Face	◯	the head itself and space around it
Brow	⌒	the upper face from brows to hair line including temples
Mid-face	⊔	the eyes, nose, or any point between ⌒ and ◡ contrasting with them
Lower face	◡	the chin, mouth, or lips
Side face	ʒ	the cheek, ear, or jaw
Neck	ᴨ	the space between chin and chest
Body or trunk	[ ]	the space from shoulders to hips inclusive
Upper arm	\	the region of the biceps
Elbow	✓	the distal side of forearm, or elbow itself
Supine arm	ɑ	the proximal side of forearm or wrist
Prone arm	ɒ	the distal side of wrist or back or hand

4.22. Symbols for cheremes of configuration, DEZ (including some TAB):

Name	Symbol	Description
Fist	A, A/S, A_t	the hand clasped with thumb in a, s or t, Fig. 1
Flat hand	B, 5	the open or spread hand, thumb out or as in b, Fig. 1
Curved hand	C, $C_\#$	the c and o of Fig, 1
Retracted hand	E	the fingers clenched to palm: e, Fig. 1
F-hand	F	thumb and forefinger touch, other fingers spread; f, Fig. 1
Index	G	allocheric forms: g, d, l, of Fig. 1
H-hand	H	the h, u, n of Fig. 1; first two fingers extended and joined
Pinkie or I-hand	I	the little finger projects from closed hand; i, Fig. 1
K-hand	K	the index, 2nd, and thumb make k, Fig. 1
L-hand	L	the thumb and index make right angle; 1, Fig. 1
Bent-hand	M	the hand makes a dihedral angle, one allocher is the m of Fig. 1
R-hand	R	the first two fingers crossed; r, Fig. 1
V-hand	V	the index and 2nd extended and spread; v, Fig. 1
W-hand	W	the first three fingers extended and spread

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Y-hand	Y	the thumb and little finger are spread out from fist; allocheric forms: middle finger bent in from spread flat hand; index and pinkie up from closed hand

4.23. Symbols for cheremes of motion, SIGS:

Name	Symbol	Description
	∧	upward motion
Vertical motion	∨	downward motion
	И	up and down motion
	>	rightward motion
Lateral motion	<	leftward motion
	⋝	right and left motion
	⊤	toward signer
To and fro motion	⊥	away from signer
	⊤⊥	to and fro
	ɑ	supinative movement
Twisting motion	ɒ	pronative movement
	ω	oscillating twist
Carpal motion	ŋ	nodding or shaking motion, pivoting at wrist; may be proximal, distal, or both
Foral motion	□	opening motion of a configuration
	#	closing motion of a configuration
Approach	)(	dez approaches tab*
Touch	×	dez touches tab*
Graze	↑,→, or ↘	dez brushes or slides across tab*
Link	)(	double dez clasp, hook, etc., or dez grasps tab
Enter	☉	dez is inserted or thrust through tab
Cross	‡	double dez cross, one over other
Separate	÷	linked, crossed, inserted, or adjacent dez moves away
Interchange	໑	double dez or tab and dez hands reverse relative positions

*If double dez the interaction is mutual.

4.24. Diacritical marks used with sig symbols

Name	Symbol	Description
Repeat	·	sig motion is performed again (dot to right of sig symbol)
---	·	when dot is placed over sig symbol, sharp, staccato movement is indicated

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Alternate	~	indicates that sig motion is performed in alternation by double dez
Reverse	Я	indicates that left hand is dez, right is tab, etc.

4.25 Symbols for gestures with syntactic significance:

Name	Symbol	Description
Affirm	1	head bends very slightly forward and returns, or eyes lower and raise, or both together (written before symbols for sign nearest it in time)
Query	2	face 'opens', eyebrows raise, eyes open wide, chin or mouth lowers (written after symbols for sign nearest it or at the end of a stretch of signing)
Negate	3	head shakes (written before symbols for sign nearest its occurrence or at the beginning of a stretch of signing)

4.26. Conventions of sign language notation:

4.261. Signs are written left to right.

4.262. Left place symbol is tab.

4.263. Middle place symbol is dez.

4.264. Right place symbol or symbols are sigs.

4.265. Sig symbol to the right of another indicates successive motions.

4.266. Sig symbol under another indicates simultaneous motions.

4.267. Sig symbols as subscripts to tab or dez symbols indicate orientation of the configuration. Example: G_v indicates the Index hand pointing down.

4.268. Separation or juncture of compound signs is shown by slant bar or colon, / or :

4.269. A bar used with a tab symbol indicates relative position of tab and dez. Ex: $B_v B_a^{÷}$, 'open', begins with the flat hands, palm down, in contact along the index fingers, and its sig is a separation accompanied by rotation outward from the elbow (supination). $\overline{B}_\perp B_\perp$, 'window', is signed by twice touching the little finger edge of the right hand (dez) against the index finger edge of the tab. $A/A^{÷}$, 'follow', begins with the right hand half of the double dez behind and to the right of the left; then keeping same spacing both move away from body to the left. A dot used with a tab symbol indicates point of contact dez makes. Ex.: $G^{×}$, 'conscience'.

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A commentary on Humphries' 1977 excerpt, "Audism"

The World Woke Up to Audism

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In 1975, Tom Humphries gave a word to the experience unique to deaf people who use American Sign Language (ASL), and it is *audism*. Not only did the coinage of audism recognized deaf people's struggle as discriminated-against people, it also validated their frustrations over the discrimination and oppression due to their deafness. Given that most deaf people are born to hearing families, hearing family members cannot fully relate to their deaf children, siblings, and relatives simply because they do not share the same experience of being discriminated based on hearing ability. They develop the assumption that hearing ability is the norm, because it is rare for them to encounter deaf people. It is easy to assume that hearing people are naïve and ignorant of their hearing privilege. In theory, hearing people are not born with audist ideas nor attitudes, but as history has shown, hearing people developed ableist notions on the premise that "language is synonymous with speech" (Armstrong & Karchmer, 2009). In other words, hearing people's views of deaf people relate to deaf people's spoken language abilities (not hearing ability per se).

But is audism only about the prejudice based on hearing abilities? Not quite. Humphries defined audism as "the notion that one is superior based on one's ability to hear or *behave in the manner of one who hears*" (italics added for emphasis, Humphries, 1975). According to Humphries, audists are those people who believe hearing behaviors are superior, and this can apply to both hearing and deaf people. This happened to Humphries who is a deaf man. He confessed that he had audist beliefs, but this happened because he was (like many deaf people) "brought up as a hearing person with basic hearing person behavior and values" (Humphries, 1975, p. 3). This brings to a new line of inquiry—what are the behaviors that illustrate audist ideas or attitudes among deaf people? This question will be explored with an examination of two ASL literary works by American poet Clayton Valli and the storyteller Ben Bahan.

Clayton Valli's 1990 poem *Snowflake* sends a powerful message about the value of spoken language over signed language. The poem pierces with a vivid image of a father's adulation over two sentences arduously spoken by his five years old deaf child. This scene illustrates how a few spoken words are worth their weight in gold compared to the value of carrying out a meaningful conversation in signed language with a deaf child in the family. The theme of the *Snowflake* poem strongly relates to audism since it concerns the power hearing people have over deaf children regarding language usage.

In the poem, the snowflake is a metaphor for a deaf child. Valli reminds us that each deaf child has their own unique identity, similar to snowflakes on the basis that there are no two snowflakes are exactly alike. In other words, the poem exemplifies the uniqueness of all children, and this includes signing children. Not only should we celebrate and value their contributions as signers to our linguistically and culturally diverse society, we also need to recognize those children's right to thrive as signers in order to become flourishing deaf members. The *deaf flourishing* theory is gaining momentum among scholars (Blankmeyer Burke, 2015; De Clerck, 2016) as they propose that in order for deaf people to flourish, deaf people need to be nurtured in

a thriving socio-cultural community (e.g. ASL community). The role of linguistic accessibility for deaf people is reinforced by Blankmeyer Burke, proposing that "a critical component of the ability to flourish is access to language, and for members of the Deaf community this means access through a fully accessible signed language" (2015). Blankmeyer Burke also proposes how the loss of having the opportunity of deaf flourishing would lead to serious consequences for deaf people as discussed: "discarding the option of flourishing in a world where one is guaranteed full, not partial, access to language, is an incalculable loss" (Blankmeyer Burke, 2015).

The powerful themes of linguistic accessibility and linguistics rights for deaf children are expressed in the *Snowflake* poem. Valli closes the poem with a falling snowflake falling into the snow on the ground, Valli leaves us with an open question at the end of the poem. What are our perceptions on a deaf child as a snowflake becoming a part of the snow on the ground? First, we need to examine the symbolism of the snow on the ground, and there appears to be three possible interpretations. First, is the snow on the ground a metaphor for the deaf world where deaf children will eventually be a part of later in their lives, or is it a representation of deaf children being assimilated into the dominant language and culture of hearing people? Or does the snow on the ground allude to the linguistic and cultural diversity of all people, including deaf people? Valli ingeniously concludes his poem with the snow on the ground in order for us to muse on the symbolism of the snow. If we were to embrace and promote linguistic inclusion in our society, then we need to revisit our perspectives about the status of ASL and ASL users. If we view hearing people as full-fledged signers in addition to being speakers, then deaf people's social network will extend further and be strengthened, and this would result into a robust social capital for deaf people (Wilkens & Hehir, 2008). The conclusion of the *Snowflake* poem prompts us to examine and reflect on our beliefs and expectations for and from deaf people.

The open-ended question about deaf people's place in the society with respect to linguistic rights is also explored in Bahan's 1992 classic ASL literature work entitled *Bird of a Different Feather*. This story is an example of symbolic allegory of the deaf child being born into a hearing non-signing family and the struggle they face together obtaining advice how to raise an atypical child from medical, religious, and educational experts. Similar to Valli's *Snowflake* poem, Bahan concludes his narrative by showing the surgically beaked bird (aka. cochlear implanted deaf child) flying into a sunset. Bahan leaves us with the question about the "cochlear implanted" bird's choice whether he will be more drawn to the hearing world or the deaf world or maybe neither. This literary work again reflects the internal strife in deaf children who must face possible marginalization from hearing and deaf communities over their implant surgery that they had no control over. Both communities rejected the cochlear implanted bird for different reasons. The bird was not deaf enough or too hearing, which resonates with many deaf people who seek for a sense of belonging. If deaf people reject someone with a cochlear implant, is this audism? According to Cripps and Supalla (2012), this is a form of audism, called *reverse audism*. They center their argument for reverse audism on the basis of a variety of practices among both deaf and hearing signers who discriminate against hearing people who either use or want to learn a signed language (p. 97). In other words, those signers are applying reversal audist behaviors toward hearing people, and maintaining this practice can result into potential obstacles for signers who would significantly contribute to social change (Cripps & Supalla, 2012).

Audism has subjected deaf people to both overt and covert biases regarding their deafness and their language use in most aspects, if not all, of their lives. Audist biases are not easily

identified nor defined. However, deaf people appear to have an intuitive understanding of conflicts motivated by audism. Their recognition of audism is based on their numerous experiences of being discriminated against due to their deafness, their inability to speak well, and their status within and outside of the deaf community. Is audism systematic more than individual? How can deaf people be audist since they cannot perpetuate an audist system? Yet deaf people internalize audist attitudes. The next step is to address how to identify and respond to audist practices and engage people with strategies to dismantle audism. Humphries did more than making a word, he gave legitimacy to the discrimination unique to deaf people. Humphries asked this question back in 1975, *"is it a word worth maintaining?"*, and the answer is absolutely, yes.

Acknowledgement

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Audism

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Audism: 1975-2019

It has been over 40 years since I included in my unpublished dissertation a discussion of a term new to me, 'audism.' The context for the emergence of this term in my work at that period of time, 1975-1977, was both a personal and a professional one. Personal, because in the 70's many of us were actively involved in creating a new discourse of culture, and struggling for language that both expressed the pressure on our identities and that redefined our relationship with the "other," the hearing people among who we live. Professional, because I was in the middle of trying to find some theoretical explanations for a chronic problem of education that is still with us today, the learning of English among Deaf students. 'Audism' was to become a way for me to identify in one word, the underlying assumptions that contributed to the design and continuing use of a failed pedagogical paradigm. I will explain how "audism" came to appear in my dissertation and embed the original text for those who have not seen it. It has circulated, not as a published piece but as a document kept alive by sharing. Others have since the 70's, published various theories about "audism" and there have been an abundance of electronic discussions and videos on the internet. The word has entered popular culture via t-shirts, buttons, and waistbands. It long ago ceased to be just a word in my dissertation and has taken on a life of its own these last 40 plus years.

When I was beginning my career and working on my doctoral degree the deaf education pedagogy was very traditional. At that time, I was challenged by what I thought was an interesting approach to teaching English to deaf students, particularly older deaf students. Some few people in the early 70's were recognizing that if American Sign Language (ASL) was, indeed, a language, then English could well be a second language for deaf students. I viewed the application of an English as a Second Language (ESL) approach to teaching deaf students as exciting because it framed deaf students as English language learners rather than remedial English students. The difference was important; with ASL as a first language, the view of deaf students as language deficient if they were not fluent in English could not be sustained. This ESL approach involved practices that used such then popular exercises as transformation drills in English and repetitive English sentence pattern practice. Many deaf students found it tedious because a strict application of ESL as it is done with speaker of other languages, proved not very creative or motivating. By 1975, there was already movement towards bilingual education, a theoretical frame that offered a more varied and motivating set of teaching practices.

Bilingual education became the subject of my study and my dissertation. I and my colleagues spent hours discussing what a bilingual classroom would look like. In 1975, we implemented an experimental language learning classroom with our version of bilingual pedagogy. One of our reasons for doing so was that a bilingual paradigm was closest to the type of pedagogy that allowed for equal treatment of languages. Another reason was that we wanted a clean break from past English-only pedagogy. And a third reason was that the burden of negativity regarding the learning of English by deaf people had become self-fulfilling; the narrative of deaf

people's lack of success with English literacy was suppressing achievement. A bilingual narrative was positive and empowering.

At the time we implemented our approach, there was a great deal of new research questioning school designs and practices for underrepresented cultural and linguistic minorities in U.S. school systems. Racism and sexism were known to be active contributors to the suppression of school performance in addition to the social harm these belief systems inflicted on society. I came to see that a similar ideology was responsible for harms done to deaf children (and adults). From there, the creation of the word audism was just a mind exercise on my part. But naming it as a determinant of the poor quality of education and the cause of inequities in society provided an interpretive framework to explain the disparities. Simply put, when audism is practiced, designs for living and learning that are extensions of deaf people's bodies and minds are lost to the dominant designs of others. Failure to name audism risks perpetuating the illusion that deaf people themselves are the cause of their own underachievement, and hinders and impedes opportunity to eliminate disparities.

A lot has happened since 1975. Deaf people's understanding of the forces of audism is much greater now than I ever envisioned. Theoretical and analytical studies of audism as well as the incubator of popular culture throughout the world shows us how universal is the desire by deaf people to be free of it. No doubt, one day it will happen.

The pages from my dissertation appear below. You will do me a service by remembering that it was written close to five decades ago and displays a certain immaturity of writing and a voice that is much too angry for me at my present age. Nevertheless.

- Tom Humphries

Audism[1]

"Here I have been writing of audism and audists. I would like to explain the terms as I coined and defined them and have been using them. Recently I experienced a need to have an English word that is to the deaf as "racism" is to blacks. After some consultation with friends about various possibilities, I decided on the word <u>audism</u> from the Latin "audire" (to hear). I think the definition of audism might be listed in the dictionary as:

audism (o diz m) n. The notion that one is superior based on one's ability
to hear or behave in the manner of one who hears.

From audism, we can derive audist which needs no explanation.

Having coined this word, I immediately felt better for it. Why would one feel better for having invented a word that carries such negativity? Why invent a word that might be used in the future in conflict situations? Because I have experienced the full power of what I will now call audism again and again for as long as I can remember. Recently I have begun to recognize it for what it is and I needed a name for it in the worst way. Naming it gives me a better handle on it and makes it somehow less frightening. But it is no less a problem now that it has a name.

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[1] This excerpt was published in Tom Humphries' 1977 dissertation: "Communicating Across Cultures (Deaf/Hearing) and Language Learning", unpublished dissertation, Union Graduate School, Cincinnati, OH.

It is only in the past few years that I have been able to recognize some of the forces working against me as a deaf person as being audism. Most of my life I have been an audist. And even now, still have some behavior and values that are basically audist. I believe this to be the result of being brought up as a hearing person with basic hearing person behavior and values in a hearing society that is audist. Being hearing or raised as hearing does not automatically make one an audist but given our society and its views of deafness, it is almost a certainty.

What is this audism? It is the bias and prejudice of hearing people against deaf people. It is the bias and prejudice of some deaf people against other deaf people. It is manifested in many ways. It appears in my own life in the form of people who continually judge deaf people's intelligence and success on the basis of their ability in the language of the hearing culture. It appears when the assumption is made that the deaf person's happiness depends on acquiring fluency in the language of the hearing culture. It appears when deaf people actively participate in the oppression of other deaf people by demanding of them the same set of standards, behavior, and values that they demand of hearing people. It appears in the class structure of the deaf culture when those at the top are those whose language is that of the hearing culture or closest to it. It appears when deaf people refuse to believe, accept, or give value to the language of their own culture. It appears when deaf people in positions of power keep this power by oppressing other deaf people. (The oppression is rationalized in various ways such as not being fluent in the language of the hearing culture, not having the ability necessary to perform in the hearing culture, i.e., speech, not having the credentials of the hearing culture, not having the experience necessary to fill a position, etc.).

It appears when deaf and hearing people have no trust in deaf people's ability to control their own lives and form the systems and organizations necessary to take charge of the deaf as a group to seek social and political change. It appears when deaf persons in power are in reality holding this power only as long as they continue to play the hearing role. It appears in many other ways subtly and obviously, directly and indirectly, intentionally and unintentionally, consciously and subconsciously.

