

THE HANDS OF TIME:
AN EXPLORATION INTO SOME FEATURES OF
DEIXIS IN AMERICAN SIGN LANGUAGE

After a brief introduction to American Sign Language, this paper will discuss some current problems of a phonological nature and then proceed to explore aspects of deixis in American Sign Language. Throughout the paper research into ways of transcribing signs without removing the flow of movement, is continued, using the movement writing script known as Labanotation.¹

American Sign Language (hereafter referred to as ASL), is used by over half a million Americans, making it the third most widely used non-English language in the United States (O'Rourke, *et al*, 1975). It is the native language of deaf people with deaf parents and is used by many deaf adults amongst themselves as well as by hearing adults who are part of the Deaf community.² Unlike spoken languages which utilise a "phonic medium along an aural-vocal channel" (Lyons, 1977:637) communication in ASL takes place in the medium of movement along a visual-kinesthetic channel.

Contrary to popular opinion, ASL is mutually incomprehensible to the users of other sign languages (including British Sign Language) and, like them, is not derived from any spoken language. Signs do not correspond to words and the 'phonology' and syntax is spatially organised rather than linear. As is to be expected, the co-existence of ASL with English in a bi-lingual environment has allowed it to be influenced in a number of ways. Letters from the alphabet are borrowed through finger-spelling³ for example (Battison, 1978); many signs are initialised by handshapes based upon letters, and there is some influence from English word order (Fischer, 1975, Liddel, 1977). What is often overlooked, however, is that these are all influences of a visual nature which have been taken from the written form of English, not the spoken.

It is only in the last twenty-five years, since the pioneering work of William Stokoe (1960, 1965) that ASL has been accepted by linguists as a 'real' language in the full sense of the term, rather than a more 'primitive' and/or mimetic variety of communication which was a poor substitute for a spoken language. Since that time, research into the structure and content of ASL has progressed rapidly with interesting results.⁴ One constant and continuing problem, however, has been the lack of an adequate writing system for the transcription of signs. Although attempts have been made (e.g., Stokoe) none have coped satisfactorily with the complexity of the three-dimensional aspects of movement.⁵

The 'Phonological' Level?

What are generally referred to in the literature as 'signs' are units of ASL considered by most researchers to be roughly equivalent to the lexical units of spoken languages, although it would be a mistake to assume that translation can occur on a one word = one sign basis (Stokoe, 1960). Following Stokoe (1960) researchers have established four boundaries or parameters which combine simultaneously to make up individual signs. They are: handshape, location, movement and palm orientation. That is, by combining a specific handshape, palm orientation and movement in a particular location, one makes a sign.

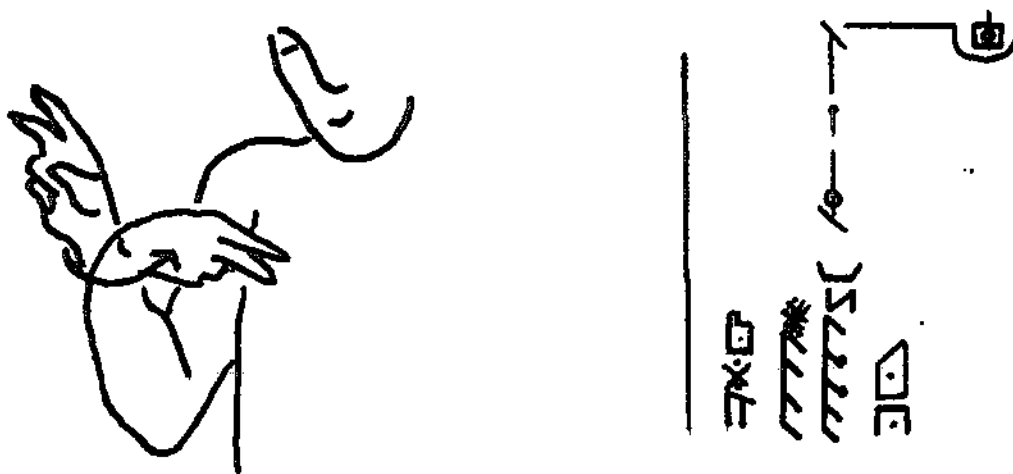
Spoken languages can be said to be linear in nature in that segments proceed and follow one another through time. Whilst supra-segmentals certainly play an important part in some languages and on occasions in all languages, they do not alter this linear nature and do not pose problems for the analysis of the written form of the language. Phonetic or phonemic elements can be written from left to right (or right to left, e.g., Arabic; or top to bottom, e.g., Chinese⁶) in sequence as they occur through time when spoken. Sign languages, however, occur in three dimensions of space as well as time, and to date, no conventions exist for writing down constituent units in the way that /a/ /b/ /c/ or [a] [b] [c] exist to represent the units of conventional sounds we call consonants and vowels.

The four parameters mentioned above, which are present in the performance of signs, are, by analogy to spoken language considered by most researchers to be the equivalent of a phonological level of investigation. McDonald (1983), however, suggests that these parameters could be meaningful units closer to the level of morphemes. She makes an interesting comparison between various handshapes called 'classifiers' in ASL research, and verb stems and their combinations in Navaho. Navaho contains many verb stems which relate to categories of movement, location and the shape of the involved object, and they combine in a manner which creates lexical units with complex meanings related to shape, location and movement. McDonald suggests that a 'sign' in ASL may be like a complex 'word', made up of many morphemes in a similar manner to Navaho.

It may be the case that the close adherence to a spoken language model is preventing rather than assisting progress into the structure of ASL, and that sign languages may in fact have their own layers of units which do not correspond to those of spoken languages. As I have argued elsewhere, perhaps future research will show that sign languages have closer links with other action sign systems rather than spoken languages because they share the medium of movement. This view appears to be shared by Kyle (1983) who suggests that views on grammar might require some examination. He begins his article with the provocative statement "The trouble with deaf people is that they don't use signs", and goes on to explain:

Researchers who are linguists or psychologists, generally speaking attempt to isolate basic units in a problem area. They look for the building blocks or units which will allow us to generate the rules of construction. So psychologists have looked at short term memory for signs as a way of identifying a sign language code, and linguists have picked out signs, found ways of describing them in terms of components, and postulated some of the rules for their combination and modulation. However, having dismantled sign language, when we put it back together again, according to our psychological or linguistic principles, we can often find that it is no longer sign language, i.e., deaf people do not use signs in that way (Kyle, 1983:184).

