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Locatives in American Sign Language

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy in Linguistics

by

Marina LaRay McIntire

1980
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1980
The dissertation of Marina LaRay McIntire is approved.

Pamela Munro

Peter Laderoged

Alan Timberlake

Ursula Beluigi

Lawrence Fleischer

Sandra Thompson, Committee Chair

University of California, Los Angeles

1980
This is (for) Beth

"The heart hath its reasons..."

and for my mother

who always knew I could
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ACKNOWLEDGMENTS

This is the one portion of a dissertation which need not undergo the scrutiny and editing of a committee. The temptation, after years of self-restraint, is to wax prolix: I have succumbed.

In a project as lengthy as writing a dissertation, one inevitably incurs innumerable debts to one's friends and colleagues. I am not exceptional, I suppose; however, I am intensely aware of the extraordinary number of ways in which I have been encouraged and supported for the last several years.

My committee has been incredibly careful and positive in their repeated readings of this dissertation. I am particularly grateful to Sandra Thompson, Pamela Munro and Ursula Bellugi: no better readers and critics could be imagined. Three other friends and colleagues need to be recognized: Judy Reilly, Lloyd Anderson, and Carol Padden. In the way of British government, these three have composed a "shadow" doctoral committee. Carol and Lloyd contributed extensive and scrupulously honest comments on Chapters II and III. Judy listened for hours on end as I "talked it to her."

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I am very glad to have been trained in the Department of Linguistics at UCLA. The characteristic non-competitive spirit of inquiry on the student level can only grow out of the same spirit on the part of its faculty.

I gratefully acknowledge Ursula Bellugi for permission to use the illustration in Figure 22 in Chapter III; it appears originally in The Signs of Language. Similarly, I thank Larry Solow, who generously allowed me to use his very rare original volume, Sicard's Théorie des Signes. Jeni Yamada is responsible for the very graceful and helpful illustrations.

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Any linguist working in an "exotic" language community must incur large debts to consultants. I must say, without modesty or embarrassment, that I owe more to my consultants and teachers than any linguist I know. All the consultants were gracious in sharing their knowledge: Sam Supalla, Jim Revell, Dennis Schemenauer, Pam Steiger, Patti Quartermus, and Sharon Neumann Solow. Pam reviewed the grammaticality of all data. Sharon confirmed grammaticality and translations and worked for several hours as consultant. She also made several valuable observations, as noted in the text. Dennis is a consultant without peer. His intelligence, wit, and patience illumine the data. I cannot imagine what the dissertation might be like without him.

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ABSTRACT OF THE DISSERTATION

Locatives in American Sign Language

by

Marina LaRay McIntire

Doctor of Philosophy in Linguistics

University of California, Los Angeles, 1980

Professor Sandra A. Thompson, Chair

Three different aspects of the syntax of locatives in American Sign Language (ASL) are the focus of this dissertation. The first chapter contains introductory material, especially helpful to the reader who is unfamiliar with ASL. The data are three brief narratives from six consultants, and elicited utterances from one of the consultants. Five of the consultants are deaf and five are native signers.

The second chapter is a discussion of constituent ordering in ASL. OV and VO ordering vary in ASL; notions such as 'subject' and 'object' are less crucial to ordering than the notions of old and new information.

Chapter III presents different views of classifiers. These classifiers are the most common means of expressing locative meanings in ASL, whether static or motional. The
most rewarding approach is a morphological analysis, proposed first by Supalla (1973). Additions and suggested modifications are made for this morphological model.

Chapter IV is an examination of locative syntax other than classifiers. Verbs taking locative arguments, deixis, and locative adpositions are the other syntactic means appearing in the data. The major focus of this chapter is on three locative adpositions: IN, UNDER, and OUT. Each has varying forms with specific associated meanings. While iconicity is evident in the locative adpositions, it is not an important factor in the encoding of locative utterances.
Chapter I

Introductory Material

1.0. American Sign Language (ASL) is the language of the typical deaf adult in the United States. It is genetically related to French Sign Language (FSL), which was brought to the United States in 1817. Historical and comparative evidence indicates that FSL was probably creolized with the signs extant in the United States at that time (Woodward, 1978a). The scant amount of linguistic evidence from the last century indicates that ASL was SOV and post-positional (Keep, 1871; Fischer, 1975).

1.1. ASL's relationship with English is complex. Few deaf children learn ASL at the normal acquisition age, since only about ten percent of them are born to deaf parents (Rainer, et al., 1963). ASL is virtually never used as the recognized language of instruction in classrooms for deaf children (Cokely, 1978; Woodward, 1978b). Most deaf people learn ASL after the 'critical period', and then they tend to learn it from their peers, rather than from fluent signing adults (Cokely and Gawlik, 1974). English is the language of literacy in the deaf community. It is also the prestige language (Stokoe, 1970). Only in the past few years have deaf adults entertained the notion that knowledge of ASL
could be regarded as anything other than a social conven-
ience for associating comfortably with other deaf adults.
Because of the high prestige accorded to English, and
because hearing people are generally assumed to be ignorant
of, if not hostile towards, ASL, deaf adults seldom use ASL
except in exclusively deaf groups. Thus, deaf adults tend
to be adept at code-switching, and the hearing linguist must
be canny to elicit 'real' ASL.

In recent years, a philosophy called "Total Communi-
cation" has been associated with a change in the school
experience of many deaf children. For many years, signing
was forbidden, even punishable, behavior in classrooms for
deaf children (see Greenberg, 1970, for a powerful fictional
description of the effects of this policy). The change to
"Total Communication" has meant that signing is now permis-
sible. The signing in classrooms, however, is restricted
almost totally to some system for manually encoding English;
ASL is still not approved for instructional use (Cokely and
Gawlik, 1974; Woodward, 1978b; Cokely, 1978; Gustason and
Zawalkow, 1980).

The dialect of contact is referred to by linguists as
Pidgin Sign English (PSE) (Woodward, 1973). PSE is socially
a pidgin, although its status as a linguistic pidgin is
still under examination (Reilly and McIntire, 1978).
Generally, though, PSE uses the lexicon of ASL signs in Eng-
lish order. The relationship of ASL, PSE, and English is
usually represented as a continuum:

1) \[ \text{ASL} \quad \xrightarrow{\text{PSE}} \quad \text{English} \]

Most deaf adults have sign skills in the range between ASL and PSE, and can change their dialect depending largely on topic, addressee, and setting. Features of ASL appear in PSE and features of PSE/English appear sometimes in ASL; yet the two dialects remain distinguishable. PSE depends on English-like forms of conjunction and subordination, uses more fingerspelling of English words, and is likely to be more linearly arranged (Reilly and McIntire, 1978).

1.2. ASL, by contrast, has its own grammatical characteristics, quite different from English. It has flexible constituent patterning, no copula, is highly aspectual, and is rich in morphology (Supalla and Newport, 1978; Supalla, 1978).

Iconicity is an important feature of ASL, both in the lexicon and in the grammar. Frishberg (1976) has documented the strong tendency, in terms of historical change, for individual lexical items to become less iconic. While not questioning the accuracy of her analysis, it is still the case that many lexical items remain strongly iconic, and will probably continue to resist the processes of change which she describes.
Iconicity in the lexicon can be described as defining signs which bear a (more or less) transparent relationship to their real world referents. Nevertheless, lexical items exist which have no clear, or even subtle, relationship with their referents: IMPORTANT, PAPER and STORY are examples of this end of the iconic continuum. IMPORTANT, for instance, is formed with both hands in an 'F' configuration (thumb and forefinger forming an "o", with the other fingers extended), palms facing each other. The hands start in contact at the thumb knuckle, separate, curve upwards, and come back together, making a roughly oval shape in the signing space in front of the body.

At the opposite end of the iconicity continuum are signs which bear transparent relationships to their referents: BOOK is signed by the hands facing each other, fingers extended and touching each other; the hands then draw apart, just as the covers of a book are separated when it is opened; SMOKE-A-CIGARETTE is signed by tapping the extended index and middle fingers to the mouth, in an imitative action.

Between these two extremes is a group (probably further separable and classifiable) of signs whose referents are not obvious until they are pointed out. The naive observer is unable to decode such lexical items without help. Such items, often, indeed usually, have etymologies which purport to explain their origins. For instance, the sign GIRL is made by drawing the thumb, extended from a fist, down the
jawline. This is said, alternatively, to refer to bonnet strings or spit curls. Such etymologies are convenient mnemonic devices for beginning students of ASL; their function or validity for the grammar of ASL in the mind of the adult fluent signer is questionable. (See Klima and Bellugi, 1979, for a more thorough discussion.)

Within this middle group belong some of the signs which we will be concerned with, locative adpositions. I will reserve any specific descriptions for Chapter IV. In general, however, they share some phonological features. They are formed with handshapes (one of the phonological primitives of ASL signs) that have been identified as unmarked (Battison, et al., 1975). They generally are made with two hands and the two hands are moved into the relationship signified, e.g. one on, behind, etc. the other. It is an empirical question, but I suspect that if a naive observer were told that a list of signs would include the meanings "in", "on", and so forth, that these adpositions would prove to be relatively transparent. Once again, however, the importance of such iconicity in the mind of the adult, fluent or native signer is questionable.