It occurs in the form of tokenism. Again and again, organizations and committees have gotten their token deaf person or two and considered themselves to be doing a good deed. There is never any thought of a majority of deaf people in these organizations and committees. One deaf person is still one vote. And what is one vote? Another form of tokenism is in the hiring of schools and colleges which have deaf student bodies. Where do you have a school or college with a majority of deaf faculty? You don't. But you do have institutions feeling pride if 25 percent of their faculty is deaf. What kind of pride is this? 25 percent? Would an all black college stand still for a 75 percent white faculty today?

Audism occurs in one million and one excuses and rationalizations. Some of the most common are:

"The deaf must learn English (forget ASL) because when they grow up they will have to function in the hearing society and need it to find good jobs, find happiness, and have full and useful lives."

"We want to hire more deaf people but there just are not any deaf Ph.D's."

"But he can't use the phone."

"She is nice and very intelligent but her English is just terrible."

"Oh, you have such beautiful speech. What is your hearing loss?"

"He is a very exceptional <u>deaf</u> person."

"But I don't need a TTY. My wife/husband can hear on the phone."

"I really can't stand her. She's deafie deaf."

"He doesn't understand deafness. He wasn't born deaf." (To a person deaf for 22 years.)

"But why should I sign? She isn't interested in our conversation. She's not watching me."

"ASL isn't an academic language so we can't use it to teach high level subjects."

"How can we give a liberal arts degree to someone who can't read and write?"

"No, no, no. Language work isn't college level work. What? P.E.? Of course it's college level work."

You get the idea? Most of these statements could and have been made by either hearing or deaf people and frequently are.

What are the myths, the deep beliefs and attitudes that cause audism? If racism and male chauvinism are based on ignorance, audism most certainly is too. There is ignorance about the language of deaf people which leads people to believe that it is not a language, or if it is, is inferior and limited. There is a lack of understanding about how deaf people learn which leads people to assume that they will learn best in the same way as hearing people and to seek methods that try to duplicate the hearing experience for the deaf person. There is ignorance about the impact that deafness has on one's life which leads people to believe that deaf people are inferior both in intelligence and ability and thus should be treated accordingly. There is a lack of knowledge about deaf people's state of well-being which leads people to believe that happiness is not possible except in hearing modalities.

There are a lot of other causes for audism. One is the basic intolerance in our society for anyone different in the slightest way. Another is the need for power. Yes, there is power in controlling the destiny of other people and the need for power has led many people to oppress deaf people to keep that power. Power politics has been the hallmark of the manual-oral controversy (and now the ASL-English controversy) with the result that winning has been more important than the human issues involved. Yet another cause of audism is the missionary spirit. This is not the same as ignorance. I have seem perfectly knowledgeable people carry on about saving deaf people,

fixing the hearing loss, preventing deafness, the risk of genetic deafness, opening up the world of deaf people, etc.. This is something deeper than simple ignorance.

Whatever the cause, audism <u>is</u>. And it is the cause of much of my anger and frustration. Naming it, as I have done, helps me deal with it, helps me to discuss it with other, and reminds me that what I am dealing with is yet another -ism that each individual (hearing and deaf) and society as a whole must come to grips with.

I have tried to come to grips with it and to the point that I recognize my own audist self and have tried to change, I have succeeded. My thinking about audism has helped me to understand my other -isms just as other groups fighting these -isms have helped me to understand audism. When I am confronted with my male-chauvinism, I gain some insight into audism. As I understand what I have done that oppresses blacks, I understand what has been done to oppress me as a deaf person. That is why I have been able to change and get from there to here."

A commentary on Valli's 1990 manuscript, "The Nature of a Line in ASL Poetry"

A Vindication for ASL Literature

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Almost three decades have passed since Clayton Valli's 1990 publication of "The Nature of a Line in ASL Poetry". I am delighted to comment on this article and its relevance and impact on our understanding of 'oral' compositions in deaf people's language, ASL. I need to take a step back and discuss the bigger picture of Deaf/ASL Studies as a field. This will help me with reviewing Valli's work for the benefit of readers. ASL was and still is subject to social bias, owing to its prevalence in the signed language modality. The term "audism" is helpful for understanding society and its perception of the superiority of spoken language. While many would assume that all scholars in the ASL/Deaf Studies field would support and place ASL first and foremost, the contrary is true. This includes what I will call *Deaf First* (vs. *ASL First*) which undermines ASL as a language, including its literary domain. This results in a clash of ideologies that is distracting for scholars. Valli's publication falls into the ASL First ideology, which is consistent with my own thinking.

The distinction between the Deaf First and ASL First ideologies can be made by how deaf people are viewed as a group. According to the Deaf First ideology, deaf people are treated as a distinctive group, which may be valid. However, it seems that some scholars gain this viewpoint on the basis of deaf people's 'peculiarity'. Deafness becomes deaf people's overriding quality. Any idea of associating deaf people with hearing people based on commonalities and differences would be met with negativity. The ASL First ideology, on the other hand, promotes a humanistic viewpoint of deaf people as signers. Deaf people continue to have their own identity with an emphasis on human qualities, including language. In this sense, Valli's paper focuses on understanding deaf people as human beings. This includes Valli's discussion of "the results of an in-depth study of the nature of a line in ASL poetry in terms of poetic and linguistic analyses" (p. 171).

Valli made an important contribution to ASL poetry when he argued in his paper that poetic lines could be identified in the signed language modality. Valli used two poems in ASL, "Snowflake*"* (that he created himself) and "Circle of Life" as performed by Ella Mae Lentz, to collect this data. Both Valli and Lentz are culturally deaf and are known for performing live in front of audiences over the years. The poetic works of Valli and Lentz are also published through video format. Valli relied on the detailed ASL notation system developed by linguists Scott K. Liddell and Robert Johnson. The intricate transcription of lines in action for ASL poems shows the rhyming phenomenon for the first time. Valli was able to compare his findings with well-known English poems that include rhyming, "Atlanta in Claydon" by Algernon Charles Swinburne and "Virginia" by T. S. Eliot.

Unfortunately, Valli's paper failed to impress some scholars and drew a rebuttal from one scholar, H-Dirksen L. Bauman. Bauman wrote a chapter, "Getting Out of Line: Toward a Visual and Cinematic Poetics of ASL", which was published in his own edited book, *Signing the Body Poetic: Essays on American Sign Language Literature*. This book was released in 2006 with a

total of ten chapters written by different contributors. I feel compelled to respond to Bauman's assertion that "[w]hile Valli's analysis is *linguistically* precise, it may be *perceptually* murky - that is, when one is watching the poem, the poetic lines do not distinguish themselves as such" (p. 96). It would appear that Bauman was trying to 'get out of the line business' as indicated by the title of his chapter. Bauman actually asked the question: "Is there even such a thing as a signed line?" (p. 95). I must respond that Bauman cannot both note Valli's poetic and linguistic analyses, and then downplay the existence of lines for ASL. This appears contradictory in nature.

Also demanding my response is Bauman's assertion that deaf people have reported to him that they do not detect the line break phenomenon in Valli's "Snowflake". For this, Bauman referred to his 1996 presentation at a conference (thus without published data for me to review). Bauman did not address my own paper with Ben Bahan. Given that I am a well-known storyteller and researcher, I naturally have a keen interest in doing research on stories. I collaborated with Ben Bahan who is also a master storyteller and wrote a paper on the topic of line segmentation in ASL narratives. This paper was published in 1995. Like Valli, we provided data from one part of Bahan's narrative, "Bird of a Different Feather". We demonstrated that the storyteller's use of eye gaze plays an important role in demarcating lines. We also explained that the eye gaze behavior occurs along with pausing and other non-manual behaviors for the line segmentation of ASL narratives. We assumed that deaf people who view ASL narratives for enjoyment would not be consciously aware of how they break these narratives down into lines. It is interesting to note that before our research while performing around the country, I myself was not aware of the existence of lines, but our research changed that.

In our paper, Bahan and I referred to the research literature on how oral texts (of spoken languages) are universally structured in lines. The lines are grouped into stanzas, stanzas into strophes, and so on. It seems reasonable to believe that both deaf and hearing people share the cognitive capacities that shape the organization of oral texts. This includes how lines help signers and speakers with processing oral texts. I find it interesting that Bauman wants ASL literature to "be led away from the hegemony of hearing-centered (phonocentric) models of language and literature..." (p. 99). I must ask why the notion of a hearing-centered model must matter for it creates a division between deaf people and the rest of the human population.

There is one other note to discuss. The title of Bauman's chapter in his edited book emphasizes the nature of deaf people's language as 'cinematic'. Bauman described Valli's "Snowflake" as "a short poetic film" (p. 113). Calling Valli's composition a 'film' seems to place it in a very different genre than the oral compositions of spoken languages. That consequently falls into the category of peculiar, and Deaf First as mentioned earlier.

If ASL poems were truly cinematic, anyone should be able to follow them. From what I understand, novice signers have difficulty following ASL poems or signing in general. It appears that ASL is not as visually grandiose as Bauman claims it to be. I add that I am a native signer and highly educated, yet it took me multiple viewings to fully appreciate some of Valli's poems. I attribute this to content and linguistic complexity and ambiguity, and while I use my eyes to watch "Snowflake", it is definitely not a movie.

I recall being in awe when watching Valli sign his poems in ASL for the first time (see also Christie, 2018 for a culturally deaf person's testimony on the powerful impact of Valli's "Dandelion" as a poem). Please understand that I was born deaf and never internalized English as a spoken language. I do not easily relate to the English poems mentioned earlier. ASL poems are

aesthetically accessible for me and helped to facilitate the rise of ASL literature starting in the 1980s. Deaf people now have a firmly established literary dimension to their language (see Byrne, 2017 for a validation of ASL literature in terms of genres and quality).

I became uneasy when I opened Bauman's book for the first time. Bauman and two other editors wrote an introduction to the book. Although the book has ASL literature by name in its title, the introduction's content is different. The literary accomplishments of deaf people are termed 'sign literature'. Sign literature suggests a removal of recognition for ASL as deaf people's language. There is no use of 'language' for ASL literature either (see Meier, 2002 for comments about similar stereotypical thinking among scholars of the past). The mismatch between the introduction's content and the book's title suggests the authors' intention to attract readers and then 'redirect' them to the Deaf First ideology.

I will close with a query on why the Deaf First ideology prevails in spite of what has been demonstrated through research and for modern society's increasing awareness of ASL as a full-fledged human language and ASL literature. Part of the problem can be attributed to a lack of recognition for the competing ideologies within ASL/Deaf Studies as a field. Hopefully, this may change with the publication of this and other commentaries (see also Edwards & Harold, 2014 for similar concerns over the preoccupation with deafness as a concept among some Deaf/ASL Studies scholars).

Regarding ASL literature, I want to thank (now deceased) Clayton Valli, not only for his body of ASL literary works, but for his promotion of a sensitive and socially appropriate form of ideology as it relates to ASL First via research and scholarship. I must add that the work of Ormsby (1995) serves as a good example of the ASL First orientation when covering Valli's poem, "Snowflake". The concept of lines is embraced regardless of the differences in language modalities (signed vs. spoken) and Ormsby made some important contributions to ASL poetry.

Acknowledgement

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The Nature of a Line in ASL Poetry[1]

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Introduction

Since the late 1970's an increasing number of original American Sign Language (ASL) poems have been recognized, but there has been no definition of the nature of this poetry. A basic difficulty in the effort to interpret ASL poetry and its elements has been the identification of a line. This paper presents the results of an in-depth study of the nature of a line in ASL poetry in terms of poetic and linguistic analyses.

In 1960, William Stokoe published the first analysis of the structure of ASL (Stokoe, 1960), the language which is used by North American deaf people as their medium of daily conversation. Since that time, numerous linguists including Supalla (1976), Battison (1978), Padden (1978), Liddell (1984), have provided many intruding findings about ASL and its structure and have drawn interesting parallels between spoken language structure and sign language structure. Each was influenced by Stokoe's basic idea that ASL is a language in which visible movement of hands and body in sign production fulfill the same communication function as the audible movement of mouth and tongue in speech production. Contributions to knowledge of the structure of ASL have made possible the linguistic analysis presented here. Since ASL has no orthography, use of videotape and detailed sign notations have provided the means, not only for publication, but also for recording and analyzing the poetry.

Although most deaf adults who sign have learned ASL as their first language from their deaf peers, none have received formal instruction in that language. Instead, they have struggled to obtain an education including an appreciation of art forms such as poetry, through use of a second language. Most children are 'turned off' by their exposure to poetry through English and classify this form of heightened expression, with music, as made of sound which they cannot enjoy through vision, and of minimal value.

Segmental notion: Hold - Movement

The system used in notation is based on the fundamental distinction between movement features and articulatory features. In the system being developed by Liddell (1984) and Liddell and Johnson (1985), signs are viewed as segmentable into movement (M) and holds (H). H is produced when there is no change occurring in any of the other major descriptive features of a segment. If the hand configuration or the location or the way in which the hand is oriented is changing, the segment is called a M. There are six minor movement features of the fingers or wrists that occur in either H or M segments and do not affect any of the major movement paths. For example, the fingers may be wiggling during a H segment (e.g., COLOR) or during a M segment (e.g., MANY-PEOPLE-CONVERGE-ON-A-PLACE). In addition, if a movement (M) occurs on

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[1] Originally published as SLR '87: Papers from the Fourth International Symposium on Signed Language (1990), by W. Edmondson and F. Karlsson (Eds.), Hamburg, Germany, Signum Press. Valli's estate retain the copyright of this article.

a path, the contour of the path may be described. For example, the M in MUCH is an *arc*, the M in OPPOSITE has a *straight* contour, and the M in PHILADELPHIA has a 7 contour. For the purposes of discussing the nature of a line in ASL poetry, this study has been narrowed to these particular features: movement details, hand configuration, and nonmanual signals.

Citation forms, prose and poetry in ASL

Sign language researchers and teachers often make reference to the so-called 'citation form' of a sign or group of signs. The citation form is roughly analogous to the 'standard" form of a spoken language word, in contrast to a dialectal or stylistic variant. Transcription of a citation form of a sign is a straight-forward process. Citation forms are most frequently elicited in response to, 'what is the sign for _____?'. But citation forms are often quite different from those occurring in prose. Prose is what is 'uttered' naturally during discourse. ASL prose is the medium through which deaf people communicate daily with ease. Two contrasting examples of the sentence, ' I want to go to the store', in ASL citation forms, and from ASL. prose, are shown in Figures 1 and 2, along with the basic segmental notation. Notice again, that I am only examining movement details, hand configuration, and nonmanual signals; many other details would also differ in the two forms. In describing ASL it is often necessary to write down what each hand is doing, so in the following notations the top line is the 'strong' hand (right for righthanded signers; left for lefthanders) and the bottom line is the 'weak' hand (left or righthanders; right for lefthanders).
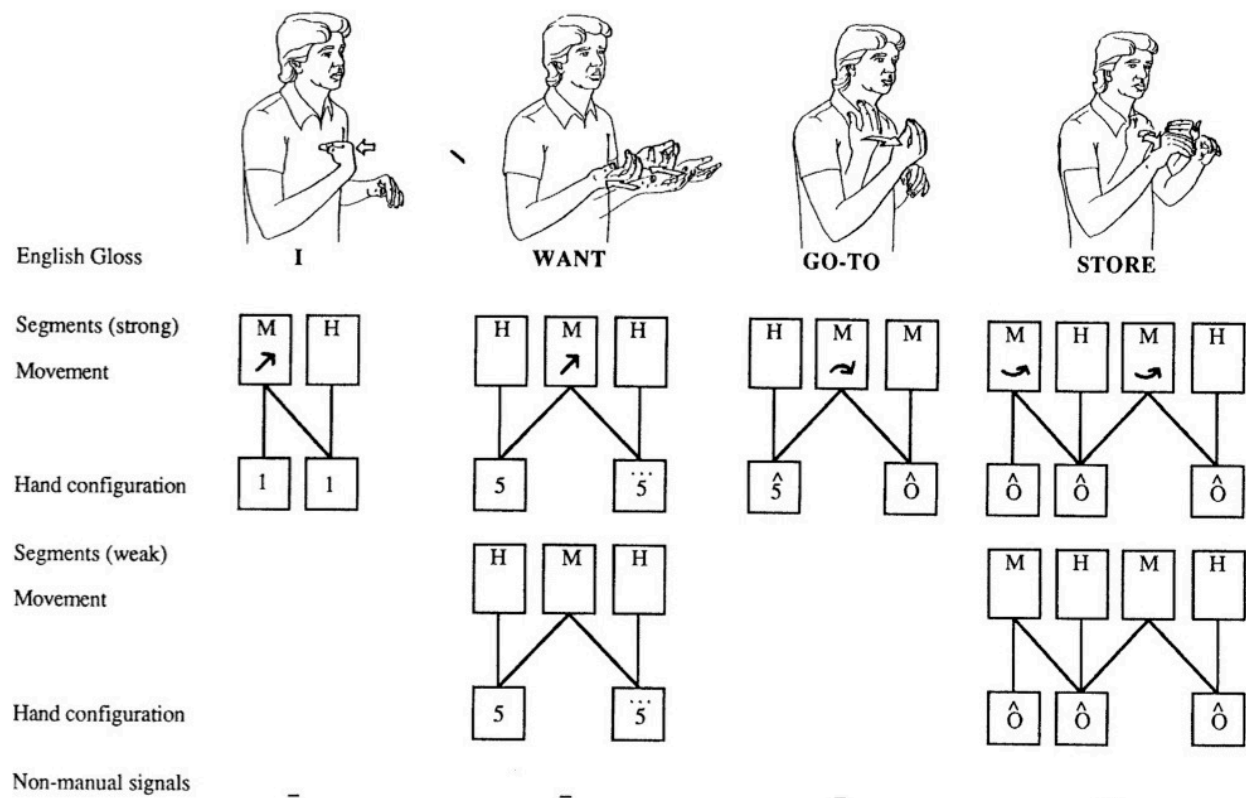
Figure 1 Citation Forms in ASL