Perhaps one reason for this lack of fit between analysis and the practise of signing relates to the fact that a major difference between signed and spoken languages is the simultaneous production of parts of signs. Speech has only one articulator though a large frequency range is commanded by that articulator, whilst sign may use both hands, other body parts, facial expression and so on. This multiplicity of articulators allows sign (or any other action sign system, including dance systems) to use simultaneity where different articulators contribute different elements to the overall message. Kyle points out the very large differences which exist even at the sentence level precisely because of this feature of simultaneity. For example, the sentence 'He saw me' is easy to specify syntactically as subject-verb-object, but in sign, these principles do not work. Signs for HE, SAW, and ME are not added together; the signs are transformed with the elements occurring simultaneously. It is impossible to represent with word glosses what is going on, which is why Labanotation is used. Only then can both the simultaneity and the flow of movement be described accurately (See Fig. 1).

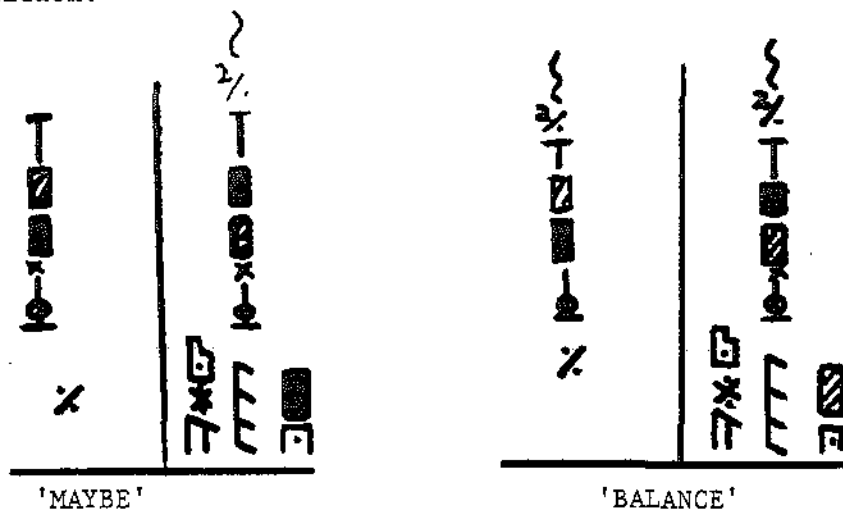


(Figure 1)



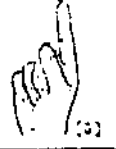








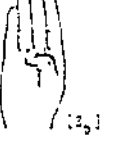


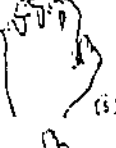
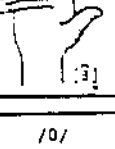
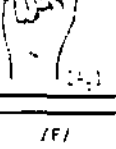

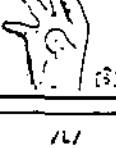










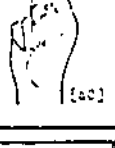










The components of which Kyle speaks are the four parameters previously mentioned: handshape, location, movement and palm orientation. Fig. 2 illustrates the category of 'handshapes'. These are usually referred to using letters from the alphabet which generally correspond to the handshapes used in the fingerspelling alphabet. Some numbers are also used. Unfortunately, these conventions are not consistent between researchers (e.g., Klima and Bellugi, 1979, Baker and Cokely, 1980, and Lane and Grosjean, 1980). Twelve distinct locations have been identified and twenty-four distinct types of movement (See Fig. 3). It seems to be the case, however, that movement into and out of contacts and other relationships between parts creates a description which retains the flow of movement better than the categories of location and movement provided by the parameter analysis. These parameters have provided useful markers for investigation into the parts of signs, however. Minimal pairs can be identified by changes in any of these constituents. For example, the signs glossed into English as BROKEN and WORK differ only in their type of movement:



Signs glossed as MAYBE and BALANCE differ only in their palm orientation.

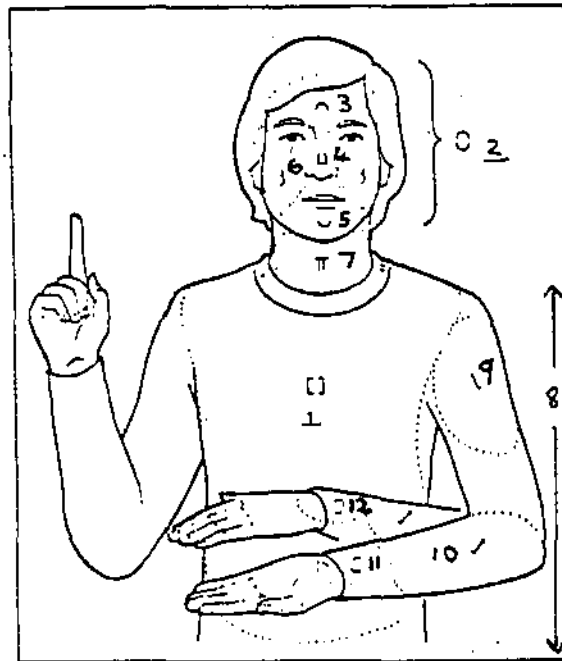


In addition to these four parameters, generally called the 'manual' aspects of signs, movements of the face, eyes and head are also an important component of many signs. These non-manual aspects often

Primes	/B/	/A/	/G/	/C/	/S/	/V/	
Major subprimes							
Other representative subprimes							
							
							
Primes	/O/	/F/	/X/	/W/	/L/	/Y/	
Major subprimes							
Other representative subprimes							
							
Primes	/U/	/K/	/J/	/R/	/W/	/3/	/E/
Major subprimes							
Other representative subprimes							

Hand Configuration primes shown with representative subprime values. (From Klima and Bellugi, 1979:44).