Iconicity in the grammar of ASL is a different matter from that in the lexicon. For instance, reduplication of signs functions as a plural marking on nouns, and an inflection for continuative, iterative and durative on verbs (Supalla and Newport, 1978). In this respect, ASL is no
different from a number of spoken languages (Moravcsik, 1978). As Supalla and Newport point out, however ASL is unique in that it has distinct types of reduplication to mark these semantic functions (Supalla and Newport, 1978, p. 127).

Time is another aspect of iconicity in the grammar. In ASL, as in many spoken languages, there is a convention that events tend to be signed in real world chronological order (Fant, 1977). This may be restricted to narrative style, or it may be an artifact of narrative style which has invaded the rest of the grammar. So far, no detailed examination has been done. It seems reasonable that this ordering convention may be related as well to the fact that ASL is a non-tense-marking language. In any case, notice the following sentences:

2) WORK FINISH GONE HOME
   'After work, I went home'

3) GONE HOME WORK FINISH
   'After I went home, I finished the work'

There are facts of rhythm and non-manual behavior which are important here and are not obvious in this presentation. Nonetheless, the ordering conventions are real. PSE is not subject to this restriction, since it follows English order.

The complexities of iconicity on a grammatical level in ASL are richer than I have indicated here. Mandel (1977)
and DeMatteo (1977) have both discussed the matter in depth. We shall return later to the problem as it applies to locatives in Chapters III and IV. For the interim, however, it will be my position that iconicity in grammatical matters of ASL represents more of an echo of the real world than a direct representation.

1.3. The phonology of signs refers to the set of parameters by which individual signs can be analyzed without reference to syntactic functions or meaning. Signs are said to be formed around three phonological parameters: handshape, place, and movement. Each parameter has an inventory of possible primes (shapes, places, etc.) which have no intrinsic meaning, but combine to form meaningful signs. (But see Anderson, 1978a, for a discussion of sign morphology.) The change of a prime in any parameter can signal a change in meaning. Thus, the sign CANDY is made with the index finger extended from a fist (shape), in contact with the jaw (place), with a twisting wrist (movement), and a general orientation towards the midline of the body (orientation). The same shape, movement and orientation performed in a different place has a different meaning, e.g. if near the eye, CHINA. (Appendix D contains a list of shapes, places, movements and orientations used for ASL.) Every indication from investigations into sign phonology indicates that it functions very similarly to the phonologies of spoken languages: short-term memory (Bellugi, Klima
and Siple, 1975); error phenomena (Klima and Bellugi, 1979); markedness (Battison, Markowicz and Woodward, 1975); morpho-phonemic constraints (Battison, 1974); child language acquisition (McIntire, 1977).

Parameters can have morphemic status (Wilbur, 1979; Supalla, 1978; Fischer and Gough, 1978). A group of signs related to sensation (FEEL, TOUCH, EMPTY, TASTE, etc.) all share the same handshape. Signs related to mental activities share the same place, the forehead (THINK, KNOW, REMEMBER, etc.). A twisting movement away from the signer's body serves as a negative particle (DON'T-KNOW, DON'T-WANT, etc.).

1.4. Another feature of ASL grammar, non-manual behaviors, will be crucial to parts of the discussion to follow. Several researchers have demonstrated the importance of facial, eye gaze and head behaviors to ASL syntax. Liddell (1977) has shown that relative clauses and topicalized NP's can be indicated solely with non-manual signals. Baker (1976) discusses the use of the eyes in noun modification, as well as the integration of eyes, brows, and head posture to signal questions and negatives. Baker and Padden (1978) show that eye blinks occur systematically between clauses in affirmative conditional statements (e.g. "If it rains, we'll stay home"), but not in negative or questioned conditionals. Having examined eye gaze and blinking behaviors in a variety of naturalistic data, they conclude "signers do not always blink at what we would expect to call
a major constituent boundary. However, when they do blink, it is usually at such a boundary" (Baker and Padden, 1978, p. 43).

A common ASL construction in which non-manual behavior is critical is the rhetorical question (Fant, 1977; Baker and Paźden, 1978). WH questions are ordinarily marked non-manually with furrowed brows (WHO); yes-no questions, by contrast, have a characteristic eyebrow-raise (ASK [x:you]). In the rhetorical question construction, one of the arguments is WH-questioned, but marked facially by the typical yes-no expression:

4) L-I-L GONE WHERE T-E-N-N

'Lil went to Tennessee'

Such constructions are extremely common, as indicated by the translation.

Most of the pronoun system in ASL is made up of pointing gestures. These signs are transcribed as follows:

5) sg pl
1p pro.1 pro.1-pl.
2p pro.2 pro.2-pl.
3p pro.3-R/L pro.3-pl.-R/L

Notice that R (=right) and L (=left) are necessary to additionally specify third person pronouns. Thus, while pronominals are not marked for gender, they are marked for
direction and number. To add to the complication, eye gaze alone can distinguish second from third person, e.g. if I point in the direction that I am looking, right, left, or forward center, that point is automatically a second person pronoun. Plural forms are also susceptible to number incorporation up to five persons, e.g. WE-TWO, YOU-THREE, etc. Deictic points can also be used as pro-locatives, which will be written as 'there-near', and 'there-far'. (See Coulter, 1977; Hoffmeister, 1977, for more thorough discussion and analysis of the deictic system.) Many of the utterances in the data examined here make use of deixis. Because of its complexity and broad scope, however, deixis will not be dealt with in any serious or comprehensive fashion.

1.5. The notion of 'sentence' in ASL is problematic. No effort so far has been totally successful in determining what constituents are both necessary and sufficient for a grammatical ASL sentence. It is clear that ungrammatical utterances can be judged by native users; for the linguist, however, this remains largely an opaque problem. In determining utterance boundaries, a combination of several factors can be helpful. A break in the rhythm of the signs, a 'hold' or suspended movement of the final sign, an eyeblink, an eye gaze shift which returns to contact with the addressee, a shift in topic and the presence of one or more verb forms, with or without arguments are all potential indicators of sentence-hood. By and large, I have tried to let the pre-
sence of some or all of these factors guide my judgments. I have had the occasional benefit, as well, of consultant's intuitions. In general, I have tried to allow their judgments to supersede and precede my own; I have also avoided the issue in most instances by using the terms 'utterance' or 'string'. All the data presented in the text have been double-checked for grammaticality and translation by at least one consultant.

ASL is exclusively a language used in face-to-face conversation and the notion of isolating a single sentence is alien to the language and alien to the language users. Consultant 1's behavior as a language consultant is strong evidence for this. When asked how to translate a particular English sentence, his most common and most comfortable approach was to build a context, virtually an entire short story, around the sentence in question.

We should note that this phenomenon is not isolated to signed languages. Many other languages, e.g., presumably all languages existing in pre-literate cultures, share this feature to a large degree. It may be that this is an issue which should be more seriously considered by all linguists working with such language communities.

In any case, this issue calls into question any ASL data gathered in a traditional way. At the very least, isolated strings can only provide a beginning of an investigation into ASL syntax. Without the support of discourse
data, any conclusion or analysis is tenuous at best and dishonest at worst. They cannot reflect the actual facts of the language at work.

A related issue, at least as political as linguistic in nature, arises when we refer to ordering strategies as 'word' order. At the risk of appearing overly sensitive, I have avoided use of the term 'word' when referring to signs. Instead, I use the terms 'sign' or 'constituent'. The exception is in quoting from previous researchers who have not made the same distinction.

1.6. The data for this dissertation were collected in two parts. First, six consultants were paid to sign three stories each. Relevant information about the consultants is summarized in Table I. The single non-native signer learned ASL in her residential school before the onset of adolescence. She is generally recognized in the deaf community as a fluent ASL signer. The single non-hearing-impaired consultant is also generally recognized as a fluent ASL signer. There are serious questions that can be raised about using either deaf, non-native signers or hearing, native signers as consultants. However, no argument in this dissertation depends solely or crucially on the behavior of either of these women. More importantly, their linguistic behavior very seldom deviates from the patterns exhibited by the other four consultants.
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<tr>
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<th>Age</th>
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<td>1)</td>
<td>28</td>
<td>M</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<td>2)</td>
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<td>+</td>
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<td>Arizona</td>
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This first set of data consists, then, of three brief stories. The texts of two of the stories may be found in Appendix A. The first I wrote specifically to elicit a variety of locative expressions. The other two are children's books. One, *Corduroy*, involves the movements of a teddy bear in a department store. The second children's book, *Bears in the Night*, is a pre-primer. The text, made up of simple locative prepositional phrases, was concealed in order to reduce any tendency to sign in PSE. To call these data 'discourse' may be misleading, since there existed no true conversational partner. I was, however, present at all tapings, and was seated just in front of the camera, to simulate a normal dyadic configuration.