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English Gloss	I-WANT	GO-TO-STORE
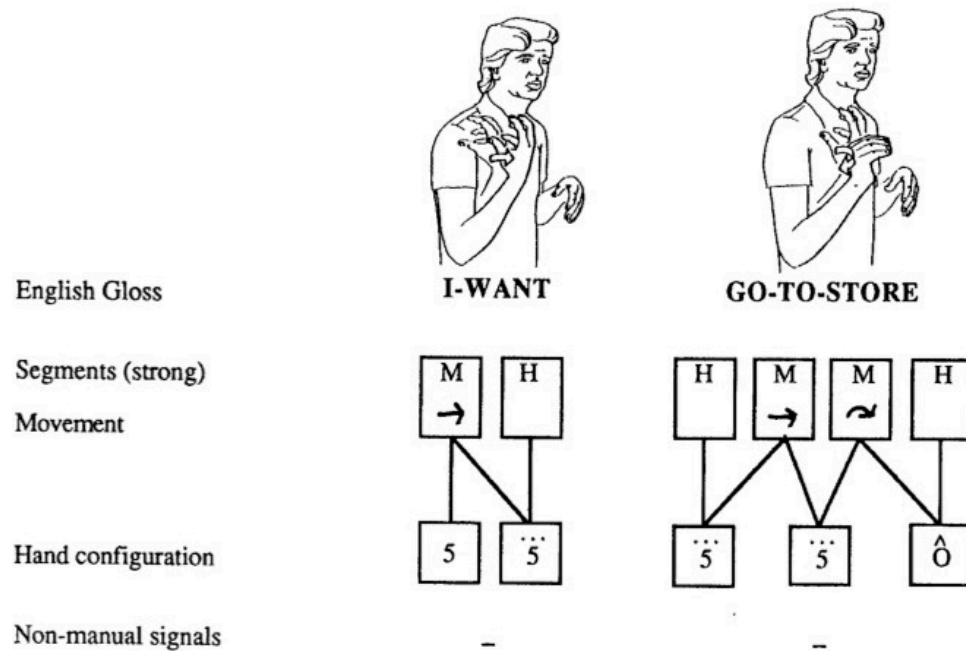
Figure 2 Prose in ASL

The signs shown in Figure 1 are produced in insolation, independent from their surrounding phonological environment. Contrasted with prose signs, they are more laborious to construct either expression or reception. Comparing the notation in Figure 1 with that in Figure 2 reveals significant differences. Use of only one hand to produce the utterance often occurs in spontaneous and rapid prose. Many segments are deleted. Signs in the sentence are subject to phonological conditioning in which a segment takes on the characteristics of a neighboring segment. Note in Figure 1 the features in the first and the last segments of WANT: 5 and 5 (hooked5) respectively. These features are mostly responsible for influencing neighboring features in I-WANT and GO-TO-STORE in Figure 2. Also the last segment of GO-TO in Figure 1 reveals the feature, O (flat O) that is strong enough to absorb the neighboring sign, STORE, in which its handshape shows only O. This is shown in Figure 2. The repetition of STORE is lost as it is attached to GO-TO. The segments are deleted as the strong segments of I take over WANT. segments and the strong segments of GO-TO take over STORE segments. The non-manual behaviors are not included since both examples are shown as they could be produced neutrally.

Using the notation system to describe features shows the importance of understanding linguistic functions under various surrounding phonological environments like citation forms and prose. Which one could ASL poetry fit in? Are lines of ASL poems most accurately notated as 'prose' or as 'citation form'? Notation and the distinction between prose and citation form are needed for understanding how best to analyze lines of ASL poems. The same portions of the notation system that have been discussed with reference to everyday ASL conversation can be applied to ASL poetry, that is, Movement, Hand configuration, and Nonmanual Signals. In this way, ASL poetry can be analyzed separately from prose forms and citation forms.

The use of the notation system clarifies the concept of a line in ASL poetry. Several lines from two ASL poems created by two deaf poets illustrate this. Two lines of each poem,

'SNOWFLAKE' by the author and 'CIRCLE OF LIFE" by Ella Mae Lentz are shown in notation below (Figures 3 and 4).

Rhyme and line division

Before discussing the features in Figure 3 and Figure 4, the term rhyme needs to be defined. Rhyme is defined as "the repetition of the same or similar sounding movements, whether vowels, consonants, or combinations of these two or more words or phrases" (Deutsch, 1969), and consists of alliteration and assonance.

Alliteration is the repetition of the same consonant sound in successive words in a line (Kennedy, 1978) - a line from "Atlanta in Calydon" by Algernon Charles Swinburne provides a good example:

The mother of months in meadow or plain

as does a line from "a man who had fallen among thieves" by e.e. cummings:

citizens did graze at pause

Assonance occurs in the repetition of the same or similar vowel sounds at the beginning of successive words or within the words (Kennedy, 1978) as in a line from "Virginia" by T. S. Eliot:

Slow flow heat in silence

In Figure 3 all hand configurations in both lines of SNOWFLAKE show similar open handshape (5) in both hands. The repetition of the same or similar hand configuration at the first H segment of the sign, or both first and last segment of the sign, or first, middle, and last H segments of successive signs in a line, appears to function in a similar way to alliteration in spoken poetry. I refer it as *handshape rhyme*.

In Figure 4 all the movements except SUN are the same or similar, mostly in the strong hand and in both hands. In these lines, the movements occur as the repetition of the same or similar movement inside the successive signs, similar to assonance in spoken poetry. I refer it to this as *movement path rhyme*. The lines in Figure 4 do not exemplify handshape rhyme as the hand configurations show some differences. Similarly, in Figure 3 movement path rhyme is not indicated as the movements show some variations. Thus, it would seem that SNOWFLAKE heavily exploits one rhyming device while CIRCLE OF LIFE exploits another.

Nonmanual signals (NMS) are another important factor to be included in a discussion of rhyme. Note the NMS in Figure 3 and Figure 4. Repetition of NMS occurs in an orderly sequence in the lines of both poems, indicating their own rhymes. In Figure 3 at the beginning of the first line, eyebrow raise and pursed lips are indicated for the first two signs. The beginning of the third sign shows negation by headshake, and at the end of the line "th" (tongue slightly protruding) is indicated. Eye gaze traces every sign. All the NMS are repeated in an identical sequence in the second line, except for body shift. The body is oriented toward the right in the first line and then shifts to the center when the second line is begun. This is called *NMS rhyme*. It is the same thing with Figure 4. In the first line eyebrow raise and eye gaze directed towards the addressee are used

for the first sign, eye gaze follows the second sign, and then shifts back to the addressee during the
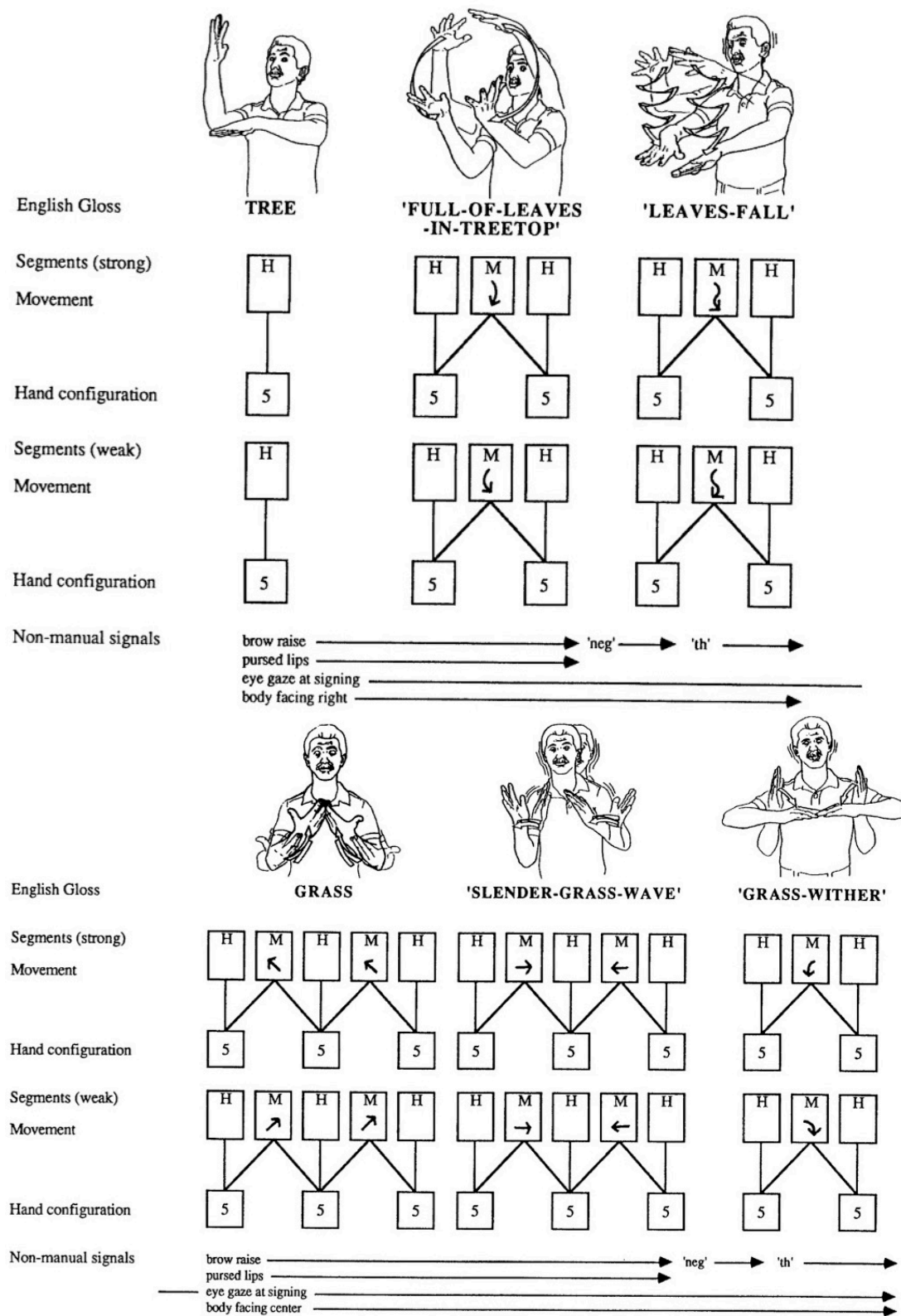
Figure 3 Two lines in SNOWFLAKE
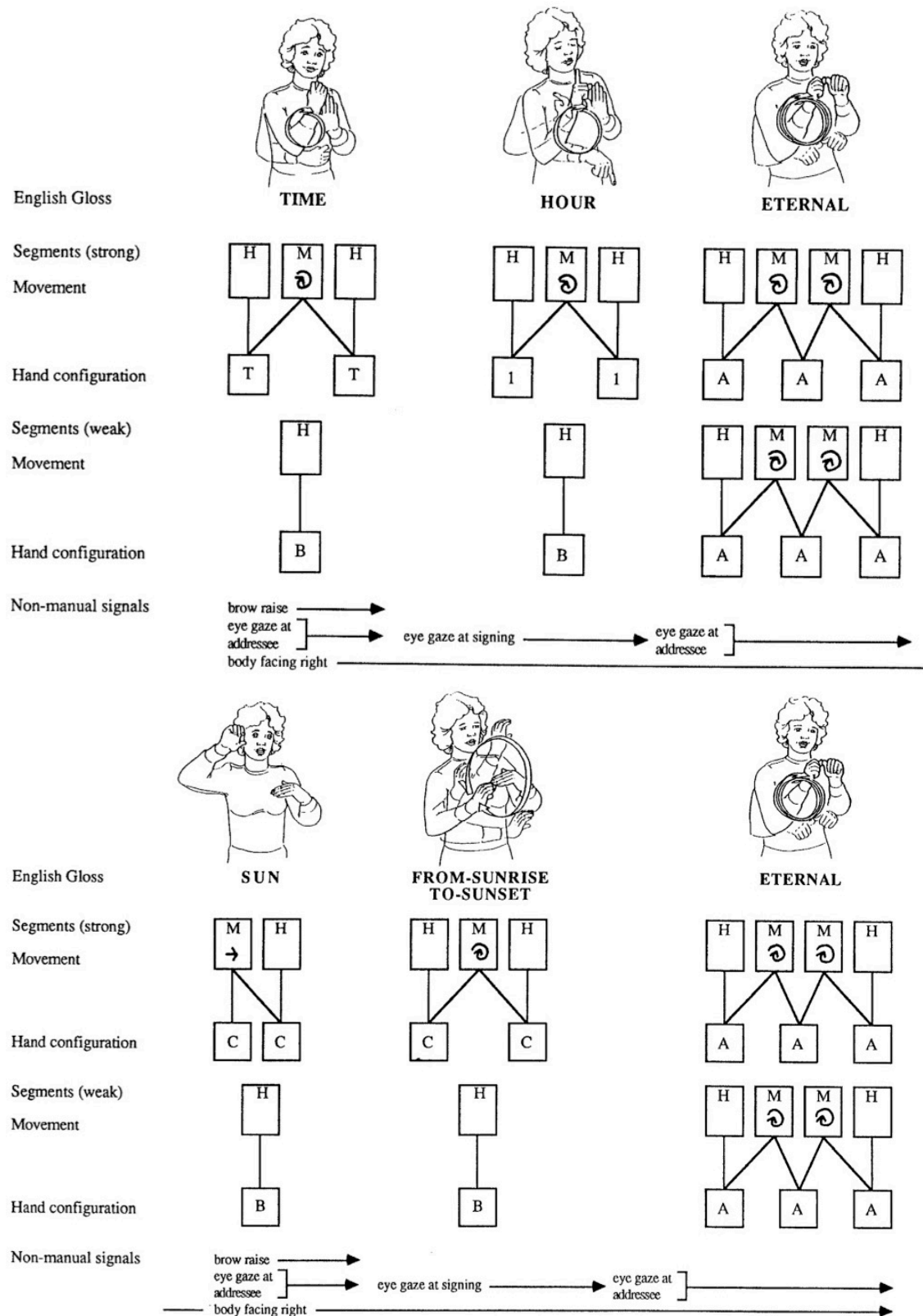
Figure 4 Two lines in CIRCLE OF LIFE

last sign. This arrangement of NMS is repeated in the second line. In addition, the rightward orientation of the body remains the same in both lines.

Regarding the question of line divisions, a line division is identified by looking at rhyming patterns and finding their repetition. In Figure 3 note the movements in the last segments in both lines. They are similar, both go downward. The movement path rhyme functions as a line terminator. Similarly, in Figure 4, the handshape rhymes in both of the last segments represent another kind of line terminator. Also, the NMS in Figure 3 and Figure 4 in both last segments are similar, showing another sort of line terminator. This is called *line division rhyme*. In any last segment, hand configuration, movement, or NMS may involve repetition. That repetition verifies our earlier observation as to where the line could be broken. Thus, the function of rhyme in marking line divisions make it clear that it is poetry rather than prose, which does not display this kind of phenomenon. It begins to look very much like "verse", which rhymes at the end of lines.

Four different kinds of rhymes are found in ASL poetry: handshape rhyme, movement path rhyme, NMS rhyme, and line division rhyme. They are not exact analogies to alliteration, assonance, and line termination because of the structural differences between sign and speech.

Rhythm

Rhyme and line division in ASL poetry have been explained. I would like to add some information about rhythm as I have observed it in citation forms, prose, and poetry. Rhythm is metrical movement determined by various relations of long and short or accented and unaccented syllables, measured flow of words and phrases in poetry or prose (Fussell, 1965; Lanz, 1968; Guggenheimer, 1972). Stresses and pauses are part of rhythmic movement. Citation forms seem to show more stress and pause than prose or poetry, while prose seems to indicate less stress and pause than citation forms or poetry. Poetry seems to incorporate movements found both in citation forms and prose. I suggest that further study of rhythm in citation forms, prose and poetry is needed.

Conclusion

ASL poetry is videotaped and performed by a number of poets, but there is no definition of the nature of the poetry. With the help of linguistic analyzes of ASL and poetic analysis derived from the analysis of spoken language poetry, the results of an in-depth study of the nature of a line in ASL poetry have been presented in this paper. Rhyme and line division have been focused on in this study since the identification of a line in an ASL poem is difficult to interpret. For sign language the eye has power to identify the movement of visual signals. Visual movement depends on body movement which has structured, sequential components. Such components are each composed of a number of parts. This study focused on different features of a sign: hand configuration, movement, and nonmanual signals. Examining these features contributed to the identification of the nature of rhyme and line division in two ASL poems. I am certain that other ASL poems will exhibit a poetic structure that is equally rich and intriguing. The analysis of ASL literature, and of the language and traditions of deaf peoples is a promising and fruitful field of scholarship.

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A commentary on Christie's 2009 manuscript, ""Black Hole: Color ASL": A Personal Response"

The Cultural Ethos of ASL Poetry

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Reading Karen Christie's commentary on the poem, "Black Hole: Color ASL," by Debbie Rennie, I am struck by how the same questions that drew me to study ASL poetry years ago persist to this day. I am also struck anew by the myriad ways in which ASL continues to be the core of Deaf American identity, and the way original ASL poetry continues to mark the significance of Deaf Americans' relationship to their language. Rennie's poem is a love letter to ASL, and Christie's words create a love letter to Rennie's poem. No artistic expression can fully explain or repair the world, but ASL poetry reveals Deaf cultural ethos and all its nuances better than just about anything I know. The insights of scholar-artists like Karen Christie demonstrate the universality of ASL poetry's significance for the Deaf World and create a bridge between the Deaf and hearing worlds.