(Figure 2)



Distinct Places of Articulation
(diagram from Klima and Bellugi, 1979:52)

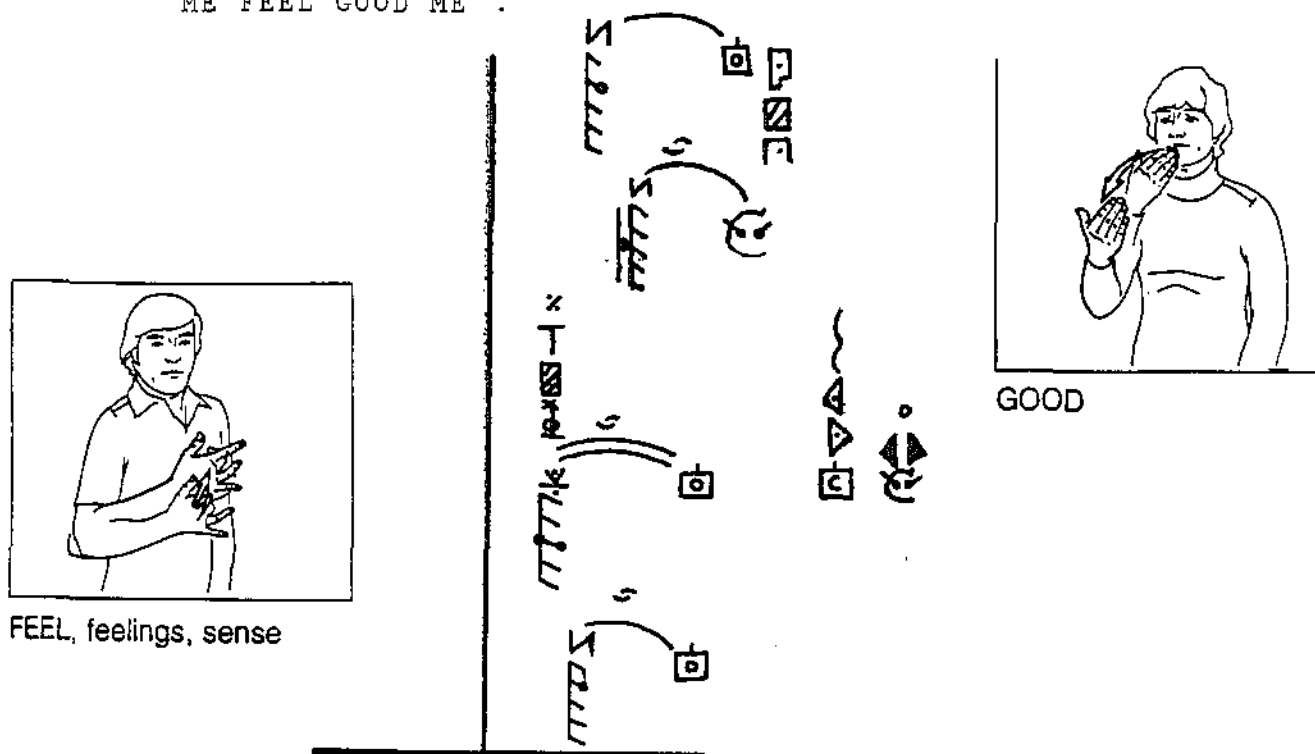
Symbol	Description	Action
^	Upward movement	Vertical action
v	Downward movement	
^	Up-and-down movement	
>	Rightward movement	Sideways action
<	Leftward movement	
z	Side-to-side movement	
T	Movement toward signer	Horizontal action
⊥	Movement away from signer	
⊥	To-and-fro movement	
α	Supinating rotation (palm up)	Rotary action
∅	Pronating rotation (palm down)	
ω	Twisting movement	
η	Nodding or bending action	Interaction
□	Opening action (final DEZ configuration shown in brackets)	
■	Closing action (final DEZ configuration shown in brackets)	
⋈	Wriggling action of fingers	
e	Circular action	
∩	Convergent action, approach	
x	Contactual action, touch	
π	Linking action, grasp	
+	Crossing action	
o	Entering action	
-	Divergent action, separate	
c	Interchanging action	

From Stokoe, Casterline, and Croneberg (1965) by permission.

Symbols for writing the movement of ASL signs
(figure from Wilbur, 1979:21)

(Figure 3)

serve grammatical functions. Negation and the interrogative, for example, are often indicated in this way. Figure 4 illustrates a sentence in ASL which translated into English means "I am not feeling well". A literal word gloss of the sentence would be "Me feel good me" with the negation being expressed in the head shaking and shape of the mouth. When word glosses are used in ASL texts, this would be written as follows: ME FEEL GOOD ME ^{neg 9}.

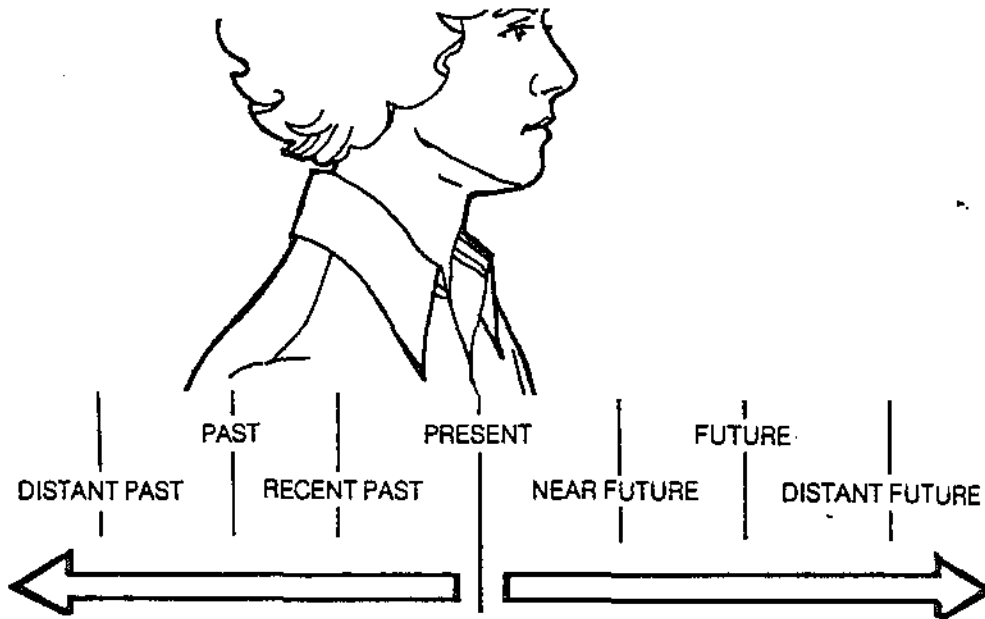


(Figure 4)