After the initial transcription of tapes was made, Consultant 1 viewed his own tape and critiqued the others. He and I then held a series of several dozen field sessions over two years. After several months, he videotaped about sixty single utterances, short anecdotes, and re-translated the first story from Appendix A.

It is my observation that it is very difficult for deaf consultants to break the lifelong habit of signing PSE in the presence of hearing people and in any sort of "important" or semi-formal function, such as is bestowed by videotaping. Yet the data are saved by two facts. One is that even in PSE, or English-like signing, ASL features persist (Reilly and McIntire, 1978). At only a few, identifiable points in
the data here are there grossly English-like constructions. Second, and more important, skilled ASL signers, with some sensitizing and training, can distinguish parts of the continuum quite readily. Consultants 1 and 5, in particular, have been helpful in this regard. Both have viewed the entire elicited discourse corpus and have made helpful evaluations and emendations. I am satisfied that with their considerable help, I have managed to capture an essentially correct set of data, minimally influenced by English. Short of the almost impossible task of collecting a large body of truly natural data, I have made a fairly successful effort at getting accurate representations of ASL. It should be noted that the ASL in these data probably does not represent daily usage. All the consultants (except 4) rank very high in terms of educational background within the deaf community. This means that their knowledge of English is comparatively excellent (although non-native) and this has some influence on their language usage.

1.7. Transcription is particularly complex for a visual/kinesthetic language, both for the writer and the reader. The system used in this dissertation is derived from that devised by the group at Salk Institute. Because this system represents signs as English words, it is easy for the reader to assume a closer connection between ASL and English than truly exists. It is important to remember that ASL does not depend on or draw from English in any but the most minimal
fashion (Battison, 1978).

Since the transcription system is complex, we shall deal with it here, rather than relegating it strictly to an appendix (Appendices B and C contain summaries of transcription of signs and facial behaviors, respectively.) Signs are written in all capital letters, e.g. BEAR, WANT. The English words used for signs are strictly names, usually representing the most common gloss. For instance, THEN is named by its most usual English equivalent. It may, however, be translated as "then", "or", "the second item of occurrence" or "after that". Thus, the transcribed utterance may look quite different from its English translation. When two or more English words are required to gloss or name a sign, the words are hyphenated, e.g. GET-IN, PICK-UP, SAY-NO. Non-standard, mime-like gestures are in single quotes, i.e. 'LIFT-BLANKET'.

Because the two hands may be signing different things simultaneously, conventions have been devised to represent the hands separately, when necessary. Often one hand will hold a sign while the other continues signing. To represent this signing behavior, a line is extended from the held sign. For example:

6) CAR  
CAT clfr:1-GO-UNDER

' The cat went under the car'
In 6), the second sign, clfr:3 (=vehicle), is formed and held by the left hand, while the right hand signs the subject nominal and the verb.

Fingerspelling is a means of representing English orthography, and is used occasionally in the data here. English words that are fingerspelled are presented as hyphenated capital letters, e.g. B-E-A-R, W-H-E-N. Battison (1978) presents a complete description of fingerspelled borrowings into ASL.

Compound signs are linked by a curved superscript, e.g. BED ROOM, THINK MARRY (='believe'), THINK SELF (='it's up to you'). Compounding processes are discussed more thoroughly by Klima and Bellugi (1979).

The term 'directionality' generally characterizes a particular set of ASL verbs which change the direction of their movement component to indicate changes in agent/patient relationships. The exact working of such verbs is discussed at greater length in Chapter II; however, it should be noted how directionality is shown in transcription. Capital letter subscripts indicate direction of movement in verbs, e.g. R (=right), L (=left), S (=signer), C (=center), D (=down), and U (=up). All directions are expressed from the signer's view.
7) CAT poss.3L V-A clfr:V-RUNR-L

'Virginia's cat ran (from right to left)'

In 7), the verb, articulated with both hands, moves from the signer's right to the signer's left, indicating both endpoints of the cat's movement. Third person deictic pronouns, as well as third person possessives, also are transcribed with direction. The orientation of the palms of the hands sometimes works in similar ways to directionality of movement. Subscripts are thus used similarly to indicate orientation as well as directionality.

Subscripts are also used to transcribe a subtly distinct phenomenon, the placement of signs in space. For instance, BOOK is normally signed in front of the body, the area often referred to as "zero space". For a variety of functions, it is possible to change the placement of such a sign to a space more to the right or left, nearer to or farther from the body. The effect of such a shift is to signify an instantiation of an indefinite term ("book" becomes "this/that/your...particular book"). Notice that the movement and orientation in this case are unchanged. Such a change in placement is written as a subscript, BOOKR. This change in placement is one of a number of modulations that can work on a sign.

The term modulation is a cover term for any of a large number of changed phonological shapes of a sign that have
some grammatical relevance. Anderson (1978a) points out that this term was selected (by the Bellugi group at Salk Institute) "to avoid pre-judging the exact morphological status of the changes" (Anderson, 1978a, p. 85). Such modulations, in this dissertation, will be transcribed largely as superscripts. The exception is, as previously mentioned, that the direction of movement in directional and motional verbs, and the orientation of orientational verbs, are written as subscripts. I attach no theoretical significance to any of the modifications I have made on the Salk transcription system.

Non-manual behaviors are crucial to syntactic structures such as questions, negatives, conditionals and relative clauses. (See Liddell, 1977, and Baker and Padden, 1978, for more detailed discussions of these significant behaviors.) When non-manual behaviors are important to the discussion, they are conventionally presented on a line above the co-occurring signs. For example:

\[
\begin{align*}
\text{8) } & \text{CAT} \quad \text{poss.3-L} \quad \text{V-A} \quad \text{clfr:V-RUNR} \quad \text{L} \\
& =7)
\end{align*}
\]

In 8), the eyebrows are raised (\(\circ\)) across the first three signs; in addition, the eyes are opened wide (\(\circ\circ\)) across the possessive phrase. A complete list of non-manual behaviors appearing in this data, with their apparent functions, appears in Appendix C. Blinks are indicated,
when necessary, as superscript check-marks (✓).

Some non-manual behaviors, however, are occasionally displayed below the signs: eye gaze and facial orientation. The transcription conventions for these are taken from Reilly and McIntire (1978) and are also listed in Appendix C. The direction of eye gaze and orientation of the face, when they are crucial to the argument, are presented in the data on a line between the transcribed signs and the translation. For example:

9) ... THEY-TWO clfr:V-SIDE-BY-SIDE
   e: ✓
   h: ✓ chin
down

'The two of them sat side by side (underneath the table)'

The triangle means that eyes and/or face are directed to the front. Wedges and arrows are used to describe orientation away from the front: ➝ = 90° to the right; ➞ = 90° to the right and downward; ◀ = 45° to the left, etc. (See Appendix C.)

The chapters of this dissertation deal with various aspects of locative syntax in ASL. Chapter II focusses on the question of constituent order; Chapter III discusses the use of classifiers in locative/motional predicates; Chapter IV discusses a variety of locative constructions and examines three ASL adpositions.
Chapter II

Constituent Order and Locatives

2.0. The controversy over constituent order in ASL is long-standing. Some observers of the language, usually educators who believe in the oral philosophy, have claimed for years that sign language has 'inverted' ordering principles. Keep (1871) thus quotes a contemporary colleague:

So long ... as the deaf and dumb think in this inverted order, they will not write the English correctly. The structure of their own language must be changed, in order to work a change in their mode of conceiving of actions and events.

(Keep, 1871, p. 227)

In response, Keep claimed that ASL follows a 'logical' order:

...it would seem sufficient to ask, whether it is in the power of natural signs to give clear ideas... a perfectly clear idea of the thoughts contained in a sentence, may be communicated to the mind, yet the sentence itself as given in signs, not be translatable into verbal language.... Suppose that the deaf-mute ...has come to know the words cat, and catch, and boy. Making the sign for cat...locating the animal; then, having made the sign for boy, we represent him as catching the cat.

(Keep, 1871, pp. 226-229)

This controversy centered around the appropriate means of educating deaf children, which does not concern us here (although the same controversy continues). Rather, we wish to discover how ASL orders constituents.

In recent linguistic literature, the question of con-
stituent ordering has been discussed by many, but five authors represent major stands on the question. Fischer (1975) has claimed that ASL is an SVO language, having been SOV originally. Friedman (1976) claims that no basic ordering preference exists in ASL. Liddell (1977) supports Fischer in viewing ASL as SVO. He also adds a good deal of discussion on deviations from SVO, including some discussion on topicalization and locatives which will be relevant for our purposes. Yau (1977) suggests that sign languages are SOV and offers an extra-linguistic constraint in explanation. Anderson (1978b) says that VO varies with OV in ASL and that order is governed by an old-to-new principle.

In sections 2.1. - 2.5. we will discuss these different views of ASL syntax. The rest of the chapter will be devoted to my own discussion of sign order, specifically in its relationship with locatives.