Christie's impressive career at the National Technical Institute for the Deaf includes numerous scholarly contributions to Deaf culture and theatre, ASL literature, and other art forms related to or inspired by ASL. The "Black Hole: Color ASL" commentary brings to life Christie's personal, intimate relationship with ASL and its poetry, expressing in English some of the ways in which Deaf American identity comes into being specifically through ASL. The familiarity of her own story of linguistic discovery and cultural belonging, coming from a hearing family as do most Deaf individuals, resonates as much today as with accounts from the last 200 years.

What additionally resonates as much today as in past generations are questions concerning the relationship between language, culture and education that Christie's commentary raises. Historically, d/Deaf children's education in schools for the deaf across the US would facilitate the development of their Deaf identity naturally through exposure to ASL and interaction with d/Deaf peers. Unfortunately, however, mainstreaming d/Deaf children into local public schools with speaking and fully hearing children has become a 'preferred' option in the last several decades,[1] a reality that robs d/Deaf children of signing as their natural mode of communicating, just as speaking is natural for hearing children. Christie's personal narrative shows us the tremendous strength needed to take ownership of one's own culture and language. She discovered ASL later in life, when it should have been her language all along, and describes poignantly the ongoing process of finding her place in the DeafWorld. Christie's commentary sheds light on the consequences of mainstreaming. While ostensibly aiming to equalize education, mainstreaming cannot help but limit access to ASL, because it isolates d/Deaf children from one another and does not provide them with Deaf adult role models.

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[1] 75% of deaf/hard-of-hearing children are mainstreamed.
https://www.raisingandeducatingdeafchildren.org/2014/01/01/deaf-and-hard-of-hearing-students-in-the-mainstream/

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Ironically, in the years since Christie's school experience, hearing students may have more access to ASL than d/Deaf students. A growing number of hearing American high school and college students study ASL as a second language,[2] and the growth of Deaf Studies and/or ASL programs may educate hearing faculty in related disciplines about Deaf culture. Thus, the conditions surrounding deafness and ASL may have changed in terms of legal rights to accommodation with interpreters and increased contact between d/Deaf and hearing children and teachers, but a key paradox remains. That is, more hearing Americans than ever are aware of ASL and Deaf culture, yet equal opportunity for d/Deaf American children and adults in language/communication, education, and employment continues to lag behind.[3]

Despite a decreasing number of schools for d/Deaf children, with declining enrollments, ASL creativity persists, as it always has, but in different places and in different ways. On YouTube, examples of original ASL poems and stories posted by students and professional Deaf artists abound. Of particular note, many videos show children and adults performing the poetry of well-known Deaf artists as well as new works, suggesting the "canon" of ASL literature reaches a wide viewership and that the Deaf community flourishes in digital space. This resilience of Deaf culture and the poetic impulse in ASL reminds me of Clayton Valli's famous poem, "Dandelion,"[4] in which a (presumably hearing, English-speaking) man mows down a field of (presumably Deaf, signing) dandelions, and yet the dandelions grow again. Even though the poem ends with a mowed field empty of dandelions and a smug, satisfied expression on the man's face, the viewer knows the dandelions will inevitably return.

With aspects of Deaf culture thriving online, mainstreamed d/Deaf children growing up may discover and turn to ASL poetry online to feel less isolated. Hearing students learning ASL may turn to ASL poetry online to increase their understanding of the language and culture. Though not addressed in her commentary, Christie's professional endeavors have embraced the need for, and value of, more digital spaces for ASL poetry and other art works. One of the most noteworthy is the project she developed with Patti Durr, the website, *The HeArt of Deaf Culture: Literary and Artistic Expressions of Deafhood*, an ever-evolving repository chronicling the work of Deaf artists inspired by ASL.[5]

The addendum to Christie's commentary draws critical attention to the complex layers of power and privilege evident in intersectional realities that have impacted the visibility of particular Deaf poets. Reviewing the Deaf artists and scholars who defined ASL poetry and led the movement in the 1980s and 1990s, they were primarily white,

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[2] Based on data last updated in September 2018, 196 universities accept ASL as fulfilling foreign language requirements, suggesting thousands of hearing college students are learning ASL as a second language. (https://www.unm.edu/~wilcox/UNM/univlist.html)

[3] As a group, persons who are d/Deaf or hard-of-hearing tend to be less educated than their hearing peers; more than fifty percent of d/Deaf or hard-of-hearing persons have attained only a high school or less than high school education compared to only forty percent for hearing persons. Twenty-four percent of those who are d/Deaf or hard-of-hearing are college graduates compared with thirty-nine percent for the hearing population. (https://www.ntid.rit.edu/collaboratory/demographics)

[4] https://www.youtube.com/watch?v=hZ1LTInEQbk

[5] https://www.ntid.rit.edu/ntidweb/heart/content/ASLLiterature/index.php

included more men than women, and did not address additional identities such as sexual orientation. This awareness does not diminish at all the vital role these artists played in creating a first "canon" of ASL literature, the building blocks from which subsequent generations would learn. This awareness does, however, underscore how the "canon" has expanded—and needs to continue to expand—with Deaf persons of color, more women, and a Deaf LGBTQ perspective, among other identities and lived experiences that were more invisible in the Deaf world of the past—an invisibility paralleled in the hearing world of the past. Christie's addendum alludes to the 1990s work as a kind of first wave ASL poetry, much like first wave feminism. As with other literature and art forms, ASL poetry has evolved and become more inclusive of multiple identities.

Observing the powerful identification Christie feels towards Rennie's work, I am struck anew by how hearing people tend to take spoken language—and communication in general—for granted, unless or until their access to speech is challenged. We know that poetry and narrative created in sign languages challenges the bias of spoken language-based literature, that the signed language presents remarkable possibilities for linguistic creativity. Thus, in addition to extending the expressive and symbolic capacity of ASL, the study of ASL poetry serves to broaden and deepen our conceptualization of poetry itself. As the acceptance of ASL to fulfill foreign language requirements increases across the US, the possibilities for cross-cultural and intercultural contact also increase, while at the same time exposing ASL to a dominant hearing world that has historically tried to diminish it.

As I observe intercultural interaction between the Deaf instructor and hearing students in my university's Intro to ASL class, and as I view the ever-growing body of ASL poetry on YouTube, I am struck again by the phenomenological richness and linguistic distinctiveness of ASL as a visual-spatial language. The communicative presence of ASL merits continued exploration for the intrinsic value of signed language and its linguistic artistry; for the socio-cultural-historical moment of understanding the Deaf world; for the continued critique of normative spoken language poetics, and; for fostering and improving cross-cultural and intercultural contact between Deaf and hearing individuals via access to ASL and its creative output. A humanistic approach to difference has the potential to provide Deaf individuals equal access to education and economic advancement. Recognizing and respecting difference is more effective than the current American education policy that equates *access* with *sameness.*

What does it mean to consider the rhetoric of ASL in its simultaneous and shifting status of protected marker of cultural inclusion *and* foreign language alternative—and how is this evolution changing perceptions of ASL as well as the language itself? New works of ASL poetry and narrative, new literary theory and criticism, and ongoing reflections like Christie's can help us answer these questions and I hope many others.

"Black Hole: Color ASL": A Personal Response

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Deaf poets create poetry using ASL to share stories and emotions yearning to be expressed. These stories are often part of the *Deaf Experience* which means they are familiar to most Deaf people. In "*Black Hole: Color ASL*," Debbie Rennie has created a poem about the personal journey to Deaf culture, Deaf identity, and beyond (the poem was first published by Sign Media in the collection *Poetry in Motion: Debbie Rennie* in 1990 and here we show a clip from the 1987 National Poetry Conference). Perhaps, when you view the poem you will feel as I did: it is MY story too.

Like many Deaf people, I was not born into a Deaf family. Finding my way into the Deaf community happened much later in life. I attended Hearing public schools and grew up thinking I was a Hearing person who could not hear. Yet, along my life journey, there came a time when I found a path which led me to other Deaf people. This is where the poem, "*Black Hole: Color ASL*," opens—with the description of a ladder. Why a ladder? Well, if you are looking for a way into a new place, it might be through a door, it might be a new path in the woods, or it might be a ladder. If it is a ladder, the direction one is aiming for is upwards—moving toward a goal or a higher place. In the poem, a person is walking along, comes to a ladder, and begins to climb. As she climbs the ladder, she looks all around, both back down to the familiar and upwards to the unknown. Where is she heading? If you look at her facial expression, you can see that she is somewhat unsure—which was exactly my feelings when a young Deaf woman told me as she opened the door to the Deaf club, "You will be welcomed at the Deaf club, you are Deaf." Going through the door to the Deaf club, I was nervous, but moved forward anyway. Where was I headed?

In the poem, the person continues climbing, and she stops when she arrives at a point on the ladder where paint gallons sit in a line on a plank. Red, yellow, blue, green, and black paint symbolize ASL. The title tells us "*Color ASL*." And the person in the poem dips her HANDS into the paints! She looks up and splashes the colors across the canvas of blue sky like fireworks -- much like a Jackson Pollack painting. Here you see, she is wondrous; she is joyous. Her hands shift as she splashes paint and morphs into signing hands. Again, this provides flashes of memories for me. At the Deaf club, old Deaf grandfathers teased and flirted with me shamelessly. As I became more skilled, I learned how to play with my signs and became proud of beginning to learn how to fully use a language. Along this climb into the Deaf World, one needs important cultural tools, and the primary cultural tool of Deaf people is ASL (see Christie and Wilkins, 2006 for further discussion).

While engrossed in signing/splattering colors across the sky, the ladder begins shaking. She falters and looks down at someone below shaking the ladder, beckoning her to return back down. This part of the poem reminds me of another poem written in English by the poet Mary Oliver. In the poem "*The Journey*," which is as much a transformation poem as this one, Oliver also shows that such a life journey is not without detractors: "One day you finally knew/What you had to do, and began,/Though the voices around you/kept shouting/their bad advice." So, our journey includes others who try to pull us down, back

to the old ways. It may have been family members or elementary schoolmates, or a speech teacher who was appalled as I chose to become more involved with the Deaf World. "Come back," they yelled. "You don't have to do that…you are not like them!" Finally, though, I knew to look ahead.

As the ladder is shaken, the colors spill over. In slow motion, the paint can with the black paint, overturns and spills into a huge black puddle near the bottom of the ladder. The person who was shaking the ladder disappears into the black hole. This black hole becomes a sinkhole causing the ladder to now slip further and further downward. At the top of the ladder, she flails her arms and watches the sinkhole get closer and closer, threatening to engulf her. What is this about? It makes me think about the Deaf World existing as an oppressed group. Whereas the individual shaking the ladder presents a more personal challenge, the black hole represents how hearing culture challenges us. Where does this idea come from? For me, it is the majority hearing world which threatens to "swallow up" the Deaf World. Whereas the Deaf World is a place of many colors for Deaf people, the black hole represents a place that pulls us down, a place where there is only one color—black—where we not only will not see colors, we will also be "in the dark."

What is required when our world and ourselves are challenged in this way? It becomes an opportunity for greatness. And the flailing of arms, magically transform into the strong beating of wings. The person on the ladder rises up, flying skyward. As she flies into her sky canvas, the paint colors smear her face. Her expression is one of rapture. What does this mean? She becomes immersed in ASL and the Deaf World. It shows how self and language become intimately entwined. As we all know, the devaluation of ASL feels like a personal insult. The symbol of flying is a symbol of freedom. And here, she has been freed of worldly roadblocks, such as experiences with discrimination.

For me, I take the meaning even further. Perhaps, it is because of the magic of flying, because of the rapturous expression, or because of my own personal yearning for something more. I see her as ascending to a higher, more spiritual path where her soul expands. And this, this is where, and how, the power of the lives of Deaf people lead beyond the community to personal, spiritual fulfillment. I know I am not there yet. Some days I flail against the black hole, and other days, I imagine my feet just barely lifting off the rungs of a ladder.

This poem tells more than the story of our journey to Deafhood. I believe the poem *Black Hole: Color ASL* works karmatically; Deaf people who resist those who oppress the Deaf World are promised freedom and spiritual reward. It tells us that this journey will be filled with challenges; yet, we will rise above them. A poem by Maya Angelou states: "You may shoot me with your words/you may cut me with your eyes/…but still, like air, I rise…/Into a daybreak that is wondrously clear/…I rise." Thus, the *Deaf Experience* becomes universal. It becomes the experience of peoples of the past who have struggled and found their way. It becomes a story of personal liberation being born out of a collective life journey.

This writing first appeared in the online journal, Clerc Scar, in 2009. In the ten years that have passed, there have been a number of powerful social movements which have led to new approaches in the study of Deaf peoples' histories and lives. I wrote this personal response as a cis, white, academic, Deaf feminist who has since begun to unpack my own

privilege. While this is an ongoing process and I still certainly have a long way to go, I feel a need to at least mention that at the time of writing, I used the phrase the "Deaf Experience" to refer to a common experience many Deaf people face. This term has since been shown to lack recognition of diverse Deaf experiences, particularly the intersectional lives of Deaf people. In acknowledging this, it is hoped that ASL literature and responses to it will become more representative of the lived experiences and beautiful array of Deaf intersectional identities that make up our community.

- Karen Christie

ASL Poetry of *Black Hole: Color ASL*
(https://www.youtube.com/watch?v=gopK8V2wmoU)

Translation

The ASL-to-English translated work of *Black Hole: Color ASL*:

Ladder, rings, ladder upright
I walk come to ladder, and climb up
See pots of red paint, yellow, blue, green
Blue skies, dip into paint, splatter paint
Ladder shakes, people shake, I totter
Paint spills, the ladder shaken to dislodge, paint spills
Black hole looms, and I am endangered, paint spills
I flail and stagger, black paint spreads, I flail
Ladder is pulled down, I stagger and flail, struggle
Black looms, black looms, black looms
I fly and soar, colors all over, I fly
Colors all over, I fly, I soar. (Peters, 2000, p. 67)

Acknowledgments

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A commentary on Johnson, Liddell, and Erting's 1989 manuscript, "Unlocking the Curriculum"

Unlocking the Curriculum: Thirty Years Later

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At this writing, it has been thirty years since the seminal paper, *Unlocking the curriculum: Principles for achieving success in deaf education* (Johnson, Liddell & Erting, 1989) was distributed without authors' permission on Gallaudet University's campus. Despite its unexpected release, the information contained in this white paper was timely and powerful. As a classroom deaf educator at that time and later as a doctoral student, charter school administrator and teacher trainer, I carried a rabbit-eared, highlighted copy of *Unlocking* with me everywhere and shared its contents with whomever I could.

What thrilled me the most about *Unlocking* was the recommended model program for the education of deaf students that included 12 guiding principles for success. Publications I read before this white paper only described the failures of deaf *students*. *Unlocking* shone a bright light on deaf education systemic failures and the stakeholders responsible (If you have not read *Unlocking the curriculum* - a spoiler: the reasons they cited responsible for failure were *not* the deaf students themselves). While proposing this model program, Johnson, Liddell and Erting did not stop at identifying the stakeholders responsible for the failed system; they also offered solutions.

Johnson, Liddell and Erting also gave us hope and direction. Their fundamental message was, if only the deaf education system would acknowledge and begin with the cornerstone of using a natural signed language to educate deaf children, we could begin to make repairs. My breath still catches in my throat when I read the first sentence of the document. Thirty years later as I write this commentary, it is, to say the least, disappointing that I must coin the same sentence with a slight revision (my added word is in italics): "The education of deaf students in the United States is *still* not as it should be."

Thirty Years in Retrospect

Shortly after *Unlocking the curriculum* was distributed, scholars and educators weighed in on the viability of implementing the recommended model program and the 12 guiding principles for success. Most publications and discussions seemed to devolve into debates regarding the viability of using a natural sign language to educate deaf children, versus Signed Supported Speech (SSS), or spoken language/oral methods only. For example, a seasoned teacher wrote a letter to William Stokoe that was published in a special edition of Sign Language Studies (VanBinsbergen, 1990), detailing why the goal of using American Sign Language (ASL) in classrooms was unattainable. VanBinsbergen (1990) admitted feeling awkward about the idea because her teacher preparation program had not included much information about ASL. She asserted that in her professional opinion, most parents would not have the time or resources to learn the language. VanBinsbergen (1990) also mentioned inviting four deaf adults into her classroom to serve as

language models and based on those interactions, concluded that deaf people would not be qualified or willing to help parents learn ASL.

In the same edition of *Sign Language Studies*, Robert Clover Johnson (1990) wrote a thought-provoking commentary about *Unlocking the curriculum* based on observations and interviews he conducted on Gallaudet University's campus immediately following the distribution of the paper. I strongly recommend everyone take time to read and reflect upon Johnson's remarks (1990). While I do not have the space to delve into some of his discoveries here, there is one gem that is essential to share for the purposes of this commentary. This gem relates to a meeting he had with the second author, Scott Liddell, seeking clarification on two points that were creating a sort of cognitive dissonance for him.

To begin, Johnson was clear that *Unlocking* addressed the flawed language and communication policy that had been supported to date, instructing parents and teachers to use Signed Supported Speech (SSS) with young deaf children for the purposes of language acquisition and communication access. Users of SSS believed that hard of hearing students would benefit from hearing what they could of spoken language, while profoundly deaf students could acquire English by seeing signs that had been distorted to represent the morpho-syntactic structure of English. RCJ questions pertained to the two recommendations (listed below) from *Unlocking*. These recommendations may have been confusing at the time because of their stark contrast with SSS; and their full focus on natural languages for classroom communication and instruction, rather than the splintering of them based on each student's degree of hearing loss:

1. "hard of hearing as well as profoundly deaf students would best be served in classrooms in which instruction is conducted in ASL…" (Johnson, 1990, p. 298).

Based on this *ASL-as-the-language-of-instruction* policy, the authors stipulated the

2. "… effective use of ASL would significantly raise deaf students' average achievement levels in school." (Johnson, 1990, p. 298)

Liddell's response affirmed both of Johnson's questions stating, "…since ASL can communicate as much information in a visual channel as spoken English can through an auditory channel, then anyone with any degree of hearing trouble who can see clearly would be best advised to learn through ASL." And then regarding this new language and communication policy, "…'we believe this proposed program would bring deaf students' achievement levels right up to grade level" (Johnson, 1990, p. 298).