Time in Space

Anthropologically, it is interesting that ASL illustrates visually concepts relating to time held by American culture (and English speakers) generally. That is, when we locate time in space, the future is 'ahead of us' or 'in front of us' and the past lies behind us, whereas the present is here. In ASL signs relating to the future are performed in an area of space in front of the signer's body; those dealing with the past are behind over the shoulder, and those relating to the present are level with the signer's body. This is referred to as 'the time line' and time signs or time indicators have a relative location on the time line which agrees with their meaning.

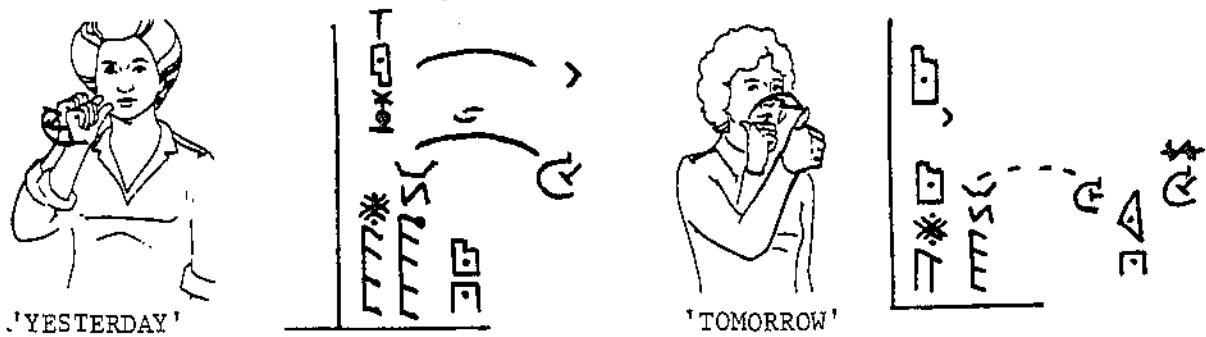
The direction of movement of each time sign indicates its relation to present time (i.e., FEW DAYS FUTURE goes forward, whereas FEW DAYS PAST goes backwards) and the distance away from the body indicates a greater distance in time away from the present.



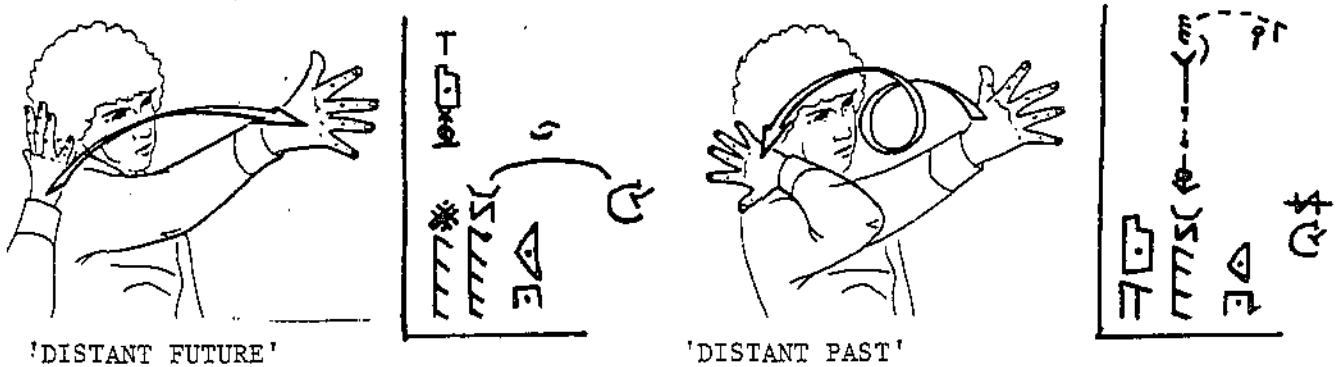
The Time Line (Baker & Cokely, 1980:176)

(Figure 5)

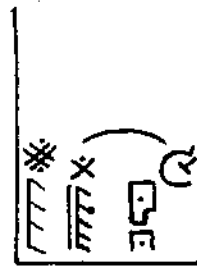
Thus, signs for YESTERDAY and TOMORROW are as follows, in the space near to the torso of the signer:



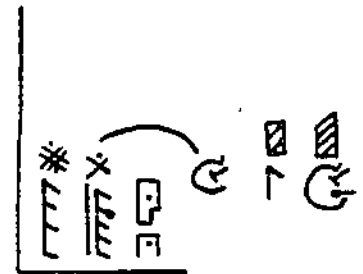
Those signs for DISTANT FUTURE and DISTANT PAST are at the far edges of the signing space:⁴



In addition, non-manual aspects contribute as adverbs to the basic signs. For example, the concept of closeness to the present can be emphasized by raising and moving forward the shoulder whilst raising the cheek and side of the mouth towards that shoulder. The difference between RECENTLY and VERY RECENTLY is of this nature (See Figure 6). The same movements indicate that something just happened or is about to happen, once again indicating closeness to the present time. Figure 7 shows the sign ARRIVE AT (here) which together with these additional non-manual aspects changes its meaning to JUST ARRIVED.