2.1. Fischer (1975) makes a very explicit claim about ASL sign order: "The basic word-order in ASL is SVO. This is the word order one finds in a sentence with reversible subject and object which are full noun phrases and not 'appositivized' with pronouns. It is also the order one gets in subordinate clauses with any two full noun phrases for subject and object. Any other order will have intonational breaks" (Fischer, 1975, p. 5).

Fischer then discusses other orders that do appear and the conditions under which such other orders would occur.
She claims that a sequence of NNV, for instance, is understood as conjoined subject + verb or as an object + subject + verb. Fischer suggests that SOV order can occur in those cases involving non-reversible nominals, as in 1):

1) BOY ICE-CREAM LIKE or BOY LIKE ICE-CREAM

'Boys like ice cream'

These are both acceptable orderings, since there is but one plausible interpretation. (As Fischer points out, there are other orderings possible; however, they will include differences in timing and facial behaviors. We will talk about these cases later.)

The other case in which SOV (or OSV) is possible as a normal, unmarked ordering is in the use of directional verbs. In these cases, the direction of movement varies, reflecting subject/agent and object/patient/beneficiary relations, much like cliticized verb forms. For instance, the citation form of HELP, a multidirectional verb, moves out from the body. This can be translated as 'to help' or 'I help you'. Given a change in subject and object, however, the movement changes to reflect this syntactic change. 'You help me', then, starts with arms extended away from the body and moves in toward the signer. Fischer claims that nominals must be pronominalized by using deictics before they can be 'cliticized' onto directional verbs. Notice that this use of the term 'cliticized' is somewhat figurative. By using it, I
simply mean to imply that the end points of the movement in such verbs can be interpreted as references to arguments of the verb. That is, no actual clitic or particle is added to the form, but rather the endpoints of the movement represent references to the grammatical arguments. Since the direction of movement explicitly indicates agent and beneficiary, Fischer claims, the directional verbs can appear in sentences which are either SOV or OSV.

Fischer's analysis seems to be colored by two of her assumptions: that ASL can be handled by a grammar in which the sentence is the crucial unit of analysis, and that there is, in fact, a 'basic' ordering strategy. As we shall see, both these assumptions have been called into question by further research.

2.2. Friedman (1976) groups ASL verbs into three classes. The first class, the majority, are multi-directional, are articulated in neutral space, and are either action or source/goal verbs. As indicated above, the movement in such verbs shows relationships between agent/experiencer/source and patient/beneficiary/goal (Friedman's terms).

The second group, "anchored verbs" in Friedman's terminology, are semantically transitive but entail no movement in their execution. Friedman classifies these as "psych" verbs and includes such items as ANGRY, LOVE, and SCARE(D).

The third group, all non-action verbs, are articulated in neutral space, like multi-directionals, but change their
orientation rather than movement to reflect agent/experiencer and patient/beneficiary relationships. Such verbs include items like HATE, PITY, and SAY-NO.

Friedman combines the second two groups, stating that "their surface realization is similar" (Friedman, 1976, p. 130). It is her claim that "verbs are multi-directional if their meaning entails an action or a definite direction of movement from source to goal. Whether non-multi-directional or non-action verbs are free...or anchored...is semantically determined" (Friedman, 1976, p. 131).

2.2.1. As Friedman points out, nominals need not be repeated. Often arguments are located in the signing space by use of indexes (deictics) or sign placement (signs made on the right or left, rather than in central space). From that point on in the discourse, they need not re-appear in full lexical form. They may be indexed, or else pronominalized with locative classifiers (Friedman calls these 'markers'). A third strategy the signer may use is shifts in eye gaze and body orientation to indicate subject/object relationships. (Notice that this use of eye gaze shift can be thought of as indexing of another sort (Baker, 1976, and others).) Friedman interprets this pattern as the deletion of subjects from an underlying form, and claims that the appearance or non-appearance of subject (her term) is a matter of "free variation--with the exception that they seem to always be used for...contrast" (Friedman, 1976, p. 133).
Although Friedman apparently found that the majority of constructions were SV in her data, there were relatively few SVO utterances. She also found SOV, OSV, and OV constructions. She claims that OV's are SOV utterances from which the subject has been deleted. Similarly, she interprets SVOV constructions as SV + OV with a deleted subject in the second (conjoined?) structure.

In this part of her discussion, Friedman makes note of the following piece of data:

2) I PACK CLOTHES PACK FINISH ...
   'I packed my clothes'
   ( = first example, Friedman, 1976, p. 136)

As she points out, this string has several possible analyses: SVO + (SO)V (subject and object deleted); SVO + (S)V; SV (agent verb) + SV (patient verb); SV (agent verb) + OV (patient verb); or SV + (S)OV. Friedman discusses patient verb constructions as being roughly parallel to English passives; but ASL "has no grammatical inflections for verbs" (Friedman, 1976, p. 135), so she prefers an analysis in which such constructions are OV with a deleted subject. For this reason she interprets 2) as SV + (SO)V. The question of grammatical inflections for verbs in ASL is not settled, as Friedman claims it is, but that is not our concern here. Assuming she is correct, let us simply note her conclusion in regard to 2): "...when a transitive verb and two arguments
appear on the surface, ...the preference seems to be for verb-last constructions" (Friedman, 1976, p. 136). We shall return to this question when we discuss the discourse data (section 2.8.).

Friedman lists four strategies for differentiating subject and object in utterances with transitive verbs and reversible arguments: use of signing space, use of body orientation, avoidance of ambiguity by choosing one-place verbs, and heavy reliance on context.

2.2.2. Friedman's analysis appears to be shaky on several grounds so far. First, she gives no indication as to how she determined utterance boundaries or how long a pause needed to be before it was so considered. Granted that such judgments are exceedingly difficult to make (see Chapter I), Friedman has used an implied notion of sentence without justifying it either internally or externally.

Second, she makes no reference to facial behaviors other than vague mentions of eye gaze. Third, her analysis of verb classes seems faulty. She groups anchored verbs (like LOVE, ANGRY, and SURPRISE) with non-action verbs (HATE, PITY, and TEASE) because their surface realizations are similar. She does not, however, justify her claim about the surface behavior of anchored and non-action verbs. In fact, she observes that multi-directional verbs often behave in the same way as the non-action, orientational group, using body orientation to express grammatical relationships. She
separates multi-directional verbs based partly on a phonological analysis, in which this group has no "core" (underlying?) movement. Presumably this means that in some base form these verbs are specified for shape and place, but not movement. Presumably the movement could be introduced by some sort of grammatical transformation or at some level of derivation. This, Friedman does not specifically claim, however.

2.2.3. Friedman then goes on to discuss discourse in ASL. Two of her claims are of interest here. One is that "word order is relatively free, with the exception of the tendency for the verb to be last". The second claim of interest is that "nominal lexical items may appear on the surface after their spatial establishment seemingly wherever they please...in free variation" (Friedman, 1976, p. 142). Since Liddell's analysis has some bearing on them, let us withhold discussion of these specific claims until later.

It is Friedman's definition of topic which one finds somewhat startling. Having established that nominals are often not repeated in discourse where they might be in English, she defines an ASL topic as "that or those nominals which are established first...and as such become definite" (Friedman, 1976, p. 142). She does not specify her definition any more clearly than this, but I interpret it to mean that there is no apparent distinction between subject and topic, and that by virtue of appearing on the surface first
(thereby becoming a topic), a nominal becomes definite, even on first mention.

This is a strange claim, since most languages appear to distinguish topics from subjects, and since topics generally are thought to be (at the very least) definite by definition (Li and Thompson, 1976). Friedman expands her analysis by appealing to two pieces of data. One utterance involves nominals which happen to be proper nouns--names. But, curiously, she apparently considers these as indefinite. The second is an attempt to elicit a translation of the English sentence, "He wants to marry the girl next door". Notice that this sentence has two readings in English: "He wants to marry the girl who lives in the house/apartment/etc. next to his" and "He wants to marry a girl of the type known as the girl next door, i.e. clean-cut, sweet, demure, etc."

Friedman says that only the transparent (e.g. the definite) reading of this English sentence can be expressed in ASL. From this she concludes that "it is impossible (or at least difficult)" to have indefinite objects in ASL (Friedman, 1976, p. 144). The first objection to such a claim is that the sentence in question is an English idiom; there is no reason to expect such an idiom to be translatable with both meanings in any other language. Second, this is a strong claim to be based simply on one sentence.

We shall have more to say about Friedman's claims after we discuss Lidell's work. For now, let us keep in mind her
two claims about ASL discourse: relatively free word order and the unpredictable appearance of nominals.

2.3. Liddell (1977) supports Fischer's view of ASL as an SVO language, pointing out that a sequence of NV (transitive)N is invariably interpreted as SVO. Liddell makes reference to Fischer's comment about "intonation breaks", and claims to have isolated a set of facial behaviors that accounts for such breaks; he terms this set of behaviors a topic marker.