Hindsight is 20/20

Johnson's (1990) questions for the authors of *Unlocking* provided us with a taste of genuine foreshadowing about the future role of ASL as an academic language. In short, he asked the questions that were on everyone's mind. The authors suggested a Universal Design for Learning (UDL) framework for deaf students long before the term was officially coined in educational circles.

Fast forward ten years from the paper's distribution, Sam Supalla along with a small group of parents with deaf children, decided to take the first step to unlock the curriculum by establishing a charter school in Tucson, Arizona that fully embraced the paper's model program. This charter school implemented the first and only school with a UDL approach and is described in; Supalla, Wix & McKee (2001); Supalla & Blackburn (2003); Supalla (2017); and Supalla & Byrne (2018). Along with an apt description of the charter school's reading instruction model, Supalla & Byrne (2018) challenge us to re-define the term *curriculum* for deaf students.

When *Unlocking* was first distributed and still today, deaf educators define the *curriculum* as a place where deaf students need only gain entry or access, in order to communicate and exchange information. Supalla & Byrne (2018) explain that the *curriculum* deaf educators need to unlock for their students are grade-level academic standards and a plan for learning. If we define the curriculum for deaf students as academic learning standards to achieve, we can more readily see what needs to be unlocked and how to do so.

The authors of *Unlocking* took the first, bold step to assert that deaf students did not have even basic, unhindered access to communication in their classroom. Much worse, Supalla & Byrne (2018) describe a learning experience where deaf students are required to decipher English print that contains embedded phonemic sounds that the students do not hear, and/or process linguistically. In the name of "access," deaf educators have created work-around arguments for how to unlock sound-based learning standards in order to teach deaf students *how to hear*, rather than teach them *how to read*. For example, consider this First Grade learning standards from the Common Core State Standards Initiative ("Preparing America's students for success," n.d.):

Demonstrate understanding of spoken words, syllables, and sounds (phonemes).

Special education experts would recommend removal of this type of reading standard because it is considered unattainable by some deaf students due to the severity of their hearing loss. However, academic standards related to learning to read are organized and scaffolded in such a way that if certain foundational standards are removed, the student will be denied sufficient information to *unlock* or achieve the particular end goal of that learning standard.

Supalla & Byrne (2018) explain that a UDL approach coupled with ASL Gloss as an *intermediary* writing system easily solves this conundrum for deaf students and their teachers. ASL simply needs to be recognized and addressed as an academic language at local, state and national levels. In this regard, the current academic standards as demonstrated above (i.e., the locked curriculum), can be translated to represent a UDL that complies with any language modality, so the barrier of sound embedded in spoken language text can be addressed and remediated.

Johnson, Liddell & Erting (1989) concluded their *Unlocking* paper with fair warning that changes will not be easy, and they were correct. However, it is critical that we do not squander another 30 years unpacking and debating how to unlock the curriculum for deaf students when we have the key, signed language, in hand. ASL Gloss and related literacy-learning tools align easily with state and national learning standards. *Unlocking*'s recommended model program and guiding principles for success have been implemented and can be reduplicated. To proceed without acknowledging the language and resources we have available to us is irresponsible. I will conclude with the encouragement of Supalla & Byrne (2018):

At present, deaf children desperately need an effective way to learn to read English texts and ASL gloss is poised as a reading instruction approach that is sensitive to the linguistic comprehension and decoding needs for the education of deaf children. One way or another, all children, with or without disabilities, deserve the opportunity to become fluent readers and to achieve that, attention needs to focus on best practices for deaf children and learning to read (p. 48).

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Unlocking the Curriculum: Principles for Achieving Access in Deaf Education[1]

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The Failure of Deaf Education

The education of deaf students in the United States is not as it should be. It has been documented time upon time that deaf children lag substantially behind their hearing age mates in virtually all measures of academic achievement.[2] Gentile (1972) found that deaf students' achievement on the Stanford Achievement Test (SAT) was markedly depressed in spelling, paragraph comprehension, vocabulary, mathematics concepts, mathematics computation, social studies, and science. Allen (1986) demonstrates that these patterns still persisted in 1983 and that, for each year of school, deaf children fall further behind their hearing peers in reading and mathematics achievement. The most recent comments on the situation have come from the Commission on Education of the Deaf, convened in 1987 to examine the current status of deaf education in the United States. Throughout its report (1988) the Commission reiterated its conclusion that the results of deaf education have failed to live up to our expectations and investments.

We contend in this essay that these results represent a failure of the system that is responsible for educating deaf children. We will argue in support of changes in the system which recognize deaf children's need for early natural language competence and for communicative access to curricular material. Although these changes will not simply or quickly solve the problems of deaf education, they could move the system toward a higher rate of success.

Understanding the difficulties facing deaf education begins with an examination of the children being educated. Less than ten percent of children who are prelingually deaf come from families in which there is an older deaf relative (Meadow, 1972; Rawlings, 1973; Trybus & Jensema, 1978; Karchmer, Trybus, & Paquin, 1978). Through such relatives, many of these children can gain access to the acquisition of a natural language (in the form of American Sign Language) and thereby to the information that is critical for those aspects of normal socio-emotional development that are founded in family interaction. For the other ninety-plus percent of deaf children, however, the situation is quite different. Typically, a deaf child is the first deaf person that the members of his family have ever encountered. For such parents, having a deaf child is generally unexpected and traumatic. Furthermore, their first advice usually comes from a pediatrician or an audiologist, many of whom do not understand the importance of early sign

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[2] Throughout this essay, we use the word deaf in its most generic sense to include all children whose hearing impairment is sufficiently severe that they are not able to benefit fully from ordinary classroom placements. In general, this includes those children identified as "hearing impaired" in the demographic and statistical studies we cite. It is our view that our conclusions about accessible deaf education apply equally to all deaf children, regardless of the severity of their hearing loss.

language acquisition. Thus, the parents and siblings of deaf children seldom have the communication skills or the knowledge and experience required to provide these children with an accessible context for the acquisition of either a natural language or the cultural understandings and experiences available to hearing children.

Thus, when a deaf child of hearing parents enters elementary school, that child is typically already well behind children with normal hearing in such critical areas as linguistic proficiency (in either spoken English or in a signed language), factual knowledge about the world, and social adjustment.

Over the subsequent years, hundreds of thousands of dollars are spent on such a child's education. The money pays for teachers with special training in the education of deaf children, audiological services, technological devices to assist hearing, speech teachers, and the latest computer hardware and software. Virtually all of this effort is designed to help children acquire English through the production and understanding of sounds.

As the years progress, and in spite of this investment, deaf children fall behind hearing children of the same age at an increasing rate each year. When it is time to graduate from high school, the average deaf child has grown into a young adult whose ability in most school subjects is grossly deficient. Statistics gathered periodically by the Center for Assessment and Demographic Studies at Gallaudet University show that the average performance of a deaf high school graduate is far below the average performance of hearing high school graduates, especially in those areas that depend on comprehension of English speech or text.

In spite of several decades of concentrated efforts to improve the figures, the average reading level of deaf high school graduates remains at roughly the third or fourth grade equivalent, and average performance on mathematics computation is below the seventh grade equivalent (Allen, 1986, pp. 164-5). The issue has recently been brought to the attention of educators of deaf children by Paul (1988, p. 3):

> Since the 1970's, most deaf students have been educated in Total Communication programs in which some form of signing and speech is used simultaneously for communication and instructional purposes. Despite improvement in the development of tests, early amplification, and the implementation of early intervention or preschool programs, most students are still functionally illiterate upon graduation from high school.

The simple averages reflected in these comments point to a serious problem with the system. But more disturbing is the narrowness of the range in achievement scores. Even the best deaf students graduating from high school (including those who are less than profoundly deaf) demonstrate depressed achievement scores in comparison to their hearing peers. A 1988 survey of achievement of entering freshmen at Gallaudet University demonstrates this point. Gallaudet, a university specifically for deaf students, endeavors to attract and accept only the most qualified students in the United States. A summary of the achievement scores of the entering freshman class of 1988 shows that a grade equivalent of 10.4 in reading puts a student in the 98th percentile of all deaf students in the United States. Similarly, a grade equivalent of 7.8 in "language" (English grammar) falls into the 93rd percentile (Goodstein, 1988). Thus, even the highest levels of

achievement among deaf students are depressed by comparison to hearing norms, according to which much higher grade-equivalents are necessary to be included in the 93rd to 98th percentiles.

These results appear not to be restricted to children who have been exposed to any one of the several "methods" for educating deaf children currently in use in the United States. Each method is more accurately described as a policy about how teachers and students should interact and communicate with one another. These approaches to communication include oralism, total communication, simultaneous communication, artificially developed systems for coding English, and Cued Speech. In the end, regardless of the particular method selected by parents or educators, the results are less than adequate.

'This conclusion is even apparent to laypersons who examine deaf education from the outside. A recent segment of The MacNeil-Lehrer News Hour (1988) concluded that each of the major approaches to educating deaf children in America (private oral programs, residential Total Communication programs, and public mainstream programs) is "seriously flawed."

They observed that the problems persist in spite of the fact that classes for deaf students are small compared with classes for their hearing counterparts. A class size of eight to ten is typical. Moreover, teachers of deaf students are highly trained, and typically hold an MA or MEd degree from a program which provides specialized training in deaf education. In addition, the cost of educating a deaf student in specialized programs is quite high when compared to that of educating hearing, public school students. How is it possible that such a well-developed, costly, and elaborate system has failed?

The Reasons for Failure

It is our position that the failure of deaf education to live up to its promise results, first, from deaf children's fundamental lack of access to curricular content at grade level, and, second, from the general acceptance of the notion that below grade-level performance is to be expected of deaf children. The first of these problems --access-- is in our opinion largely a language-related issue. The second --low expectations-- is, we believe, primarily an issue of values and attitudes that have developed among those who educate deaf children.

Linguistic Access to Curricular Content

The issue of linguistic access to curricular material has been at the heart of all discussions about pedagogy in deaf education since about 1870. Most proponents of one methodology or another have used access to educational and social benefits as the underlying justification for their proposals. Most arguments about pedagogy have centered on what means of communication should be implemented or inspired in deaf children in order for them to match more closely the normative linguistic and behavioral expectations of hearing children.

However, it is not the case that the developmental history of deaf children is linguistically like that of their hearing peers. It is unusual for a hearing child to reach the age of four or five without having acquired at least the rudiments of a natural language. Even severely mentally retarded children develop rather sophisticated linguistic competence at an early age.

It is usually the case, however, that deaf children of hearing parents have not developed a sophisticated competence in any native language (signed or spoken) by the time they enter

kindergarten. Because most deaf children are born into all-hearing families, they tend to be addressed in the home only in spoken English, a language and modality which may be almost totally inaccessible to them. Upon entering school they are consequently already well behind hearing age mates in both language development and the cognitive and social development that comes from interacting with parents and peers using a natural language. It follows that such children will also be substantially behind their hearing peers in the acquisition of the knowledge and information expected to be held by children of their age.

In all of these respects, children who have been addressed largely in spoken English will typically also be behind their deaf age mates who have acquired ASL naturally. These children generally come from families with deaf parents or older deaf siblings, and typically have a native competence in natural sign language and several years of experience conversing about the world with adults and peers.

We contend that education programs for deaf children in this country deny the linguistic needs of either of these groups. To our knowledge, all programs in the United States continue to present curricular material in a form that is not accessible to either of these categories of children. Material presented in spoken English is inaccessible to any deaf child, including even those with less than profound hearing losses. If deaf children could deal with plain spoken English, there would be no need for special educational treatment. That is, because the majority of deaf children fail when only spoken English is available, our country has long recognized the necessity of special programming. For reasons we will discuss below, material presented in "Signed English" is usually equally inaccessible.

Oral programs use spoken English as the sole mode of instruction. Although residential oral schools have greatly declined in number, there are still many oral, public school, day programs for educating deaf students. The underlying assumption of such programs is that children will acquire spoken English through seeing and hearing it, and that this language acquisition will lead to more complete integration with the "hearing world" (Van Uden, 1968; Miller, 1970; Northcott, 1981). They have traditionally failed because deaf children cannot hear and because only a small part of the spoken English signal may be comprehended visually. Competent lipreading requires prior knowledge of the language and being able to use that knowledge (and partial hearing) to supply missing information. Thus, children who have substantial residual hearing and children who have become deaf after the acquisition of spoken English typically have been more successful in oral programs. Even with such advantages, it takes years of concentrated, individualized training for a child to develop reliable skills in lipreading and speech, usually to the exclusion of a substantial portion of ordinary curricular material.

For a profoundly and prelingually deaf child with little or no prior language experience, oral education is expected to teach not only speech and lipreading, but also to provide the fundamental model for acquisition of the English language. Children are expected to acquire, to understand, and to use spoken English simultaneously.

But more critical to the educational process is the fact that the same children are expected from the first day to receive, process, and learn all curricular content through spoken English produced by their teachers. It is not surprising that most deaf children do poorly in this environment. It appears to us to be unrealistic to think that a person who does not know a language and who cannot receive it in the form presented could learn much from someone trying to communicate in that language.

In addition, because oral programs usually forbid signing, the social environment for students is also inadequate. Although children in oral schools typically create their own systems of signs with which they communicate in private, these systems are often quite restricted and usually differ markedly from more-standard ASL. Students cannot communicate easily among themselves or with the adults in classrooms or other official environments. Neither can they "overhear" conversations among others in the way that hearing children do. In these ways, the system also limits children's access to general cultural knowledge, socio-emotional experiences, and other interactions that might affect cognitive development. Thus, for many profoundly deaf children, complete reliance on audition and lipreading is unreasonable and counter-intuitive.

Total Communication was well-established as a "philosophy" of deaf education by the early 1970's and, in its most common incarnation as simultaneous communication, has since become the predominant methodology in the United States. Because it calls for teachers to use signing in the classroom, it has come to stand as a symbol of opposition to oralism and as such has enjoyed substantial support from the adult deaf population.

While it is true that Total Communication programs re-introduced signing to the classroom, it has not made curricular material accessible to either of the categories of deaf children described above. The required "mode" of communication in virtually all Total Communication programs is spoken English supported by simultaneous signs. We refer to such signing as sign-supported speech (SSS), in order to focus on the assumption that the speech is seen as the primary signal in the conglomerate of signing and speaking (Johnson & Erting, in press). A large proportion of the signs used in SSS are special signs developed for use with spoken English. The goal of such signing is to present simultaneous signed and spoken utterances, both of which are held to be complete representations of English. According to this model, it is these representations of English that serve both as the input for natural language acquisition and as the vehicle for the transmission of curricular material.

The use of signs to support spoken English is often referred to as "sign language," but it is not. Sign languages are natural languages with grammars independent of spoken languages. This has been demonstrated by scores of researchers beginning with Stokoe (1960). This research has shown that sign languages like ASL are natural languages because (1) they develop naturally over time among a community of users, (2) they are acquired through an ordinary course of language acquisition by children exposed to them, and (3) they are grammatically organized according to principles found in all other human languages but exhibit independent patterns of organization that make each sign language unique.

In contrast, artificially developed systems for SSS have none of these three characteristics. They have been developed in large part, not through regular use by a community, but by committee; they tend to be taught rather than acquired; and what grammatical organization they have derives purely from another language. Thus, although a people using SSS are moving their hands, they are not using a sign language.

For these reasons, the signed portion of SSS utterances does not have the grammatical, morphological, phonological or lexical structure of American Sign Language. In fact, because ASL is so different in structure from English, it would be impossible to speak full English sentences and sign complete ASL sentences simultaneously. Rather, an SSS utterance is a series of ASL signs and invented signs in English word order that is intended only to represent English speech.

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It has been known since the early stages of the implementation of Total Communication that the signal in both parts of SSS utterances is flawed (Crandall, 1974, 1978; Baker, 1978; Marmor & Petitto, 1979; Kluwin ,1981a, 1981b). The task for a hearing person attempting to speak and sign simultaneously appears to be psychologically and physically overwhelming. Under such difficult conditions, one or both parts of the signal will deteriorate. A hearing person will typically begin to audit the speech portion of the signal and will allow the sign signal to deteriorate either by omitting signs randomly or by deleting those signs that do not fit the rhythmic pattern of English speech. At the same time, the spoken signal is typically slowed down and altered phonologically and is often characterized by excessive halting, hesitation phenomena, repetition or other delaying tactics. In general, the less the speech signal is altered, the more the signed signal will be unintelligible. In our view, it is not an exaggeration to say that the signed portion of the SSS presented in virtually all of American deaf education is only partially comprehensible, even to skilled native signers. It is also not an exaggeration to say that often the signed portion of the SSS in American classrooms is largely unintelligible.

Johnson and Erting (in press) examined the sign supported speech productions of a hearing preschool teacher interacting with four-year-old deaf children. An excerpt from the transcript of her productions is presented below. In the transcript, the elipses (...) indicate intervening sentences by a child. Vocal English is in italics; sign glosses are in upper case. Signs in which the hand configuration corresponds to the first letter of a spelled English word (initialized signs) are underscored.

TELL   SAY   HORSE   RABBIT   NO
Tell ... tell the Easter Bunny   ... He said "No, he's

ALL OUTSIDE   DIFFERENT COLOR Pro3
all out.   You can take a different color.
     FORGET   TELL   THANK-YOU
...You forgot to say you've ... say thank   you...

T   YOU FORGET <u>HER</u>   VOICE PLEASE
T says you forgot her. Use your voice please ...

ZERO ORANGE   SORRY   OUTSIDE ORANGE PICK   OTHER COLOR
No orange. He's sorry but he's out of orange. Pick another color.

ZERO PURPLE WHAT   WRONG TOGETHER-WITH EASTER DEVIL
No purple? What's wrong with this Easter Bunny? ...

         Pro3 CAN'T HEAR YOU Pro3 CAN'T HEAR YOU
Well, tell him. He can hear you. He can hear you. ...