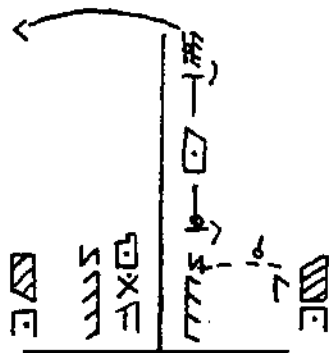


RECENTLY

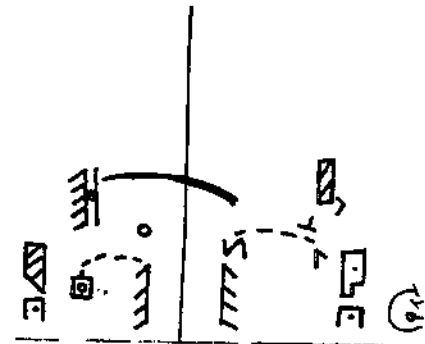


VERY RECENTLY

(Figure 6)



ARRIVE AT (here)

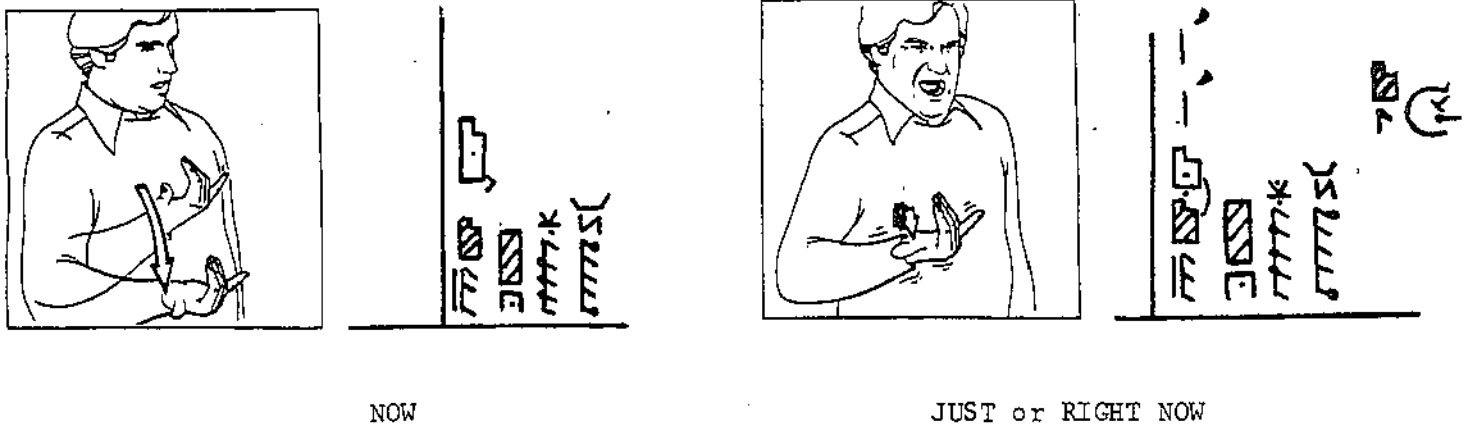


JUST ARRIVED

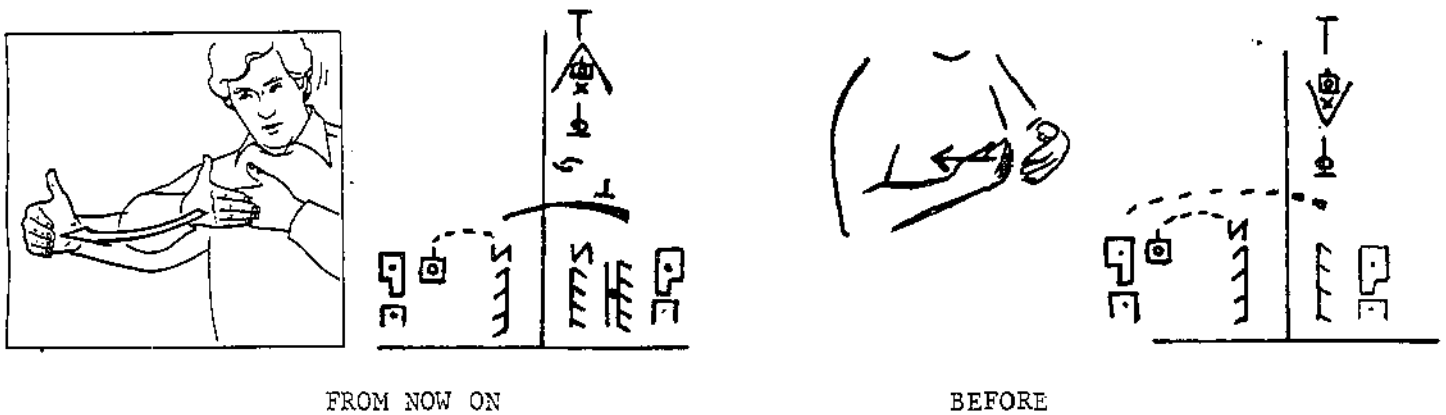
(Figure 7)

The sign for NOW is placed as close to the torso as possible and also emphasized in the manner described above to mean JUST or RIGHT NOW (Figure 8).

Another set of signs utilises this time line but is based upon the use of a passive hand rather than the body as a reference point. In this way, the positions of the passive hand can represent any time and the active hand indicates time in relation to the passive hand. Concepts such as BEFORE, AFTER, NEXT, UNTIL, FROM-NOW-ON are designated in this manner (Figure 9).



(Figure 8)



(Figure 9)

The spatial location of time is not confined to sign languages, however. As Lyons (1977:718) says:

The spatialization of time is so obvious and so pervasive a phenomenon in the grammatical and lexical structure of so many of the world's languages that it has frequently been noted.

The ways in which this is achieved in the lexical and grammatical structures of spoken languages is referred to as 'deixis'.

Deixis

The term 'deixis' comes from a Greek word meaning 'pointing' or 'indicating' (Lyons, 1977:636).

By deixis is meant the location and identification of persons, objects, events, processes and activities being talked about, or referred to, in relation to the spatio-temporal context created and sustained by the act of utterance and the participation in it, typically of a single speaker and at least one addressee (1977:636).