This set of behaviors is composed of two non-manual activities: the first is a slight raising of the eyebrows and the second a slight tilt backward of the head. These are accompanied by a rhythmic variation in signs, i.e. signs last slightly longer when they are topicalized. Thus, subject nominals can be clearly marked as topics, as well as object nominals and whole predicates, yielding four possible patterns:

3) SVO 'normal', unmarked order for reversible arguments, transitive verbs
   S, VO normal order, topicalized subject nominal
   O, SV object nominal fronted and topicalized
   VO, S predicate fronted and topicalized

(Liddell, 1977, p. 164)

In none of these orders, says Liddell, is there any confusion about the syntactic relationships holding between the respective nominals and the verb. Notice that, regardless of
where the break falls, whatever nominal is not separated by topicalization remains in the order indicative of SVO.

2.3.1. Liddell indicates that OVS is not a possible ordering, but that SOV does occur under several possible conditions. First, as Fischer points out, non-reversible arguments can be ordered as SOV. Second, Liddell talks about mimetic and iconic devices. Although he does not explicitly define these cases, it seems he is referring to sequences that must "include information about the relationship between the activity and the object involved in some spatial, pictorial sense..." (Liddell, 1977, p. 142). Although he does not specify, from his discussion it appears he includes directional verbs in this category.

One of his examples is the following:

4) ME BICYCLE BUY

'I bought a bicycle'

(Liddell, 1977, p. 140)

Liddell points out that, for such a sequence to be grammatical, during the sign BICYCLE the signer's eye gaze must be directed towards a point on the left or right, thus establishing a locus for the nominal; then the directional verb BUY is directed toward that locus. If, by contrast, BUY is signed in citation form (forward and away from the signer's body), and no concomitant eye gaze shift occurs, the sequence is ungrammatical.
It should not be surprising that this is so. First, it stands to reason that any directional verb must be inflected (or directed) properly. The alternative is simply ill-formed because the verb is ill-formed, in this case not moving from source to goal. This example is no different from any other in which the directional movement of the verb indicates semantic relationships. Second, this sort of indexing by eye gaze has been noted in a paper by Reilly and McIntire (1978). In that paper, we described visual behavior related to directional verbs, in which the eye gaze consistently shifted towards the end point of movement slightly before the movement of the verb sign itself. 4) is simply an SOV sentence because it has a directional verb as its predicate. There is no need to appeal here to an opaque concept such as mimetic or iconic devices.

2.3.2. More interesting is the following example from Liddell:

5) WOMAN PIE PUT-IN-OVEN

'The woman put a/the pie in the oven'

(Liddell, 1977, p. 139)

In this case, Liddell claims that the utterance can only be grammatical if the last sign is performed with the non-dominant hand, i.e., the base hand of the preceding sign, PIE. As Liddell points out, this hand "which could be imagined as holding a pie can now be imagined as putting that pie in the oven" (Liddell, 1977, p. 140). It has, however, been point-
ed out to me that the dominant hand *can* be used for the verb and still have a grammatical SOV sequence (Carol Padden, personal communication).

Similarly, the NNV sequence in 6) is interpreted as SOV:

6) MAN BOOK READ  
' The man read a/the book'  
(Liddell, 1977, p. 138)

This example was cited by Fischer as evidence for SOV ordering when only one interpretation is reasonable. Yet, as Liddell points out, there are other NNV sequences which could only be sensibly interpreted as SOV, yet they are not acceptable, according to Liddell:

7) ? MAN MOVIE SEE  
8) * MAN NUMBER FORGET  
9) * BOY CANDY NOT-LIKE  
(Liddell, 1977, p. 139)

By grouping all these examples together, it seems to me that Liddell has missed a generalization, or rather has misstated the generalization. 7) can be made acceptable, according to Liddell (p. 142), if the signer's eye gaze shifts upward, as to a movie screen, and then directs the verb SEE towards that locus. In this case, then, SEE, like BUY, is a directional verb. Since it appears likely that eye gaze shifts are an intrinsic part of directional verb articulations, and since Fischer and Liddell both agree that directional verbs tend to be utterance-final, 4) and 7)
present no particular problem for Liddell's analysis and need not be singled out as peculiar cases.

As Liddell correctly points out, the verbs in 8) and 9) cannot show their relationships to their object nominals. I think the implication of this point is essential. That is, that if a two- or three-argument verb can in some way (such as changing its direction of movement, etc.) indicate on the surface the relationship of its arguments, it will do so. When this is the case, the verb is likely to be utterance-final. (I leave aside here the question of a possible semantic basis for the classification of verbs.) The validity of this hypothesis is supported in another investigation of sign ordering, by Yau.

2.4. Yau (1977) gathered data from deaf signers of a variety of Chinese sign dialects, supplementing it with small amounts of data from American, French and Japanese deaf signers. Unlike other studies in sign ordering, Yau's stimulus was a set of short cartoon sequences, containing no written language, thus reducing to an absolute minimum the influence of the surround language (in this case Chinese).

Yau comes to the conclusion that "all N, whether they function as logical subject, object complement or marked as locative, are all posed before the realization of R (verb)" (Yau, 1977, p. 4). He also appeals to an extra-linguistic constraint: "the basic sign order in a declarative signed sequence...follows the spatio-temporal development of a visual event" (Yau, 1977, p. 6). A third claim, relating
to the ordering of a number of locative nominals is made: "Other things being equal, the immobile precedes [sic] the less immobile or the mobile" (Yau, 1977, p. 8).

Notice that Yau limits his conclusions to utterances involving verbs which take direct objects or locative objects. If verbs of mental activities appear, they are not necessarily subject to the stated extra-linguistic constraint. In those cases where Yau's data were verb-medial, either such mental activities were involved, or the object complements were actually resultatives (such as build-a-house or inflate-a-balloons).

If we re-examine 5) and 6) in the light of Yau's proposals, we can see that they are obeying the extra-linguistic constraint that items be presented in the sequence of the visual event. Since the signed sequence is also a visual event, at least partially, this constraint implies that the utterance in effect re-enacts in some sense the events of the real world. So, in the case of 5), there is a woman and there is a pie; only when those two elements have been presented can the action properly go forward. Such a strategy can be viewed as a sort of onomatopoeia (suggested to me by Pamela Munro), in which the grammar calls to mind the 'look' rather than the sound of the referent.

Notice also that in the case of 5) and 6), there is a phonological consideration. Liddell suggested that the verb PUT-IN-OVEN can here only be performed grammatically with the left hand, i.e. the base hand of the preceding sign.
Similarly, in 6), the left hand of BOOK is held in place to act as the base hand of the verb, READ. One may look at such overlaps as a form of assimilation or as an ease-of-articulation strategy on the part of the signer. 8) and 9) can be considered as ungrammatical because their verbs cannot establish any syntactic or semantic relationships using any of the strategies such as directionality, eye gaze, "onomatopoiea" or phonological assimilation. If we must accept the notion of a "basic" ordering of signs, these data could easily be reconciled by positing SOV as basic and a re-ordering convention for predicates that cannot indicate semantic roles on the surface. Thus, SVO would be considered basic or normal order only for transitive verbs with reversible objects where the verb cannot overtly mark semantic relationships. In any case, we have analyses agreeing that flexible, though limited, ordering is characteristic of signed languages. Fischer and Liddell agree that SVO is the basic order of signs in ASL; Friedman claims there is no basic order in ASL; Yau claims that verbs are final in the Chinese signed dialects he studied. In this regard, he agrees partially with Friedman.

2.5. Without entering into an elaborate discussion here, let me point out that Anderson (1978b) takes a different approach to ordering in ASL. Anderson states that it is a principle of Old Information before New Information which governs the ordering of constituents in both Old and Modern ASL. He points out that several ordering conventions
(adverb of circumstance before predicate, evaluative predicates final, new information/indefinite direct objects after the verb, old information/definite direct objects before the verb), are readily accounted for by the old to new principle. None of the data so far discussed are in conflict with his stand, and we shall see later that it is compatible with other data as well.

2.6. Before we proceed to the data on locatives, let us briefly review Liddell's treatment of locative utterances. It is his claim that locatives have a normal order of OSV. Notice that Liddell does not initially make a distinction between an object of a transitive verb (including directionals) and the locative object of either a motional or a locative predicate. We shall return to this problem later. All the verbs of Liddell's locative data are what he terms classifier verbs, such as clfr:š-ON.

Liddell points out that the relationship between the two hands of the verb in the locative data carries the crucial information. For instance:

\[ \text{10) FENCE CAT clfr:š-ON} \]
\[ \text{clfr:4} \]

'The cat is (sitting) on the fence'
(Liddell, 1977, p. 155)

The first classifier is held across the intervening sign, CAT, and the second classifier is placed atop the first, indicating the physical relationship holding between the two referents.
As Liddell says, the locative relationship holding between the referents is represented by the physical relationship of the two classifiers; this physical relationship is represented by their orientations, locations and movements (see Chapter III). He also claims that, even though locative objects are not marked like the topics he has discussed, they, like topics, remain outside the scope of the non-manual, yes-no question signal. Thus:

11) FENCE  
    \[
    \text{CAT clfr:V-ON}^{\text{0}}
    \]
    clfr:4

'Is the cat on the fence?'