  <u>I</u> THINK <u>I</u> FREEZE GREEN   TOGETHER-WITH YELLOW FLOWER LOC-ON I-T
Ah, I think I want a green one with   yellow flowers on   it.

[-----unintelligible-----------] YELLOW FLOWER   [---] OTHER   1
Those are purple flowers. I said yellow flowers. Get another one.

EAT WAIT   OTHER   1   <u>CAN</u> OTHER   1
Okay.   Wait a minute. Can I have another one? Have another one?

<u>I</u> FREEZE OTHER   1   <u>CAN</u> <u>I</u> HAVE 2   PINK   1   GOOD
I want another one.   Can I have two?   Oh.   A pink one.

I GET   2   MAYBE ASK GOOD
I got two. ...   I don't know, maybe.   Good. Okay, let's change.

          GOOD EASTER DEVIL
You were a good Easter Bunny.

Johnson and Erting comment on this event as follows (in press, pp. 63-4):

> The teacher consistently misarticulates signs, a problem compounded by the fact that her misarticulations often result in signs that actually mean something else, for example, DEVIL and HORSE for RABBIT, CAN'T for CAN, and FREEZE for WANT. But more problematic is the incongruity of her signs with her spoken English. It is clear that her signing is not in any sense an exact representation of English speech. Many English words are not represented by signs, and there is no consistent pattern to what is eliminated. The end result is signed sentences that are mostly incomprehensible, often contradictory to the intended meaning, and largely incomplete. Even at best, the teacher's sentences are not accurate representations of English. To expect children with little or no hearing and with little previous contact with English to learn English from this kind of model is unrealistic.

Productions of this quality are not unusual among hearing teachers using SSS. It is natural to wonder how such a state of affairs could possibly develop or be sustained. One explanation is that, because a hearing teacher is attending primarily to the spoken portion of the signal, the fact that the signed portion has broken down is seldom recognized. Under such conditions, teachers generally believe that, because they are signing, the children have access to the information being put out by their speech (Erting, 1986). Thus, the focus on performance leads to an inability by the teacher to judge appropriately the needs and responses of the children. This is contradictory to our view that classroom education depends on teachers' ability to adjust their teaching strategies and what they say to the children's needs. It also results in providing an unintended advantage to those children in the class who have more residual hearing. These children, then, become the weathervane of the teacher's own judgments about the success of the lessons.

Even under the best of circumstances these observations remain true. Consider, for example, a situation in which a hearing teacher is actually able to produce signs clearly while speaking to a deaf child who has acquired a natural sign language from birth. When the teacher produces an utterance, the child will recognize many of the signs but will lack the competence in

English grammar and the experience with the invented English signs necessary to decode the teacher's message. The child's competence in ASL grammar would not help because the teacher's utterances are not structured by ASL grammatical principles.

While it may seem to be too obvious to say, it remains true that, in order to understand signed utterances built on English syntactic and morphological principles, a child must first be competent in English. It also remains true that most deaf children arrive at school with little or no competence in English. These observations combine to suggest that English is not the most appropriate language to use for instruction in important and valued parts of the curriculum. This conclusion seems to have escaped the reasoning of those who have designed our current approaches to instruction for deaf children.

In opposition to this view, proponents of "signed English" assume that systems for representing English speech make English "visible" to deaf students. This assumption then becomes support for the expectation that deaf students will acquire signed English competence naturally through seeing English and that this signed English competence will lead to spoken English competence and written English competence. The following series of comments from the inventors Signing Exact English make the assumptions of this approach clear (Gustason, Pfetzing, & Zawolkow, 1975):

> The message is clear. Deaf children must be exposed as young as possible to English if we want them to learn it well, and since input must precede output we need to make sure that their perception of the language is as unclouded as possible. (p. iv)

> Signs present larger, more discrete symbols in communication than either speech or fingerspelling and are thus easier for very young deaf children to pick up. (p. v)

> However, American Sign Language is a language in its own right, and this language is not a visual representation of English.... Its structure is different from that of English, and the symbols represent concepts rather than English words. A child learning American Sign Language at an early age has communication, but he must still learn English if he wishes to function well in our society, and he must learn it as a different form of communication. Moreover, the difference in structure and symbolism makes ASL a difficult language for many hearing people to master. Since most deaf children have hearing parents whose native language is English..., we suggest that these parents can most comfortably learn to sign English and so expose their child to their own native language, rather than learn ASL and have the child later learn English as a second language. (pp. v-vi)

From the time of its introduction to the field, the philosophy and methodology of Total Communication has depended on the assumption that SSS provides a Visual representation of English. Denton was among the first proponents of Total Communication in the United States and oversaw its implementation at the Maryland School for the Deaf in 1968. The following passage summarizes his view on the developmental functions of SSS (Denton, 1976, p. 6):

In regard to the day to day practical aspects of Total Communication, the concept simply means that, in so far as possible, those persons within the child's immediate environment should talk and sign simultaneously, and the child should be benefiting from appropriate amplification. This, of course, is based upon the belief that it is indeed possible to sign what one says with respect to English syntax, and that signs and speech can be compatible. The consistent use of simultaneous speech and signing and the consistent use of appropriate amplification provides [sic] the child with a syntactical model for imitation which is both visual and auditory. The highly visual and dramatic language of signs operate [sic] as the foundation of Total Communication reinforcing, undergirding and clarifying those minimal clues available through speechreading. Likewise, minimal auditory clues are enhanced and reinforced by signs and speechreading. For all of us then, communication is total or multi dimensional ... [sic] one dimension enhancing, reinforcing and enriching the other.

But the validity of the underlying assumption that any system of signs (either natural or invented) is capable of representing speech in a way which will allow it to serve as a model for the natural acquisition of a spoken language has never been demonstrated. From the time that SSS was first instituted as educational practice, linguists and some educators have argued that it is unable to serve the purposes claimed for it (Charrow, 1975; Reich & Bick, 1977; Stevens, 1976; Quigley & Kretschmer, 1982; Johnson & Erting, in press).

Evidence suggests that grammars of English developed by deaf children who see SSS as their model do not conform to the grammars of English developed by hearing children who learn English through listening and speaking. Charrow (1974) demonstrated that the broad variation in the written English of deaf children points to the existence of highly idiosyncratic grammars of English, which differ substantially from standard English, and result in the kind of productions typically labelled "deaf English."

S. Supalla (1986) provides evidence that the grammars of children's "English" signing are also characterized by significant idiosyncratic divergences from the grammars predicted by the educational model. He studied the signed output of deaf students who had been in an "ideal" signed English environment for several years. Although their teacher produced faithful signed renderings of English sentences while teaching, the signing of the students did not show evidence of genuine competence in English. He found that each child formed an idiosyncratic grammar, containing innovations quite unlike English, but resembling in some ways the complex verb morphology of natural sign languages. This study clearly suggests that it is unrealistic to expect that exposure to signed English will lead naturally to the acquisition of competent English grammar, either spoken or signed.

Research on the acquisition of spoken languages by hearing children confirms that such results can be expected. McLaughlin (1984, pp. 188-9, p. 194) summarizes work that demonstrates that when hearing children or adults attempt to learn a second language before adequately learning a first language, or when one or both linguistic environments are impoverished, the resulting grammars will be idiosyncratic with respect to the ordinary grammatical patterns of the target language. Moreover, he contends that such results are predictable if the two languages are not clearly differentiated (1984, p. 213). From this perspective it appears that the mixture of English

and ASL found in SSS and the generally impoverished quality of the signed portion of the signal may provide a model that is counter-productive to the goal of language acquisition.

Quigley and Paul (1984, pp. 19-23) conclude that there are no studies demonstrating that the SSS movement has been successful in promoting English achievement. In examining what they call the most favorable evidence in support of each approach to deaf education, they find that results favoring any one of the approaches can usually be explained by an intervening variable, such as socio-economic status, literacy and educational level of the parents, or personal involvement of the parents. They find no unequivocal evidence in support of the practices associated with Total Communication.

It is still widely believed, however, that ASL, while possibly a nice means of communicating socially, is unsuited for the educational process. In fact, both the official statements and the common practice in American deaf education suggest that those in charge of educational institutions still believe that early sign language exposure inhibits the learning of speech. In a recent debate in the magazine Deaf Life, the superintendent of a state residential school for deaf children, made the following comments (Bellefleur, 1988, p. 23):

> ASL is a beautiful, conceptual language, and I truly believe that it has an important place in the proliferation of a deaf sub-culture, but it has no place in the education process, if deaf citizens ever wish to compete with their hearing counterparts, with any kind of efficiency.

> . . . When I ask myself why those individuals would use written English to support a language that dispossesses its users, I have to wonder if the subconscious motives of the advocates might actually be to keep their constituents in a state of impoverished language.

Because of views such as this it is unusual to find deaf teachers in public school programs for deaf children. Most deaf teachers work in residential schools, but even here it is still common practice throughout the United States to put them in the upper grades or with developmentally retarded children where they will have less impact on the language use of the ordinary deaf children (Moores, 1987, p. 205). Thus, the deaf education system, in which over 42 percent of teachers were themselves deaf in the 1870's, was able to reduce that proportion to less than 12 percent by the 1960's (Lou, 1988, p. 76). This has been accomplished primarily through the argument that deaf teachers are poorly suited to speech-centered methodologies and by perpetuation of the misconception that sign language exposure and acquisition at an early age impedes the acquisition of spoken English and appropriate "hearing world" behavior. We suggest that this trend has been intimately linked to the difficulty deaf students encounter in attempting to acquire the contents of the curriculum.

On the other side of the issue is a fact that has been recognized by researchers for many years: deaf children of deaf parents on average achieve higher levels of proficiency in school-related skills than do children from all-hearing families (Stevenson, 1964; Stuckless & Birch, 1966; Meadow, 1968; Vernon & Koh, 1970; Corson, 1973; Brasel & Quigley, 1977; Moores, 1987, pp. 198-205). In all of these studies, children from deaf families consistently outperform children from hearing families in most measures of academic achievement. Moreover, in most of

these studies there were no significant differences between the two groups in speech or in lipreading. Although there are many factors to be considered, e.g., not all deaf parents sign, not all parents who sign use ASL, etc., (for a review of such considerations, see Quigley & Paul, 1984, p. 18), the overriding difference between these children and those born to hearing parents is early exposure to a natural language and lifelong communication with competent language users about topics of everyday life. In addition, these children are born to parents fundamentally like themselves, from whom they can acquire a social identity (Erting, 1982; Johnson & Erting, in press). These facts combine to suggest that early acquisition of sign language from competent adults may provide an advantage in the acquisition of academic skills and that it does not hinder the acquisition of English speech or literacy skills.

A possible explanation for this pattern is that deaf children of deaf parents, like all hearing children of hearing parents, are not taught their native language; they acquire it naturally through exposure to it. Because it is a visual language, a natural sign language provides deaf children with access to ordinary processes of language acquisition. In addition, evidence from research on spoken language suggests that bilingualism may enhance certain cognitive characteristics. Hakuta, for example, in summarizing research on bilingualism, states (1986, p. 35):

> Take any group of bilinguals who are approximately equivalent in their L1 [first language] and L2 [second language] and match them with a monolingual group for age, socioeconomic level, and whatever other variables you think might confound your results. Now, choose a measure of cognitive flexibility and administer it to both groups. The bilinguals will do better.

To the extent that cognitive flexibility is a desirable goal in the education of deaf children, it may be that the acquisition of both ASL and English may provide an advantage rather than a obstacle.

For the most part, children from families with deaf members present fewer problems for deaf education than do those born to all-hearing families. Although there have been only a few descriptive studies of deaf preschoolers (Erting, 1982; Johnson & Erting, in press), it is evident that deaf children of deaf parents arrive at school better informed and with better linguistic skills in both English and ASL. But the general problem of low expectations in the system and lack of access to the curriculum remains even for these children. Thus, although they tend to perform at a level higher than their deaf age mates, as mentioned earlier, their level of performance is still not at a level equivalent to their hearing peers.

In those school programs where children are allowed to sign freely and where there are some children from families with deaf members, the language used by most of the children is American Sign Language. It is unlikely that they learn ASL from their teachers, who generally have only limited competence in the use of ASL or who probably do not use it in the classroom if they do know it. Woodward and Allen (1987) found that, of 1,888 teachers surveyed, only 140 reported using ASL in the classroom. Further queries determined that only six of these 140 teachers could unequivocally be said to use ASL. As a result, the language-competent children themselves and competent adult signers with whom the children come in contact are able to undertake a large part of the socializing process for the children of hearing parents. Thus, in such situations, children of hearing parents usually learn American Sign Language from their peers. Johnson and Erting (in

press) document the existence and some of the dynamics of peer socialization to norms of language use among four-year-old deaf children.

Because children in such settings develop competence in American Sign Language, their social environment is much superior to that found in oral schools, in mainstream classrooms, or in Total Communication schools where children have not had substantial contact with ASL. It stands to reason that situations which permit the development of natural language more adequately provide contexts for both linguistic socialization and socio-emotional development.

There is substantial evidence that the capacity to learn a first language is most readily available during the first few years of a child's life (Lenneberg, 1967). That such an effect is also, present in the acquisition of sign language has been demonstrated by Newport and T. Supalla (1987), who have identified markers of late sign language acquisition that remain even among signers who have been signing for several decades. Those who acquired ASL during early childhood showed much more consistent grammars and a richer command of the complex structures of the language than did those who acquired it later. Thus, the sooner that contact between deaf children and competent adult and child signers can begin, the more complete and competent those children's ultimate command of the language will be.

Early acquisition of ASL may also be important to our goal of teaching English to deaf children. Research on bilingualism suggests that children and second language learners need a foundation in one natural language before attempting to learn a second language (Cummins, 1979). Paulston summarizes data on age of acquisition and concludes (1977, p. 93):

> The evidence is perfectly clear that mother tongue development facilitates the learning of the second language, and there are serious implications that without such development neither language may be learned well, resulting in semilingualism.

These findings combine to provide an additional argument for establishing a natural sign language as a first language as early as possible.

However, as reported by the Commission on Education of the Deaf, there has been little recognition of the value of establishing school environments that purposely take advantage of this sort of natural language acquisition process.

> Little weight [in education of deaf people] is given to the value of using the method of communication the child has been accustomed to as part of his or her total program. (In fact, almost unrecognized is the legitimate status of American Sign Language (ASL) as a full-fledged native minority language to which all of the provisions of the Bilingual Education Act should apply.) Also too seldom recognized is the need for a deaf child to have other deaf children as part of his or her peer group, and to be exposed to deaf adults. (Commission on Education of the Deaf, 1988, p. 9)

English-speaking parents of hearing children in the United States can assume that their children will be instructed in a language to which they have access. Similarly, children who do not know English have a right to be instructed in their own language until they know English. Current

approaches to deaf education continue to pursue English-only and speech-dominant approaches. Such approaches expect the children to learn curricular material through communication in a form which they can understand only imperfectly at best. This puts the form of instruction (how something is said) in constant competition with the content (what is said). In American deaf education, form usually wins, a fact which maintains and intensifies the gap in performance between deaf children and their hearing peers.

It is now understood that the reliance on speech-dependent means of communicating in early childhood education programs and in parent training programs has failed to achieve the accelerated English language acquisition that was expected of it (Lucas, 1989). Its most pronounced effect is to delay acquisition of a child's first language and intensify the effect of the lack of early and extensive social interaction. Thus, although early childhood education, is continually pushed to younger ages, many children still enter school with little or no competence in a natural language and with serious inadequacies in the kinds of social skills and cultural knowledge expected of children their age.

The Cycle of Low Expectations

We have proposed that changing language policy and permitting the use of ASL in classrooms would be of benefit in attempting to bring deaf children closer to normative grade-level achievement. It is probably not the case, however, that such a change alone would be sufficient to bring them to parity with their hearing peers. This is because deaf education in the United States has come to expect that deaf children cannot perform as well as hearing children and has structured itself in ways that guarantee that result.

The report of the Commission on Education of the Deaf (1988) contains descriptions and several recommendations concerning the appalling lack of standards and accountability in the field. But the situation is not the result of widespread cynicism or malfeasance. In fact, the field is populated by dedicated, hard-working, and committed individuals, most of whom have made a principled choice to pursue a career of public service. The problem results more from training programs, which, through a belief in and a commitment to speech-centered educational methodology, fail to prepare aspiring teachers to meet the actual communication needs of deaf pupils.

The curriculum of typical training programs in deaf education, for example, includes a great deal of material on teaching speech, the psychology of deafness (usually concerning the adjustment or lack of adjustment by deaf people to the norms of the "hearing world"), audiology, and spoken English language development, as well as the ordinary curriculum of teacher education. On the other hand, in most such programs it is rare to have a course about deaf people interacting with each other, a course that teaches about the role of ASL in the ordinary development of deaf children, or even a course that teaches a future teacher to understand or produce ASL. In fact, virtually all such programs teach only some system for SSS, and usually require only two or three such classes. The result is that, although trainees meet the expectations of the program, they are nevertheless singularly unprepared to teach deaf children. Moreover, once in the classroom, there is no genuine assessment of communication skills. If a teacher's students fail to improve their writing and reading abilities, it is always assumed to be the result of inadequacies in the children

or the general difficulty of teaching English to deaf students. It is seldom suggested that the failure may actually result from a failure to communicate between teacher and children.

This lack of standards grows indirectly from the need to explain and justify more than a hundred years of failed educational philosophy and practice. Although the United States delegation refused to endorse the 1880 Milan Conference proclamations calling for oral-only education for all deaf children, our educational system has embraced the principles and practices of oralism since that time. The requirement that teachers must speak as they teach and the emphasis on speech training for deaf students is, in fact, the practice of oralism, no matter what name it is given. Thus, although Total Communication is typically viewed as "manualism", we refer to it as crypto-oralism, for the essence of Total Communication is to require students to comprehend and learn subject matter through spoken English, albeit supported by signs.