In linguistics, deixis is used to refer to the function of personal and demonstrative pronouns, of tense and person, and a variety of other grammatical and lexical features all of which relate utterances to the "...spatio-temporal co-ordinates of the act of utterance" (Lyons, 1977:636).

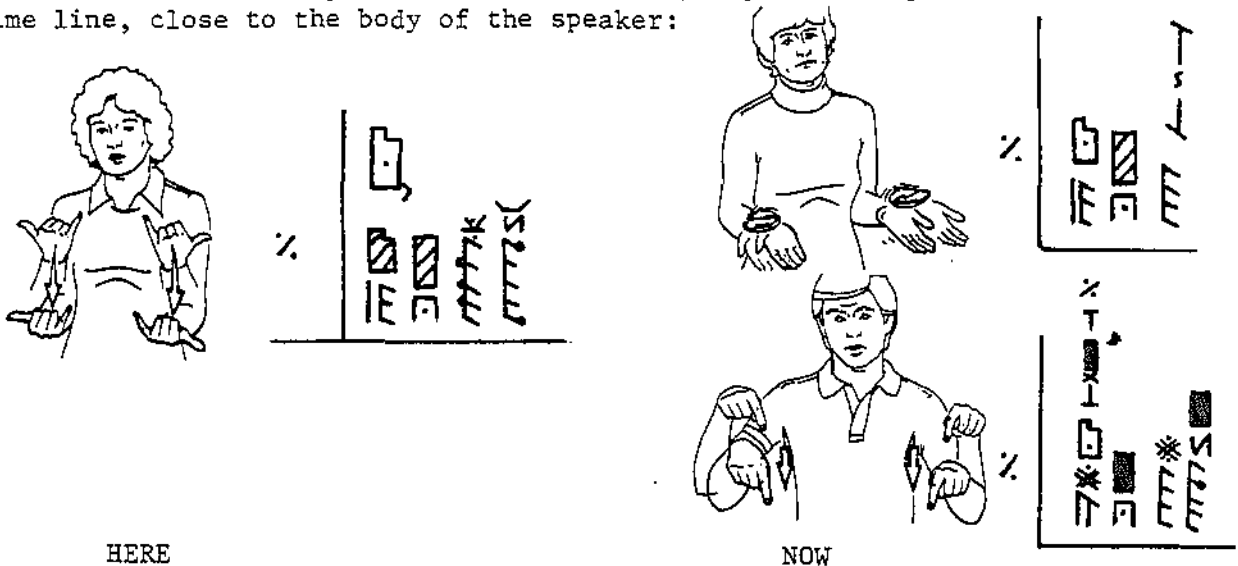
Lyons draws our attention to the way in which many utterances which use deictical terms (such as here, there, this, that, now, then, etc.) are subject to many kinds of ambiguity or indeterminacy unless produced in "...a canonical situation of utterance"; that is in a one to one, or one to many speech situation with all participants present so that the speech is not dissociated from the prosodic and 'paralinguistic features' which would punctuate and modulate them. What are here called 'paralinguistic' features can more fruitfully be thought of as a parallel linguistic structure, for it is not 'ad hoc' gesturing, but resembles what goes on in a sign language conversation as far as the use of space is concerned, but in a less conventionally structured way. It may be the case that this movement based parallel linguistic structure becomes primary in a sign language and, because of simultaneity, sequential organisation is secondary, whereas in spoken language the reverse is the case (See Studdert-Kennedy and Lane, 1980). Much of the so-called 'iconic' nature of American Sign Language is a visual realisation of the same kind of spatio-temporal conceptions which occur in spoken English. ASL may appear iconic and occasionally 'transparent' to the casual observer, perhaps, precisely because it shares the same concepts relating to spatio-temporal co-ordinates. The zero point of the deictical co-ordinates for the speaker, no less than the signer, is the here and now of the body in space and time.

The use of deictical terms is necessarily different if produced in a non-canonical situation; if they are written, for example, rather than spoken, or used in a telephone conversation or other language event where the "...moment of transmission and the moment of reception are widely separated in time and space; if participants cannot see each other or cannot see what the other can see and so on" (Lyons, 1977:638). For deaf persons using ASL this does not arise for there can only be a canonical situation of utterance. Deaf people have no written form of their language and cannot use a telephone which means that communication over time and space can only be accomplished through translation into the written form of English. This is an important factor to be taken into consideration if comparisons between the use of deictic terms in the two languages are to be made.

Demonstrative pronouns, adjectives and adverbs are primarily deictic, their meaning being interpreted with respect to the location of the participant in the deictic context. The interweaving of spatial and temporal concepts in deixis can be seen in terms such as 'here' and 'there', 'this' and 'that', 'now' and 'then'. For example, 'here' and 'there' can be analysed as meaning 'at this place' and 'at that place' respectively. 'Now' and 'then' can be said to mean 'at this time' and 'at that time'. Moreover, by virtue of the interdependence of time and distance (in that what is further away takes longer to reach) there is a distinct correlation between temporal and spatial remoteness "...from the deictic zero point of the here and now" (Lyons, 1977: 646):

The distinction between 'this' and 'that' and between 'here' and 'there' depends upon proximity to the zero point of the deictic context; 'this book' means 'the book (which is) here' or 'the book which is near the speaker'; 'that book' means 'the book (which is) there' or 'the book (which is) not near the speaker' (1977:646).

In ASL these deictic concepts are realised in space. HERE and NOW are as would be expected both found in the 'present' space of the time line, close to the body of the speaker:




THERE can be realised in many ways, using all possible visual cues and spatial reality to form locative expressions. Friedman (1975) suggests a four-way distinction in locative locutions in ASL as follows:

- (a) An index (finger) pointing DOWN, which can be glossed as 'here, at the place of the speech act'.
- (b) An index pointing DOWN and away from the signer, which means 'there, close to the speech act'.
- (c) An index pointing UP and away from the signer, meaning 'there, far away from the place of the speech act'.