Similarly, locative constructions using lexical verbs like PAINT, rather than classifier verbs, appear normally in OSV order and their locative objects are outside the question signal. For example:

12) TABLE  
    \[
    \text{T-O-M PAINT-UNDER}^{\text{0}}
    \]
    clfr:B

'Did Tom paint the underside of the table?'

As we continue our discussion of locatives, we will re-examine some of the questions which Liddell has raised.

2.7. The elicitation of data has been described elsewhere (see Chapter I), but I will briefly remind the reader of the procedures. Six signers, five deaf and one hearing, were asked to sign three stories (see Appendix A for the texts). One of the stories was written specifically to elicit locatives in discourse, the other two are children's stories that involve locatives. All of the consultants were
encouraged to read through the stories long enough so that they felt comfortable about re-telling them.

One of the consultants (#1) has subsequently worked with me in a more traditional field setting. He has also videotaped about sixty of the individual sentences we had worked on. Thus, the data are in two parts: elicited sentences and prompted narratives. In eliciting single-utterances I found that Consultant 1 was much more comfortable creating small stories and contexts for such utterances. Thus, many of the single-utterance data are actually taken from a richer discourse than a traditional sentence-by-sentence approach yields.

We shall first discuss the elicited sentences, looking at ordering preferences and some facial behaviors. Then, we shall examine the prompted narratives, to see what, if any, differences appear there. Finally, we shall return to the questions raised as to the significance of constituent order in ASL.

I use the term $O_{loc}$ to designate locational nominals; sometimes the $O_{loc}$ is the site of the agent/experiencer nominal in a static locative (The snake is on the rock.) and sometimes it is the goal of a motional verb (The teddy bear climbed up on the bed.).

Let us briefly examine the verbs we are likely to encounter in the data. Some are lexical verbs such as THROW or SIT. Others I am terming classifier verbs. They will be discussed at greater length in Chapter III. For now, they are identified with the transcription notation clf:V.
Their general function is locative in nature; like lexical verbs, they can be static or motional. Classifier verbs show path and sometimes manner when they are motional. Finally, adpositions can serve as stative verbs (BE on/in/...X) or as active verbs (GO out of/into/...X). The adpositions and their interactions with other verbs are more thoroughly discussed in Chapter IV.

2.7.1. Initially, let us examine the set of utterances involving reversible nominals:

13) \[
\text{SNAKE R-O-C-K clfr:5-FALL-ON DEFLATE}
\]

'A/The rock fell on and flattened the snake'

14) \[
\text{R-O-C-K SNAKE clfr:1-GO clfr:1-GO-UNDER clfr:5...}
\]

'The snake went under a/the rock'

15) \[
\text{R-O-C-K SNAKE 'AROUND' clfr:V-ON...}
\]

'The snake was (sitting) coiled on the rock...'

These strings are consistently \( O_{loc} \), This, of course, fits with Liddell's observations. Notice, by contrast, the following set of stative locatives. These involve inanimate, non-reversible arguments, with no lexical verbs or classifier verbs:

16) \[
\text{BOOK YOUR DOWN (IN) BASEMENT}
\]

'Your book (is in) the basement'
17) BOOK OH-WELL UP MY BEDROOM
   'The book—oh, it('s) up (in) my bedroom'

18) B-A-L-L there-under UNDER TABLE
   'The ball (is) under the table'

Let us take a moment to remark on a few facts about these data. In 16), the use of the lexical adposition depends on the position of the speaker: if the speaker is outside the house, IN is acceptable; if she is inside the house, IN cannot appear. 17) fits this pattern, since it was specified by the consultant as being properly an "inside the house" utterance. Similarly, 18) is acceptable only if the table (and the ball) are out of sight.

These data introduce the problem of deictics. The signs identified as UP and DOWN are indexes appropriately modified to represent the indicated meanings. The deictic system in ASL is complex (as briefly discussed in Chapter I), and this dissertation will not include any serious attempts to describe it adequately. It is sufficient to note that the deictics in these strings are functioning as pro-locatives, and bear the function of denoting the physical location of both arguments, but not necessarily their relationship. The interpretation, "in", is left to inference, while "under" is initially indicated by the deictic (see Li and Thompson, 1973, among others, for a discussion

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of extra-linguistic factors in syntax).

More interestingly, these data (16), 17), and 18)) introduce problems in ordering. The locative objects in these strings are utterance-final, and the subjects are utterance-initial. If we were to think of the pro-locatives UP and DOWN as being verbal in function ( =to be up/down), this might lead us to posit SVO_{loc} as the preferred order for these statives.

2.7.2. Now let us look at similar data with stative meanings and animate subjects.

19) CAT FENCE clfr:\textsuperscript{w}-ON
    clfr:4—-

    'The cat is on the fence'

20) FENCE CAT clfr:\textsuperscript{w}-ON
    clfr:4———

    = 19)

These data are distinct from 16), 17), and 18) in two particular ways: their use of classifier verbs and their ordering of constituents. (A more detailed examination of classifier verbs appears in Chapter III; here we shall concentrate on the ordering of these verbs.) While it may not be immediately obvious why the locative object (FENCE) and the subject (CAT) should be variable in their ordering, the classifier verb is consistently utterance-final (see 13), 14), and 15) also).

Similar preferences for verb-final ordering and variabil-
ity in nominal ordering are evidenced when we look at animate subjects with active rather than stative meanings:

21) \( \text{CAT} \) \( \text{FENCE} \) \( \text{clfr:} \text{V-JUMP-OVER} \) \( \text{clfr:4} \)
    'The cat jumped over the fence'

22) \( \text{FENCE} \) \( \text{CAT} \) \( \text{clfr:} \text{V-JUMP-OVER} \) \( \text{clfr:4} \)
    =21)

23) \( \text{CAR} \) \( \text{CAT} \) \( \text{pro.3-L} \) \( \text{clfr:} \text{I-GO-UNDER} \) \( \text{clfr:} \text{V-SIT-UNDER} \) \( \text{clfr:3/B} \)
    'The cat went under the car and stayed there'

24) \( \text{CAR} \) \( \text{CAT} \) \( \text{pro.3-L} \) \( \text{clfr:} \text{I-GO-UNDER} \) \( \text{clfr:} \text{V-SIT-UNDER} \) \( \text{clfr:3/B} \)
    =23)

While there is no apparent possibility of ambiguity in the data considered so far, we are still left with a puzzling set of patterns. We have seen \( Q_{\text{loc}} \text{SV} \), \( S_{\text{loc}} \text{V} \), and \( \text{SVO}_{\text{loc}} \). That none of the data are ambiguous depends on several factors, including selectional restrictions on the classifiers, the physical relationship holding between the classifiers on the surface, and, in some cases, the fact that they involve non-reversible nominals.

Yet another case which adds to the data in an interesting way is the case of reversible nominals. Let us look at a set of utterances involving PAPER and BOOK:
25) TABLE clfr:B cellpadding BOOK ON clfr:B PAPER ON

'The (piece of) paper is on the book on the table'

26) TABLE clfr:B cellpadding BOOK ON clfr:B UNDER
               PAPER

'The (piece of) paper is under the book on the table'

27) TABLE clfr:B cellpadding BOOK UNDER PAPER ON clfr:B

'The (piece of) paper is on the book under the table'

These strings are different from the rest of the data because they were elicited without the use of English, or any other direct inquiry. Rather, the paper and book were set up in various positions on and under the table and were then described. The striking thing about these data is that the nominals are ordered consistently as Yau predicts they will be, that is, in increasing degree of mobility. We shall return to this question below.

2.7.3. There exists in all the data a crucial point of difference with Liddell's analysis. He claims that the OSV locative utterances in his data need not have topic-marked objects. By contrast, in the individually elicited strings examined so far, most initial nominals, regardless of their syntactic functions, are marked with raised eyebrows and are held slightly longer than they normally would be. In some cases, both nominals are so marked.
Furthermore, in response to questions as to the appropriate order of CAT and FENCE in 21) and 22), my consultant's comments indicated that he preferred CAT to be first, stating that "the sentence is about the cat." Then he commented that FENCE could be first if one were giving all the reasons for preferring a particular sort of fence, as in 28):

28) FENCE CAT clfr:5ON SLEEP PRETTY
   clfr:4
   '...(and) a fence (like that) the cat can sit on it and sleep; it looks pretty'

These comments lead me to suggest that ordering in locatives cannot be felicitously analyzed by focussing on grammatical relationships like subject and object. Rather, it is topic and comment which seem to be relevant.

The shifts in order of subject and locative object, as well as the frequent use of topic marking lead one to suggest that the notions of "subject" and "locative object" will not lead to a satisfying understanding of the data. It appears that topic and comment are more to the point here. Yet not all the nominals are accompanied by the non-manual behaviors identified as marking topics. One does not wish to imply that because nominals are utterance-initial they are necessarily topics, as does Friedman. Rather, nominals are where they are because they are topics.