Broadly speaking, the system has been able to convince its own members and the general public that the failure of speech-centered deaf education has been the fault of the students rather than that of the system or the practices of the people in it. Thus, the public image of an educator of deaf children (although seldom stated so explicitly) is one of a highly skilled, almost mystically qualified, altruistic practitioner, who is "helping" deaf people to achieve something greater than they would otherwise have been able to. At the same time the educator is presented as one who is limited in what he or she can do by the inherent limitations of deaf people. As a result, the system itself is not subject to criticism and has been allowed to exist without expectations of success.

The conflict between the perceived competence of educators and the failure of their students never calls the system into question. The two facts exist together in apparent comfort, never challenging the practices of the system. But the situation also leads to an uncomfortable double bind for teachers of deaf children, who must manage the resultant conflict between their public image and the knowledge that much of their effort is unsuccessful.

It also results in contradictory claims in which deaf people are represented both as being deficient and as especially intelligent or clever to have achieved so dramatically against the odds. Such contradictory statements at once demonstrate and deny the reality of the failure. Thus, it is possible for a leading scholar in the field of deaf education to make the following claim (Moores, 1987, pp. 1-2):

> In the United States, the results of decades of standardized achievement testing suggest a severe educational gap between deaf and hearing students, especially in areas related to English, such as reading. But despite apparent limitations, deaf people attend post-secondary training programs in approximately the same proportion as hearing people. The fact that approximately 65 percent of deaf graduates of Gallaudet University go on to graduate schools, where they compete on equal terms with hearing students, suggests that the deaf/hearing gap in achievement may be more apparent than real.

Such statements ignore the fact that attendance in these programs is in itself not sufficient evidence of success. Standardized tests exist for the purpose of assessing students' achievement within such programs. The low averages in achievement scores may not be dismissed just because the system chooses to allow students to progress in spite of low achievement. The fact that students with deficiencies in central academic areas are allowed to proceed to post-secondary and graduate-

level education is additional evidence of the failure to maintain standards in the system, not evidence of its success. Moreover, Gallaudet University chooses its students from the top five percentiles of the population of deaf students in the United States. Even so, a large proportion of those who continue on to graduate school do so despite the presence of academic deficiencies, especially in English literacy, which often present them with substantial challenges in their "competition" with hearing students. To suggest that the success of these students invalidates the overall failure of the population is statistically unfounded rationalization.

In these ways, the speech-centered system of deaf education in the United States has not been held accountable for its failures. To the contrary, over the last 150 years the system of deaf education has been able to argue that its failures, rather than being reason for self-evaluation, are justification for its own growth. Since 1870, the number of teachers of deaf children in the United States has increased from around 200 to more than 10,000 today (Lou, 1988, p. 76). The increase has been achieved primarily by arguing that failures can be reduced by intervening at earlier and earlier ages. Thus, a system that typically admitted children to school at about the age of ten or twelve until the 1890's, moved the age to about six years old during the early 1900's and then to about three years old in the 1940's. Currently, "early intervention" programs are being established widely in order to push back the first contacts to infancy.

Simultaneously, because none of these expansions has succeeded in solving the problem, expansion at the other end has been necessary, so that at Gallaudet University there now exist a post-high-school reading program, a preparatory program, and a pre-freshman status, which may all precede actual entry to the university as a freshman. In addition, there is now a massive system of deaf social services, all of which provide genuinely needed services, but which in another sense extend services to deaf people whom the system has failed to prepare to succeed in modern America. The result is that there is also now a large service industry that thrives on the failure of the system of deaf education.

Thus, the situation is perpetuated through a commitment to a set of beliefs that devalue sign language, restrict access to information, deny deaf students' capabilities, and diminish deaf independence, all by placing a higher educational value on speaking than on communicating or learning. In order for a new approach to deaf education to succeed, the participants in the program must subscribe to the belief that deaf people <u>can</u> be expected to learn as much as hearing children, that the pedagogical methodology and practice must be subject to evaluation and revision, and that not all failure can be blamed on the students.

A Model Program for Education of Deaf Children

In the remainder of this essay we propose a model program for educating deaf children. We present, first, a set of principles that arise from the observations we have made above, and, second, outline a design for such a program as it might be instituted in a school district. We do not expect that such a program will quickly or easily alleviate the ills of deaf education, or that it will make the process simple or non-controversial. If there is one lesson that arises from the history of deaf education, it is that solutions to problems are quite complex. We do believe, however, that it will achieve much more acceptable results than any of the options currently being employed in the United States.

We are by no means the first to propose the use of ASL as a first language and as the language of instruction for deaf children. From its inception and continuing until the shift to oralism, deaf education in our country encouraged ASL as a first language, used competent deaf adults as models, and appears to have achieved satisfactory results in teaching English (Lane, 1984; Lou, 1988). More recently, numerous scholars, both deaf and hearing, have called for the institution of programs broadly labelled as bilingual education (Kannapell, 1974, 1978; Woodward, 1978; Erting, 1978; Stevens, 1980; Quigley & Paul, 1984; Paul, 1988; Strong, 1988). Each of these proposals shares our view that ASL should be the first language of deaf children, that English should be taught according to the principles of teaching English as a second language (ESL) and that the ultimate goal of the system is well-educated, bilingual children.

Programs built on principles similar to those we are proposing have been established as national policy in Sweden, Uruguay, and Venezuela, and are being developed in schools in each country. We know of the following programs in which elements of a bilingual experience have been instituted as a part of the curriculum: Beirut, Lebanon (at the Institut de Reeducation Audio-Phonetique Ain-aar), Copenhagen, Denmark (School for the Deaf at Kastelsvej), Santa Monica, California (the Tripod Program at PS-1), Fremont, California (California School for the Deaf. (Cf. Strong, 1988; Hanson & Padden, 1988)), Framingham, Massachusetts (The Learning Center for Deaf Children), and Philadelphia (the Pennsylvania School for the Deaf). To our knowledge, however, no programs in the United States have adopted fully a set of principles and practices such as those we propose.

Guiding Principles

- **Deaf children will learn if given access to the things we want them to learn.** Children are born with the capability and desire to learn a language and a culture. Current practice denies access to such learning by denying genuine first language proficiency to most deaf children, and by demanding that children communicate in a language they do not know. All communication conducted between children and adults in educational contexts should be conducted in a language to which the children have access. In the beginning this will be the child's first language. If access to content is through the child's first language, it follows that all adult participants in the setting must be proficient in the child's first language.

- **The first language of deaf children should be a natural sign language (ASL).** When children are born, they are predisposed to learn a natural language. Natural sign languages are learned easily through normal language acquisition processes by deaf children who are exposed to them at an early age (Bellugi, et al., in press). For this reason, natural sign language is the best vehicle for providing access to socio-cultural information during early childhood and to the curricular content of education at all ages. We have found no evidence to support the notion that early sign language acquisition inhibits or otherwise interferes with the acquisition of literacy or speech in English; to the contrary, there is evidence (cited above) that early language exposure enhances the later academic and linguistic achievement of deaf students.

- o **The acquisition of a natural sign language should begin as early as possible in order to take advantage of critical period effects.** The earlier a child learns a first language, the more opportunity he or she will have to learn about the world and the more prepared he or she will be (both linguistically and culturally) for learning the curricular content of an educational program. Upon identification, a deaf child should immediately be given extensive contact with adult deaf signers in order to take advantage of the capacity to acquire a language naturally. In general, the greater the delay of acquisition of a first language, the greater the deficit in access to information and the later the acquisition of proficiency in any other language. In addition, the child's family should be provided with intensive sign language training and education about deafness in order to promote a home environment which promotes cognitive, linguistic, social, and emotional growth.

- o **The best models for natural sign language acquisition, the development of a social identity, and the enhancement of self-esteem for deaf children are deaf signers who use the language proficiently.** The initial models for language acquisition for deaf children with hearing parents should be deaf adults. As the child grows, sources for sign language acquisition might also include older deaf children, peers from deaf families, and proficient hearing signers. There should be deaf adults present in all educational contexts. This is critical also because ASL, like all natural languages, exists within a cultural context. Without the presence of adults who have access to the understandings that arise in such contexts, the acquisition of the language is not truly complete (Epstein, 1988).

- o **The natural sign language acquired by a deaf child provides the best access to educational content.** We have discussed this issue at length earlier in this paper. Along with early acquisition, this is the central and critical concept of the proposal. Its practical application is that anyone attempting to teach curricular content to the children must be a fluent signer. There now exists a large pool of fluent signers, which consists of deaf people already trained to be teachers of the deaf, bright young deaf students who could be encouraged to undertake such training, and a smaller number of hearing teachers and students who are fluent in ASL. Mather (1987) compared the classroom interaction of a deaf teacher, fluent in ASL, with that of a hearing teacher who was less fluent. She found that the conduct of lessons, even about nonlinguistic topics, proceeded most effectively in interaction with the deaf teacher. She argues that these results stem from fluent use of the language and knowledge about how to interact in ASL.

- o **Sign language and spoken language are not the same and must be kept separate both in use and in the curriculum.** American Sign Language, as the

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first language of the children and as the primary language of instruction, should be employed both to impart information and to talk about English. While it may be useful to use special signs to talk about English structures and to represent those aspects of English in signing, such systematic English signing should not be used for the transmission of content or the conduct of interpersonal communication in the classroom. English will be taught as a second language and methods of English instruction will take advantage of the first language competence the children already have. As grade level increases, the acquisition of information through reading becomes more critical and English will become increasingly important as a vehicle of instruction. Classroom discourse, however, will continue to be in ASL.

Some readers might misinterpret our focus on ASL discourse as a neglect of English. It is not our intention to diminish the value of learning English for deaf people. It is an undeniable fact that proficient English is necessary to economic survival in the United States. Of more direct relevance to this paper, however, is the fact that in each successive year of school, a larger proportion of the curricular content is located in books and other reading material. Thus, if our goal of at-grade-level curriculum is to be met, children will need to have increasingly higher levels of proficiency in the reading and writing of English in order to succeed.

Our goal is children who are bilingual in ASL, and English. Thus, proficiency in English is one of our primary objectives. We contend simply that both the learning of English and access to the curriculum may be speeded and enhanced by establishing ASL as the first language.

Both languages should be respected, valued, and used by all adults in the program and the specific utility of each should be a topic of open discussion. The importance of English literacy in the adult life of deaf people in the United States should be a topic included in both the language and the social studies curricula.

o **The learning of a spoken language (English) for a deaf person is a process of learning a second language through literacy (reading and writing).** Erting (1982) and Sacks (1988) both emphasize that the essential adaptations that deaf people must make to succeed in a world designed by and for hearing people are visual. The learning of English for a deaf child is no exception. It is primarily a visual (as opposed to auditory) experience. This is true whether the child learns English through the lipreading of English speech, through a signed code for English, or through literacy. De Bentancor (1986) has shown, for example, that for deaf children learning Spanish through oral methods, the coding of lipreading is visual, rather than auditory or phonological.

Given that the learning of a spoken language is a visual experience, even by ostensibly auditory methods, and given the difficulties we have described for such speech-dependent methods, we propose to make the process overtly and purposely visual. Thus, the learning of English will be through written texts, not through speech. That this can be an appropriate and successful method for the introduction of a spoken language has been argued by Paul and Gramly (1986) and documented by Suzuki and Notoya (1984), who compared the acquisition of written and oral language in six deaf children from infancy to about the age of six. They report success at teaching reading before speaking and conclude that for deaf children (1984, p. 10):

> (1) Acquisition of written language is not dependent on oral language;
> (2) Written language teaching can be initiated at about one year of age; and (3) Written language is easier to learn than oral language.

o **Speech should not be employed as the primary vehicle for the learning of a spoken language for deaf children.** Understanding and producing speech are skills to be developed not as a means of acquisition, but as a result of acquisition, after competence in the language has been established through literacy.

This does not preclude the use of early auditory stimulation and vocal practice. Both are important parts of our proposal for early childhood education. Nor does it suggest that children should not receive auditory amplification at an appropriate time. It claims only that hearing should not be the primary channel through which a deaf child receives linguistic input and that a primary focus on hearing and speech should not be allowed to hinder normal age-level acquisition of language or knowledge.

o **The development of speech-related skills must be accomplished through a program that has available a variety of approaches, each designed for a specific combination of etiology and severity of hearing loss.** Children who are post-lingually deafened, those who have substantial residual hearing, and those who are severely and pre-lingually deaf will each require different approaches to the development of speaking, hearing, and lipreading skills. Each child, however, will have access to ASL as a primary language as well as access to the curriculum through ASL. No child will be asked to learn to understand speech and to acquire knowledge through speech at the same time.

o **Deaf children are not seen as "defective models" of normally hearing children.** The role of the model system proposed here is not to "fix" deaf children or to make them more closely resemble their hearing peers, either in language or behavior. The role of the system is to prepare them to participate fully and effectively in modern American life. This includes the development

of English competence, particularly in reading and writing. But more centrally, it involves the provision of grade-equivalent access to all the curricular matter of American education. Because the central focus of the program is the development of English literacy and the provision of grade-level or above achievement in all areas of the curriculum, the role of developing speech, while not devalued, is not the central concern. For some deaf children, literacy will be the sole form of proficiency in English. Because such children will have full access to the content of the curriculum, they will be able to develop the competencies necessary to have equitable options as adults.

A related issue is the customary use of the term "intervention" by contemporary professionals dealing with deaf children. It is our position that intervention is only necessary if some negative or pathological process is occurring that needs to be eliminated or terminated. If ordinary language acquisition is permitted to occur, there should be no need for "intervention." From this perspective, however, there may in fact be a need to intervene with respect to the emotional needs of the parents and family members in adapting to the deafness of their children.

o **We concur with one of the observations of the report of the Commission on Education of the Deaf, that "there is nothing wrong with being deaf' (1988:vi).** Moreover, there are many positive aspects to membership in a deaf community, to using an aesthetically pleasing language like ASL, and to adapting effectively and successfully to modern American life. Accordingly, a major part of all aspects of the proposed program will be to reinforce this view among parents, children, and service providers alike, both by making explicit the positive aspects of deaf life and by providing opportunities for interaction with the deaf community.

o **The "Least Restrictive Environment" for deaf children is one in which they may acquire a natural sign language and through that language achieve access to a spoken language and the content of the school curriculum.** Public Law 94-142 states that handicapped children must be given an educational placement that provides them the "least restrictive environment." In general, this has been interpreted as that environment most like an ordinary environment. Combined with economic considerations, this concept has created a situation in which an increasing percentage of deaf children are placed in "mainstream" classrooms, sometimes with an interpreter, but often with no special services. In most cases this is done without regard for the child's linguistic background, so that most such children are poorly prepared to deal with sign language or any other language when they enter school. They are expected to acquire English through a one-way communication process. Specifically, they are expected to get English, either through the speech of the teacher or through the signing (usually actually a code for English) of an

interpreter as he or she attempts to encode what the teacher is saying. In such circumstances, an interpreter's signing stands little chance of providing an adequate model of either sign language or English, and without one-to-one communication the child stands little chance of learning a language. It is our view that the mainstreaming of deaf children from hearing families is entirely inappropriate, and that the appropriate placement for them is in environments where they will be allowed to come in contact with other deaf people and to acquire a natural language through interaction.

For deaf children of deaf parents who have already acquired age-level proficiency in a natural sign language, mainstream placements may be less inappropriate when there is a highly skilled ASL interpreter present. However, aside from the widespread problem of unavailability of qualified interpreters, even these children are likely to encounter both social and academic difficulties stemming from such factors as stigmatization, social isolation, inability of even the best interpreters to convey everything that is occurring in a classroom, a general restriction on the child's ability to independently receive information from peers, and such practical considerations as having to watch the interpreter while the hearing students may listen and simultaneously perform important visual tasks, such as reading, looking at diagrams on the board, and so on (Winston 1988). In addition, it stands to reason that if interpreters are using ASL, children are again not receiving a model of English.

Stone-Harris (1988) has observed that, in spite of these difficulties, the current situation within deaf education programs has caused many deaf parents to seek mainstream placements for their deaf children in order to provide access to at-grade-level curricular content. If our proposals were successful in providing at-grade-level content in special programs, such adaptations would be unnecessary for deaf children of deaf parents.

Description of Major Components

In this section of the paper we describe the components of a model program for the education of deaf children. A Family Support Program assists in the adaptation and language learning of deaf children and their families from the time of their identification. A Family-Infant-Toddler Program provides organized activities and training with the goal of providing a rich environment for the acquisition of ASL and socio-emotional development. The goal of the Preschool-Kindergarten Program is to prepare children linguistically, socially, and academically for entry to a regular primary school curriculum. A cooperative Child Development Center will provide day-care and linguistic and developmental experiences for children from early childhood through the third grade. In grades 1 through 12 the aim is to achieve on-grade-level performance in academic achievement.

Family Support Program

The goal of this component is to provide educational and emotional support for the families of deaf children. It is critical that parents understand the differences between our model of education and the interventionist models that are more typically available. We are asking them to come to grips with the deafness of their child in a new and different way. We are presenting their child, not as a defective human whose natural tendencies to learn and interact visually must be inhibited, but as a capable person whose first linguistic task must be to learn a language other than that of the parents in order to succeed. This will entail an understanding of the challenge a deaf child presents to a family, in which he or she will not be able to participate normally or fully without substantial adjustments by siblings and parents. The focus of family activities will be around the acceptance of this view and to the resulting family adaptation to and participation in the child's development it requires.

The program will be accessible to parents and family members throughout the time that their child is in school. Over time, a significant role will be played by the experienced parents in assisting in the adaptation of new parents and family members to the program.

The program includes the following parts:

1. Parent Support Groups
2. Weekly deaf community contact (foster grandparents)
3. Family education and counseling by professionals
4. Weekend camp programs to provide occasional intensive contact with the deaf community
5. Summer camp programs to provide yearly, long-term contact with the deaf community

Family-Infant-Toddler Program

This component aims toward the development of American Sign Language skills for deaf infants and toddlers and the development of sign language and interactional skills for their parents and siblings.