(d) An index to the RIGHT (slightly raised or not raised), which is the unmarked location 'there' (unspecified as to distance from the signer) or 'not at the place of the speech act'.

Friedman herself suggests that one is considering a range of movements and orientations on a continuum rather than one in which four distinctive locations occur.

The same 'pointing' handshape  is also used to indicate

pronouns. The signer first establishes a frame of reference in front of the body within which points of reference are established for objects, persons, and locations to which the signer will refer. It is interesting to note that some spoken languages also do not distinguish between demonstratives and third person pronouns (e.g., Turkish). In classical Latin, as in Greek, there was no third person at all. The third person pronouns of the Romance languages as well as English and German have derived from demonstrative pronouns, according to Lyons (1968:278). He suggests that the traditional separation of articles, personal pronouns and demonstrative pronouns may have obscured relationships between these terms with respect to proximity and distance.

Tense is also one category of deixis, but is distinct from the kind of deictic temporal reference discussed so far in that it is not a universal feature of language.

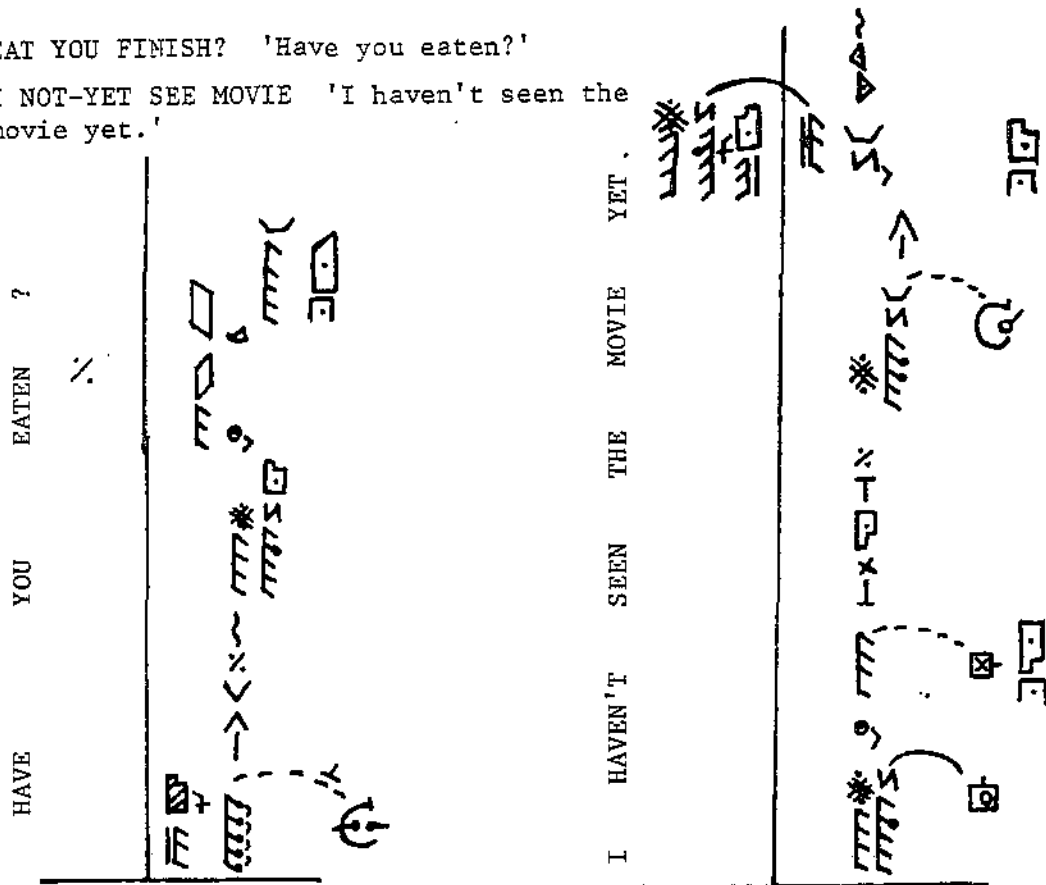
Though not all languages have tense, it is probably true to say that all languages have various deictic adverbs or particles of time, comparable with English words, now, then, recently, soon, today, yesterday, etc., which provide the means when it is necessary or desirable, for drawing deictic temporal distinctions of the kind that are obligatory and grammaticalized as tense distinctions in such languages as English (Lyons, 1977:678).

ASL, like Chinese, Malay and Classical Hebrew, is a tenseless language, but this should not be confused with an inability to cope with time, as if concepts are 'timeless'. As Friedman (1975) points out, any language must provide for the time of the speech act, before the speech act and after the speech act, a tri-partite distinction. Surface representations are of two kinds and any particular language chooses one or both. Where tense is overtly marked, there can be a complex inflectional system with which reference is made to present, past or future time. A speaker can also, whilst maintaining the present as actual time, refer to a time before, one previously established as past (e.g., the past perfect tense). A speaker establishes a reference time and can then refer to time before and after that point of reference, whilst awareness of the present is maintained.

Where tense is not overtly marked, lexical items such as 'before', 'after', 'then' and so on are used. English allows for both possibilities in its time expressions, whereas ASL grammar will allow only the type of time locutions in which the time of the speech act is not maintained. Friedman maintains that the physical aspects of a visual language constrain it in such a way that "...time reference cannot be established or focus made in relation to that established time while maintaining awareness of present time" (1975:942). As we have noted, in ordinary discourse the body of the signer represents present time. The signer can, however, establish a temporal reference and when this is done, the time represented at the body is thereafter re-established as being in the reference time, and therefore no longer represents the present. In this way present time can no longer be maintained. To indicate completed and future action, ASL has a pair of markers which are used. These are glossed as FINISH and NOT YET and appear in sentence forms as follows:

EAT YOU FINISH? 'Have you eaten?'

I NOT-YET SEE MOVIE 'I haven't seen the movie yet.'



There is also a future indicator, usually glossed as WILL, which like NOT YET, BEFORE, and FINISH, acts as an adverb, but establishes future time. It is signed in the 'future-time' space along the timeline.