It seems that Anderson's (1978b) suggestion is the most
helpful:

Both Old and Modern ASL show some variability, having both orders OV and VO; the relative order of O and V is not 'basic' but merely one manifestation of a more general principle. Both Old ASL and Modern ASL are very strongly governed by a principle that Old Information is expressed before New Information....

(Anderson, 1978b, p. 3)

Topic-comment strings are accounted for by this principle. More importantly, however, it accounts for those strings in which no nominal is set off non-manually as a topic and for the variations represented by the deictically marked data (16) - 18).

We can appeal to Chafe's (1976) distinction between definiteness as that particular referent in the communicative situation which "I think you already know and can identify" (Chafe, 1976, p. 39), and givenness (or old information) as "that knowledge which the speaker assumes to be in the consciousness of the addressee at the time of the utterance" (Chafe, 1976, p. 30). By inference, then, given/old nominals are definite, but definite nominals may not be given. It appears that these considerations are more relevant to ordering in ASL than the notions of subject and object.

If we look at the varying orders, there does seem to be a regularity that can be explained via the "old-new" strategy. Thus, 13) - 15) have initial nominals which establish a spatial framework for the predication. (Only single examples will be recapitulated.)
13) SNAKE R-O-C-K clfr:5-FALL-ON DEFLATE
'A/The rock fell on and flattened the snake'

In those stative utterances without classifier verbs or lexical verbs, the initial nominal is topicalized (old information) and followed by a locative predicate (new information).

18) B-A-L-L there-under UNDER TABLE
'The ball (is) under the table'

In 19) - 24), and 28), there is further evidence that not all initial arguments need be topicalized, or at least need not be so marked. Here, as before, the predication is focussed upon (new information) and the arguments precede the classifier, their order depending on the discourse context, as in 28) above.

25) - 27) offer some evidence that, other things being equal, Yau's hypothesized order-by-immobility constraint is valid. Yet notice that this presents no conflict with Anderson's old-to-new principle. Within the context of these utterances (remember they were elicited by staging), there were only three tables, a dozen books, and literally hundreds of pieces of paper. Thus, Yau's immobility principle overlaps very nicely with most definite to least definite. That is, the position of the table in 25) - 27) is least in question, whereas the position of the piece of...
paper is exactly that which identifies (definitizes) the referent.

2.7.4. Before we turn to the narrative data, let us examine some more complex strings. Remember that Fischer stated that SVO was the order one would find in a subordinate clause with any full nominals as subject and object.

29) TABLE CAT clfr:V-UNDER WAIT TABLE there-C clfr:B
AGO poss.-3-R MY MOTHER there-R GIVE R-S TABLE

'The table that the cat is under used to be my mother's--she gave it to me'

30) TABLE CAT clfr:V-UNDER there-UNDER clfr:B
AGO poss.-3-R MY MOTHER AGO there-L-UNDER

'The cat under the table used to be my mother's'

(Because the transcription is difficult to follow, 29) and 30) are reproduced in Table 2.) English uses ordering differences to reflect meaning differences in these two utterances. By contrast, ASL has the same ordering in the initial clauses. Other strategies, such as pronominalization and non-manual behaviors, specify which nominal of the initial locative phrase is the topic.

The initial locative phrases in 28) and 29) are both
### Table 2
Complete Transcription of Sentences 29) and 30)

29) DS: 'The table the cat is sitting under used to be my mother's—it she gave it to me.'

<table>
<thead>
<tr>
<th>Face</th>
<th>chin in (n-d)</th>
<th>mouth</th>
<th>tense mouth</th>
<th>smile</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>open</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Brows</th>
<th>raised—intense—</th>
<th>raised—intense—</th>
<th>furrow</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Heads</th>
<th>forward—down right</th>
<th>forward—left—sl. left</th>
<th>forward</th>
<th>nod sl. left</th>
<th>sl. right</th>
</tr>
</thead>
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</table>

| Blinks | | | | |
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<table>
<thead>
<tr>
<th>Gaze</th>
<th>forward—down right</th>
<th>forward—left—sl. left</th>
<th>right</th>
<th>fwd. down</th>
<th>left</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Hands</th>
<th>TABLE</th>
<th>clfr-V-und- &amp;</th>
<th>WAIT</th>
<th>TABLE</th>
<th>there=C</th>
<th>AGO</th>
<th>poss. 1-R</th>
<th>MY MOTHER</th>
<th>there-R</th>
<th>GIVE-HE</th>
<th>TABLE</th>
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<tr>
<th>Body</th>
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</thead>
</table>

30) DS: 'The cat under the table used to be my mother's.'

<table>
<thead>
<tr>
<th>Face</th>
<th>open—south</th>
<th>tense—mouth</th>
<th>tense—mouth</th>
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<table>
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<tr>
<th>Brows</th>
<th>raised—intense—</th>
<th>raised—intense—</th>
<th>furrow</th>
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<table>
<thead>
<tr>
<th>Heads</th>
<th>sl. left</th>
<th>nod</th>
<th>nod</th>
<th>chin in</th>
<th>nod</th>
<th>fwd</th>
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| Blinks | | | | |
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<table>
<thead>
<tr>
<th>Gaze</th>
<th>fwd</th>
<th>down L—fwd—</th>
<th>down L—fwd</th>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Hands</th>
<th>TABLE</th>
<th>there=L</th>
<th>clfr-V legs</th>
<th>there=C</th>
<th>AGO</th>
<th>poss. 1-R</th>
<th>MY MOTHER</th>
<th>AGO</th>
<th>there—under</th>
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marked by raised eyebrows and a backward head tilt. Yet there are differences between the phrases' accompanying facial gestures. In 29), the degree of brow-raising gradually increases and is markedly more extreme across the sign WAIT (='hold it a minute'); there is a sharp nod between CAT and clfr:V-UNDER. In 30), rather than gradually increasing the degree of eyebrow-raising, the eyebrows seem to alternate between slight and heavy raising. The eyebrows jump to a heightened degree over the sign CAT and again on the sign pro.3-L-UNDER. The distinction is perhaps comparable to the differences between the musical markings crescendo (29)) and sforzando (30)). At the same time, in 30), the signs TABLE, pro.3-L, and clfr:V-UNDER are each followed by a short nod. Pro.3-L-UNDER is accompanied by a vigorous head nod.

The locative phrases are topicalized. (It is possible that they are also relativized; Carol Padden has indicated that relative clauses are often difficult to distinguish from topicalized clauses and Coulter has analyzed all restrictive relative clauses as underlying topics (Padden, personal communication; Coulter, 1979, p. 69).) The CAT sign within each phrase receives an intensified topic marking, in effect setting the scene, starting with the larger component, TABLE, and then moving to the smaller, CAT; then the location of the cat, or more relevantly, the relationship of cat and table is established. Having set
the scene, in 29), TABLE is specified (outside the initial clause) as the subject of the proposition, by a repetition of the full nominal and a pro-form which is aimed directly at the classifier which represents the table. Then, TABLE is repeated again at the end of the entire utterance. In 30), by contrast, a pro-form appears within the scope of the topic marker, and the topicalized phrase is set off by vigorous head nods and a shift in eye gaze (= 'you understand which one I mean?'). The pro-form is then repeated at the end of the utterance.

Whether these initial clauses are relativized or topicalized, it is clear that they are subordinate. Fischer has claimed that in any subordinate clause with full nominals as subject and object, the order would be SVO. Although the objects in the subordinate clauses of 29) and 30) are oblique, whereas Fischer presumably intended to make her claim about direct objects, these data still provide some counter-evidence to that claim. It is not my intention here to argue conclusively for or against any particular claim as to basic or preferred sign order. Most of the data so far, however, appear to support the notion of an old-to-new or at least topic-comment structure, rather than OV or VO.

2.7.5. Now let us briefly look at a locative phrase involving more than one nominal and more than one physical relationship:
'See those apples in the bowl on the table—well, go get one and eat it, go ahead'

(a finer-grained transcription is in Table 3)

The relationship of TABLE and BOWL is not specified on the surface. The referent of the second pro-form is not immediately apparent from the representation above. In examining facial behaviors, however, we find some interesting co-occurrences (see Table 3). The eyebrows are raised throughout the first seven signs, making them a topicalized phrase, similar to those in 29) and 30). Between TABLE and the following pro-form, there is an eyeblink and an eye gaze and facial orientation shift to the left, e.g. the position of the table. Between BOWL and APPLE, both the eyes and the head are re-oriented towards the front. Then, after APPLE, there is another blink and a re-orientation of face and eye gaze towards the left. Just at the transition to clfr:1-GO, the topic marker disappears and the eyes and face are oriented slightly to the right of center.

Such co-occurring behaviors suggest a possible structure to the phrase: the second pro-form appears to refer more properly to the following argument rather than the preceding
Table 3
Complete Transcription of Sentence 31)

31) LS: 'See the apples in the bowl on that table? Go on and have one.'