1. Family:
   a. ASL teaching
   b. family counseling
   c. deafness education

2. Infants-Toddlers:
   a. ASL acquisition
   b. play groups with focus on language and psycho-social development
   c. reading readiness
   d. speech readiness
   e. auditory stimulation

    f. cognitive development
    g. socio-emotional development
    h. motor skills development

Preschool-Kindergarten

  The aim of this curriculum is to provide preschool and kindergarten environments which are geared to the continued development of the child and provide exposure and training equivalent to that found for their hearing peers. The content is designed to ready the children to enter primary school.

  Beginning in the Preschool and continuing throughout the grades, every classroom will be staffed by both a deaf teacher and a hearing teacher who signs fluently. Both will be equally responsible for the conduct of the classroom and for teaching the non-linguistic aspects of the curriculum. In addition, the deaf teacher will be the native model for the acquisition and development of ASL proficiency and the hearing teacher will be the native model for the acquisition and development of English proficiency. Each will be a model of the sort of bilingual person the program is designed to produce. The apparent additional cost of two teachers in the classroom will be offset by doubling the number of students in classes (to an average class size of 16).

    1. Program Content:
     a. ASL acquisition
     b. play groups with focus on language development
     c. reading skills
     d. speech skills
     e. auditory stimulation
     f. cognitive development
     g. socio-emotional development
     h. motor skills development

Grades 1 - 12

  The goal in this component is to have deaf students (on-average) acquire exactly the same curricular content as their hearing peers. In order to achieve this goal, American Sign Language will be the primary language of instruction throughout the program. English will be introduced and taught as a second language, beginning in the first grade. The section of the program devoted to the acquisition of English language reading and writing skills will require special classroom materials, the development of which will be overseen by the curriculum developer. Speech and auditory training will continue on an individualized basis.

  Through the grades, there will be an increasing role of English as a vehicle of instruction, primarily through the reading of textual material. Written English combined with explanation and translation in ASL will be used to achieve competence in English as a second language. Primary emphasis will be on the achievement of literacy in English with the teaching of speaking and lipreading skills dependent on prior acquisition of literacy. In general, at-grade-level reading

proficiency will be necessary for students to maintain at-grade-level performance in content areas. Should this goal prove to be unfeasible, it will be necessary to identify and adapt reading materials that present content at grade level but at below-grade English levels. Such materials exist for bilingual education programs elsewhere in the United States. If it is necessary to use such materials, the goal of at-grade-level reading and writing will persist until it is met.

Child Development Center

The Child Development Center is an absolutely necessary component of the program. It is set up to provide day-care and developmental experiences for children from the time they are identified as deaf until the end of the third grade. For the youngest children it will present a stimulating language environment and a stimulating learning environment. The children will acquire ASL competence through extensive daily contact with native users of the language. The CDC staff will consist of deaf adults fluent in ASL and trained as day care providers. We propose that the presence of these adults and the interaction of children with one another should engender ordinary acquisition of ASL.

We also propose that the day-care program of the Child Development Center have a required cooperative component for parents. Each family (and ideally each parent) would be asked to work a certain number of hours per month as an assistant to the regular staff. Such a requirement could have numerous benefits for the parents. They would have the opportunity to observe their child interacting with other children and with deaf adults and to interact themselves with deaf people. They would observe and have the opportunity to learn specific techniques of reasonable and effective interaction with deaf children. They would see ASL in use and have the opportunity to develop their own signing skills in practical contexts.

While day-care is not typically seen as a responsibility of the educational system in the United States, in the case of deaf children it is necessary in order for language acquisition to proceed on schedule and at a normal pace. In school systems unable to justify the provision of day-care services, it is likely that private, non-profit day-care facilities could be established with the help of outside funding. Once established, such businesses should be able to become self-supporting.

Administration, Research, and Development

This component focuses on the overall conceptualization and design of the project, and oversees implementation within programs. The research and development aspect monitors progress and develops new approaches to implementing the conceptual design. A unique aspect of this design is that it will include research on language acquisition and evaluation of the progress of the children and the effectiveness of the program on an ongoing basis.

This will require a full-time administrator and a full-time research and development specialist, who will produce the curriculum, beginning with family-infant training and continuing through the twelfth grade.

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Materials and Resources Development

The primary focus of this component will be to select existing print or other visual materials, revise and adapt the m as necessary, and to identify technological means to enhance the provision of the curricular content. A major component will be the development of several types of written and videotaped materials:

1. Videotapes for sign language training directed toward both parents and children.
2. Print materials for reading readiness, reading, and writing.
3. Companion print and captioned video materials to accompany standard grade level content sources.
4. Video materials on deaf people and their way of life.
5. Print and non-print materials for teaching English as a second language.
6. Print and non-print materials for teaching ASL arts.
7. Exploration of interactive videodisc-computer technology for the provision of comparative ASL and English passages, as described by Hanson and Padden (1988).

This will continue throughout the life of the project, with new materials being developed for each succeeding level.

The implementation of the proposals we are making will not be easy. It will require a long-term commitment of the educational resources of a large public school district or deaf school. In addition it will require, among other things: the recruitment of deaf teachers at the lower grades and preschool levels; retraining hearing teachers who do not sign well; community development work to establish the various aspects of the parent family program and the CDC; a great deal of curriculum development; a great deal of materials development; and a program that teaches all participants in the program that the education of deaf children can be successful.

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Afterword

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Different scholars have differing motivations for studying ASL; those motivations may of course change over the course of a career or even from one project to the next. Some researchers are interested in big scientific questions about the nature of human language. To what extent do the structures of signed and spoken languages differ because of the different transmission channels in which they are produced and perceived? Are signed and spoken languages—despite obvious differences in articulatory and perceptual apparatus—acquired on similar developmental schedules by young children? Is the processing of signed and spoken languages largely localized in the same or different regions of the human brain? Researchers with these kinds of questions in mind may seek to test broad hypotheses about the nature of the human language capacity. Those hypotheses may not address ASL in particular, but rather signed languages in general.

Other researchers, researchers with perhaps a more humanistic focus, are interested in ASL in specific. How does ASL compare to the many other signed languages used around the world? What is the history of this signed language and how have signs changed over that history? How does ASL vary within and across different communities in the United States and Canada? What are the aesthetic traditions of the verbal arts—the linguistic arts of poetry and storytelling and sign play—within the American Deaf community? These are all important issues for scholarship on ASL.

Still other researchers, some with an activist bent, may seek social justice for the signing community; in his introduction to this issue, Jody Cripps emphasizes the social impact of the collected papers. There are threats to the future of ASL and other signed languages. How do we perpetuate ASL and its community of signers? What are the language rights of signers of ASL? How do we fortify the smaller, often younger, signed languages that we find around the world against the very immediate threats that such languages may face? How do we ensure that deaf children—especially deaf children of hearing parents—have access to ASL? What are appropriate school environments for deaf children?

Stokoe had broad issues in mind in his 1960 paper: in the first sentence (Section 0, p. 11 in this issue), he says that his primary purpose "is to bring within the purview of linguistics a virtually unknown language, the sign language of the American deaf." Although he makes little mention of signed languages other than ASL, it is clear that his ambitions extend beyond ASL. He is concerned for example with "the origin and development of the gesture language of the congenitally deaf individual in any society…." He refers in passing to language evolution, which would be a continuing interest (e.g., Armstrong, Stokoe, & Wilcox, 1995).

The Year 1960 in Linguistics

1960 was—we know—the year in which Stokoe published his first analyses of

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ASL. 1960 was also the year in which Charles F. Hockett published a still-famous paper on "design features" of human language. Hockett identified 13 features which, he thought, are characteristic of all human languages. He wrote that the first one—the vocal-auditory channel—"is perhaps the most obvious" (p. 90). He acknowledged that there are "systems of communication that use other channels…"; gesture was one of his examples. But, in that 1960 paper, Hockett did not explain why the vocal-auditory channel is such an obvious design feature; he only suggested that "The vocal-auditory channel has the advantage—at least for primates—that it leaves much of the body free for other activities that can be carried out at the same time."

Prior to 1960, twentieth-century linguists found little reason to be interested in signed languages. Leonard Bloomfield (1933, p. 39) wrote:

> "Some communities have a gesture language which upon occasion they use instead of speech. Such gesture languages have been observed among the lower-class Neapolitans, among Trappist monks (who have made a vow of silence), among the Indians of our western plains (where tribes of different language met in commerce and war), and among groups of deaf-mutes.
>
> "It seems certain that these gesture languages are merely developments of ordinary gestures and that any and all complicated or not immediately intelligible gestures are based on the conventions of ordinary speech."

Bloomfield was immensely interested in certain minority languages—for example, the Algonquian languages of Native North America. But his interests did not extend to the "gesture languages" that he listed.

This intellectual context helps us to understand the significance of Stokoe's research; he was not working in an intellectual tradition that was congenial to signed languages. But, thanks to Stokoe, 1960 was the year in which the field of linguistics started to understand that linguistic methods of analysis could encompass signed as well as spoken languages. By identifying pairs of signs that differed in just one parameter, he led us to understand that there is sublexical structure within signs as well as words. In her commentary, Diane Lillo-Martin writes that this was a "revolution for deaf people's language." Stokoe's work also brought forth a revolution in linguistics, a revolution that gathered force with the work of Edward Klima and Ursula Bellugi (1979). This revolution sparked fundamental changes in our understanding of what a human language is; we now know that the vocal-auditory channel is not a necessary design feature of human languages. Instead, the purview of linguistics would forever be expanded to include signed and spoken languages. Through the work of Stokoe and his successors, linguistics has learned something fundamental about what it means to be human—that the human language capacity is plastic and allows naturally-evolved languages in two channels (and perhaps three, if we consider the tactile-gestural signing of Deaf-Blind people).

Names

In their 1988 book *Deaf in America*, Carol Padden and Tom Humphries discuss the view that the Deaf community once had of signing. Nothing was called American Sign Language or ASL; instead the language of Deaf people was simply "the sign language" (pp. 60, 72).

However, when we identify a new planet, a new animal species, or a new language, we like to have a distinctive name for it. Stokoe brought the attention of linguistics to a heretofore unfamiliar language. He seems at first to have been uncertain as to how to refer to this newly-identified language. In the 1960 imprint, he variously says: "the sign language of the American deaf" (Sections 0 & 0.16), or "the American sign language" with the definite article but without caps (Sections 0.13, 0.16, 0.21, 1.40, 1.404). The name "American sign language", without an article and without caps, appears just three times, as best I can tell (Sections 0.12., 0.16, 0.21).[1] He wrote about "American signs" (as opposed to ASL signs). By the time that Stokoe published the *Dictionary of American Sign Language* (Stokoe, Casterline, & Croneberg, 1965), he had settled on "American sign language" (p. ix, xxiii) or "the American sign language" (pp. vii, viii, & x). The abbreviation "ASL" appears in the later pages of the introduction (and in the appendices). In the 1976 preface to the new edition of *DASL*, Stokoe frequently refers to "ASL".

How would we refer to the deaf users of the newly identified language? They are Deaf, with the capital D signifying their cultural and linguistic allegiances (Woodward, 1975; Padden & Humphries, 1988). With the recognition of ASL as an independent language and with awareness of the cultural traditions of Deaf signers, we have come to understand that the Deaf are a minority community within the larger fabric of American culture. We have also come to understand that, like other minority groups, the members of the Deaf community have all-too-often suffered discrimination. Tom Humphries sought a name for that discrimination; it was not racism or sexism but was instead "audism." Humphries wrote that "[n]aming it gives a better handle on it and makes it somehow less frightening." In her commentary, Erin Wilkinson suggests that the word conferred power on deaf people: "Not only did the coinage of audism recognize deaf people's struggle as discriminated-against people, it also validated their frustrations over the discrimination and oppression due to their deafness."

Other suggestions for new terms have not taken root. Stokoe advocated a new label for the study of the internal structure of signs: cherology; see his section 1.0. But this term has not been adopted within linguistics. Instead, the prevailing belief within linguistics has been that the internal structure of signs and words is fundamentally similar (although perhaps not identical). Hence the English term phonology has been extended to the study of the internal structure of signs. However, the Deaf community may now be making a distinction between an initialized sign PHONOLOGY near the ear that refers to spoken language and another sign PHONOLOGY that has a finger-wiggling movement of the

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[1] In subsequent printings of Stokoe's paper, such as the 2005 reprinting in the *Journal of Deaf Studies and Deaf Education*, some—but not all of these usages would be capitalized.

dominant hand, in contact with the extended index finger of the base hand.[2] Not for the first time, distinctions are being made in ASL that are not being made in English.

Poetry

With the recognition of ASL as an independent language there was growing awareness of the power of artistic signing as a means of expression for Deaf users of ASL. Two papers published here, along with their associated commentaries, consider ASL poetry from different—but complimentary—perspectives. Clayton Valli investigates the formal structures that characterize poetic language; he uses the tools of linguistic analysis to describe patterns of rhyme. Those rhyming patterns in turn allow him to identify lines within ASL poetry.[3]

In his commentary, Sam Supalla argues that Valli has adopted an "ASL First" ideology on which ASL—as a full-fledged language much like any other language—may use the same kinds of poetic devices (e.g., rhyme; organization into lines and stanzas) as other languages. The fact that those other languages are generally spoken languages does not mean, to Supalla, that ASL and spoken languages cannot draw from the same poetic toolbox. Here's the problem: Following Clayton Valli and his discussion of rhyme, we must define our analytic vocabulary at an appropriate level of abstraction, one that allows us to identify genuine similarities in the poetic traditions of signed and spoken languages.[4] At the same time we do not want to overlook real differences between those traditions.

Two questions come to my mind when I think about the poetics of ASL and other signed languages: 1) Do different signed languages show different poetic traditions? For example, has the history of Quebec's Deaf community and the structure of its signed language encouraged distinct artistic traditions amongst LSQ signers? 2) Are there effects of language modality on poetics? Signed and spoken languages—while broadly similar—may nonetheless show interesting structural differences; see Meier (2002) for discussion. Here now is an interesting problem for further research and discussion: Spoken languages are of course not visual languages (except in their written forms). Yet they show abundant visual imagery in their poetry (e.g., Homer's "rosy-fingered dawn"). In contrast, signed languages use a visual medium to express visual concepts; do we see differences in the

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[2] For a video of this sign, see the Handspeak site:
https://www.handspeak.com/word/search/index.php?id=2975

[3] Valli chose the word *rhyme* to label the poetic repetition of handshape, movement, or non-manual. He cites Babette Deutsch (1969) for defining *rhyme* broadly to include the repetition not just of syllable nucleus and coda, as in "The cad was had", but the repetition of other phonetic elements, as in the alliteration of the name *Peter Pan.* There are thus broad and narrow senses of *rhyme*; Valli's extension of the broader usage of this word to the study of sign poetics is perfectly appropriate. There is, in the analysis of spoken-language poetics, even a concept of eye rhyme that may be applied to words that are spelled alike, but pronounced differently (e.g., *though*, *plough*, and *enough*), or to correspondences of parts within a picture (Hutchison, 2011). [I thank my colleague Tom Cable for discussion of rhyme.]

[4] In our earlier discussion of Hockett's design features, we saw this same problem. His choice of design features—specifically the vocal-auditory channel—did not encourage linguists to search for the ways in which signed and spoken languages might be similar in their structure and use.

expression of visual imagery in the two language modalities that may arise from the differing resources available to signed and spoken languages?

Our focus shifts to the imagery invoked by ASL poetry when we read Karen Christie's paper. Christie asks how ASL poetry is an expression of Deaf identities. For her, Debbie Rennie's "Black Hole: Color ASL" represents the spiritual journey of Deaf people (and in her recent addendum, Christie notes the variety of Deaf experiences—there is not just one Deaf journey). In her commentary, Heidi Rose raises the issue of the increasing mainstreaming of deaf children; with mainstreaming, deaf children may have less access to ASL. Vibrant digital spaces for ASL poetry may, she suggests, become a crucial means for mainstreamed children to access the artistic achievements of their language.

ASL in Deaf Education

By 1989, the intellectual foundation that Stokoe had laid in 1960 was strong. Robert E. Johnson, Scott Liddell, and Carol Erting could build on that foundation in their policy paper, "Unlocking the Curriculum", on the role of ASL in deaf education. They also built on their own distinguished research careers working on the linguistics of ASL and on the language development of deaf children.

Johnson, Liddell, and Erting were deeply concerned about the outcomes of deaf education. The system of deaf education in this country was failing all deaf students, whether those children came from hearing or Deaf families. What should we do? They argued that a natural sign language is the best vehicle for the education of deaf and hard-of-hearing children. While citing Stokoe (1960), they succinctly note (p. 5) that ASL, because of its history, timecourse of language acquisition, and structure, is a natural language. In contrast, sign-supported speech and total communication are not natural languages, are not used effectively by teachers, and are not even effective means of teaching English.

Their proposal was that all deaf children should all have early access to ASL. Early access to ASL would provide access to the full school curriculum. Early access to ASL would also provide a foundation for acquiring English as a second language (see Mayberry, Lock, & Kazmi, 2002). In her commentary, Laura Blackburn points us to the work of Sam Supalla and others (with Blackburn herself being a member of the team) as showing one way that we can begin to unlock the curriculum for deaf children.

Concluding Thoughts

The papers collected here demonstrate the power of scholarly research on ASL. Through such work we have come to know more about what human language is. The efforts of William Stokoe and those who followed after him helped to validate an understudied and often stigmatized human language—ASL—as a vehicle for artistic expression and as a medium of educational instruction. The work collected here has set the conditions for positive social change.

Continued scholarship on signed languages may help to arm downtrodden communities and to protect threatened languages. Future scholarship on ASL and other

signed languages will be most successful if it has the support of signing communities, serves those communities to the extent possible, and engages members of those communities as principal members of research teams. We all have a lot of questions to ask, connections to make, and work to do.

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