Conclusion

This brief exploration into aspects of deixis in ASL has pointed out several differences and some similarities between a signed language such as ASL and spoken languages. We have seen that the visual nature, the multiplicity of articulators and the feature of simultaneity all create major differences at a phonological and syntactical level. We have also seen how concepts relating to time in space, and other deictical features are shaped by English speakers and ASL users in American culture even though English is a tense language and ASL is not.

The investigation has also pointed to a potentially fruitful way of viewing the kinds of actions which accompany speech, suggesting that the action is a parallel realisation in space of the spatio-temporal concepts embedded within the deictical forms of the speech utterance. A further extension of this study could involve investigation of the value (in the Saussurian sense of 'valeur') attached to spatial direction in American culture as a whole (e.g., 'up' is positive, hopeful, progressive, etc., whilst 'down' is negative, depressing, regressive, etc.) and to examine how these relate to the syntax and semantics of signed utterances.

I agree with Kyle (1983) that the "...effort after meaning" may be a structurally different task in sign languages, but am of the opinion that a broad approach and understanding by investigators, of both kinds of systems (spoken languages and action sign systems)¹⁰ could be of mutual benefit.

Brenda Farnell

NOTES

1. See Farnell, 1984, chapters 5 and 6, for prior work involving the use of Labanotation in the transcription of signs.
2. It is a convention amongst ASL researchers and the Deaf community to distinguish between a general use of the term 'deaf' and its use to refer to persons who identify themselves with a community of persons without hearing, by the use of an upper case 'D'. It is of anthropological interest to note that within the Deaf community a hearing person can be considered 'Deaf' if he or she identifies with the aims and values of the community and can sign ASL proficiently. Alternatively, there are many physiologically deaf or hard of hearing persons who may be labelled 'hearies' because they do not wish to be part of such a community. Thus the lexical term 'deaf' has very little to do with the physiological capacity to hear sounds in this context.

3. Finger-Spelling, also known as the 'manual alphabet' is the use of handshapes to represent letters of the Roman alphabet. It is therefore a 'code' for representing Roman letters which exists within ASL and has a complex relationship with other signs. See Farnell, 1984:170-175.
4. See Lane and Grosjean, 1980, for recent perspectives and Klima and Bellugi, 1979. Baker and Battison, 1980, provide a useful chronology of developments in research.
5. See Farnell, 1984, chapters 5, 6 and 7, for examination of previous and extant ways of recording signs.
6. I am aware that the Chinese writing system is not based upon phonemic elements. The point here is that, in all known literate cultures, reading a stretch of written language occurs along one of four principle directions on a plane surface. Labanotation is read from the bottom to the top of the page.
7. See also Witherspoon, 1977, for discussion of Navaho categories of objects at rest.
8. See Farnell, 1984:134 for description of the way in which a Labanotation score deals with both simultaneity and the flow of movement through time.
9. See Farnell, 1984:84, for a critique of the convention of using word glosses to represent signs.
10. 'Action Sign Systems' include structured movement systems of many kinds including sign languages, dance idioms, martial arts, ceremonial and ritual systems, liturgies, greeting systems, etc. See Williams (1982).

REFERENCES CITED

- Baker, C. and D. Cokely. 1980. American Sign Language: A Teachers Resource Text on Grammar and Culture. T.J. Publishers, Silver Springs, Maryland.
- Battison, R. 1978. Lexical Borrowing in American Sign Language. Linstock Press, Silver Spring, Maryland.
- Farnell, B. 1984. Visual Communication and Literacy: An Anthropological Enquiry into Plains Indian and American Sign Languages. Master's Thesis, New York University.
- Fischer, S. 1975. Influences on Word Order Change in ASL. IN C. Li (ed.) Word Order and Word Change. University of Texas Press, Austin.

- Friedman, L. 1975. Space, Time and Person Reference in American Sign Language. Language, 51:940-961.
- Klima, E. and U. Bellugi. 1979. The Signs of Language. Harvard University Press, Cambridge, Massachusetts.
- Kyle, J. 1983. Looking for Meaning in Sign Language Sentences. IN Language in Sign, J. Kyle and B. Woll (eds.). Croom Helm, London.
- Lane, H. and F. Grosjean (eds.) 1980. Recent Perspectives on American Sign Language. L. Erlbaum Assoc., Hillsdale, New Jersey.
- Liddell, S. 1977. An Investigation into the Syntactic Structure of American Sign Language. Unpublished Doctoral Dissertation, University of California, San Diego.
- Lyons, J. 1968. Introduction to Theoretical Linguistics. Cambridge University Press, London.
- _____. 1977. Semantics, Vol. 2. Cambridge University Press, London.
- McDonald, B. 1983. Levels of Analysis in Signed Languages. IN Language in Sign, J. Kyle and B. Woll (eds.). Croom Helm, London.
- O'Rourke, T., T. Medina, A. Thames and D. Sullivan. 1975. National Association of the Deaf Communication Skills Program. Programs Hand. April:27-30.
- Stokoe, W. 1960. Sign Language Structure: An Outline of the Visual Communication System of the Deaf: Studies in Linguistics, Occasional Papers No. 8.
- Stokoe, W., D. Casterline and C. Croneberg. 1965. Dictionary of American Sign Language. Linstock Press, Gallaudet College, Washington, D.C. (Revised 1978), Silver Springs, Maryland.
- Studdert-Kennedy, M. and H. Lane. 1980. Clues for the Difference Between Signed and Spoken Languages. IN Signed and Spoken Language: Biological Constraints on Linguistic Form, U. Bellugi and M. Studdert-Kennedy (eds.). Verlag Chemie, Berlin.
- Wilbur, R.B. 1979. American Sign Language and Sign Systems. University Park Press, Baltimore.
- Williams, D. 1982. 'Semasiology: A Semantic Anthropologist's View of Human Movements and Actions'. IN ASA Monograph 22, D. Parkin (ed.). Semantic Anthropology. Academic Press, London.
- Witherspoon, G.J.. 1977. Navajo Categories of Objects at Rest. IN Symbolic Anthropology, J. Dolgin, et. al (eds.). Columbia University Press, New York.