<table>
<thead>
<tr>
<th>Faces</th>
<th>Mouth Bites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brows: raised —— slightly furrowed</td>
<td></td>
</tr>
<tr>
<td>Heads: forward —— 1/2-turn L —— forward —— 1/4-turn R —— tilt R —— nod</td>
<td></td>
</tr>
<tr>
<td>Blinks: —— ——</td>
<td></td>
</tr>
<tr>
<td>Gaze: slightly R —— left —— forward —— left —— slightly R</td>
<td></td>
</tr>
<tr>
<td>Hands: SEE there—L TABLE there—L BOWL, APPLE cfr—S—pl cfr—l—go, TAKE—R —— 'EAT-APPLE' GO—OK</td>
<td></td>
</tr>
</tbody>
</table>

Body:
one. It may be that the forward facial orientation marks
the sign APPLE as the relevant sign, e.g. the topic, for
the rest of the utterance. Upon informal investigation,
however, this suggestion turns out to be invalid. The
timing, facial behaviors and eye gaze directions are quite
similar, regardless of which argument in the phrase TABLE
BOWL APPLE serves as the topic of the rest of the utter-
ance.

Notice that the ordering is the mirror image of the
English phrase which was used as the elicitation sentence.
Although in English we have several choices as to the
ordering of such phrases, e.g. "the bowl with the apples
in it on the table," "the table with the bowl of apples on
it", "the apples on the table in the bowl", the ordering of
mention for the nominals (TABLE BOWL APPLE) is the only
acceptable order for this consultant. Such a restriction
on acceptability gives support to Yau's notion that strings
of nominals will follow a descending order of size and an
ascending order of mobility.

Examples 29) - 31) all suggest a preference for topic-
comment strategies, rather than subject-predicate consider-
atations. That is, topicalized structures or phrases estab-
lish the framework of focus initially and comment structures
or phrases follow. Pro-forms, repetition of the crucial
nominal, head nods and eye gaze as well as selectional
restrictions on the predicate all function to help specify
which of the initial nominals is to be considered the topic of the comment structure. Ordering of nominals follows Yau's suggested extra-linguistic constraint.

Notice that one could suggest a series of simple locatives, conjoined or concatenated as in 31'):

31') SEE, there TABLE there BOWL APPLE clfr:5-pl
Pred-Loc Pred-Sj Pred-Sj Sj-Pred
'see-there' 'table-' 'Bowl be-' 'apple-pl-be-
be-there' on-table' in-bowl'

Such an analysis fails, however, to capture the significance of the non-manual behaviors governing the entire string of signs.

The non-manual behaviors are particularly crucial in elicited utterances. Since there is no context, signers must create one. As noted above (Chapter I), the major consultant regularly created brief stories or anecdotes around the asked-for utterance. In the case where several-sign phrases are marked as topics, it seems that this is another strategy for building a context for the utterance; in other words, a topic ("a spatial or temporal domain" (Chafe, 1976, p. 50)) is established. We shall see that topic-marking is not so common in the prompted discourse, where signers had the opportunity to build on a context.

2.8. Before examining the locative utterances I would like to describe certain characteristics of ASL narrative,
which will help us in understanding the ordering of locatives in general.

First, it is not common for subject nominals to reappear in every string. More likely, these nominals are signed at the beginning of a set of utterances; when the focus of attention shifts, a new nominal appears. An example of such a pattern may help:

32) MONKEY bh:LOOK\textsuperscript{up}; down bh:'LIFT-BLANKET'

TRUE\textsuperscript{ENOUGH} TWO JACKET pro.3-DC PICK-UP

bh: LOOK\textsubscript{R}; each other clfr:B\textsuperscript{T}

THROW THROUGH\textsuperscript{[X:L]}

WINDOW \textsuperscript{M-E-L} SAY-NO!\textsuperscript{DR}

'The monkeys looked up (at Mel) and then down (at the blanket on the floor of the car). (They) Picked up the blanket. (and) sure enough, there were the two jackets. (They) Picked up (the jackets) and (the one monkey) looked to his right (and the other monkey) looked back at him, (and then they) threw (the jackets) out the window. Mel said, "No!" (to the monkeys)...'

Notice that MONKEY appears only once, at the beginning of the passage, even though it serves as the agent nominal for seven verbs which follow: LOOK-UP, LOOK-DOWN, 'LIFT-BLANKET', PICK-UP, LOOK-RIGHT, LOOK-AT-EACH-OTHER, and THROW!. Notice also that, although we would probably define MONKEY as a "topic", it is not so marked facially. It is, in context, definite, i.e. identifiable by the addressee; M-E-L, a
shift in focus, is marked by raised eyebrows.

Another look at the passage brings us to a second characteristic of ASL narrative. Verbs sharing the same subject tend to appear in a series, often uninterrupted by other constituents. Reilly and McIntire (1978) refer to this phenomenon as seriated or linked verbs. Such verbs have no implied or apparent subordinating relationship. That is, none are cognitive or factive verbs which might ordinarily take sentential or verbal complements. (Notice a parallel in English: He went and bought a car.) I will not take a position here on whether such constructions are the result or the cause of zero-pronominalization. The fact is, simply, that the two phenomena co-occur.

The third characteristic important for us to note is that, like other nominals, nominals expressing location established in context, may or may not occur on the surface. Alternatively, they are to be inferred from the context, as in 33):

33) WHICH THROUGH [X: L] WINDOW THEN

 clf:V-UP- &-OVER R WHICH

'Which (do you want—to come out) through the window or to climb over (the car seat)⽇？'

In this passage, we already know that the question is posed by a character standing outside the car and speaking to two addressees in the back seat. Only the most oblique reference is made about the car seat to be climbed over. Rather
we are to infer those specifics from our knowledge of the context.

2.8.1. Now let us look at the variety of orders that locatives take in discourse. First we will examine two strings that appear to include both kinds of nominals and only one verb.

Nod
34) NOW pro.1 FIRST ROCK\HILLSHAPE
   head down
   pro.1 clfr:V-WALK-UP
cfr:Bp

'Now I'm climbing my first mountain'

35) there-L SHELF[\k:pl] DOLL ANIMAL

clfr:3[\k:L; pl; L-R]Nod

'There were shelves with dolls and (stuffed) animals lined up on them'

There are very few examples in the narrative data of this sort, e.g. utterances including two nominals—both a subject and a locative. This is a result of the tendency, noted above, for full nominals to occur only at the beginning of a set of utterances.

Two features of 34) and 35) are worth noting here. First, the classifier verbs are utterance-final. This fits with our observations up until now. Second, the subject nominals are in penultimate position, i.e. just before the verb. In 34), pro.1 appears twice, both before and after
the locative NP, FIRST ROCK HILLSHAPE.

This repetitious use of signs is part of this signer's characterization of the teddy bear in the story. This is clear if we look at the passage just preceding 34), a direct quote of the teddy bear character:

36) MUST ROCK HILLSHAPE SEEM ROCK HILLSHAPE TRUE+
   ROCK HILLSHAPE pro.1 WANT ROCK HILLSHAPE pro.1
   clfr:v-WALK-UP pro.1 WANT FINE NOW pro.1 ....

'(It) Must (be) a mountain--(It) seems (like) a mountain--(It) really (is) a mountain--I (have always) wanted to climb a mountain--I (have always) wanted (that)--Great! Now I'm....

The repetitive nature of this quotation is a narrative technique which has the effect of developing this character as naive and child-like. It would be interesting to know whether discourse in signing deaf children resembles this repetitive pattern.

While 35) appears to be a fairly straightforward existential string, it could be viewed as two strings. The reduplicated (plural) signs for SHELF are followed by a simultaneous eye blink and head nod; both are potential indicators of a constituent break. Together they strongly indicate that such a break exists there. In fact, 35) is used as a means to introduce the teddy bear character:

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35') there-L SHELF \[p_{L}\]^Nod DOLL ANIMAL

cifr:5\[L & p_{L}\]^Nod there-L ONE BEAR cifr:V-stand

'Shelves be-there // Dolls (and) animals be-on-them // One bear stands there (among them)'

Notice, again, that the immobility principle holds, as the signer moves from shelves to undifferentiated occupants to the focus—the teddy bear. The first two phrases, there-L SHELF and DOLL ANIMAL cifr:5, are functioning as adverbs of circumstance, setting the scene for the main focus. This is as Anderson (1978b) claimed. The information in 35) is not, strictly speaking, "old", since this is first mention. Rather this is a matter of background preceding foreground.

2.8.2. It is much more common in the narrative data to have more than one verb, as in 37); no locative nominal as in 38); or no agent/experiencer nominal as in 39).

37) ONE COAT GREEN RAPID-RUN cifr:V-JUMP-OVER cifr:4


'The one in the green jacket ran and jumped between Jim and Joan, into the middle of the crowd, (and then started) to look around....'
38) \text{WRONG} [\text{x:id}] \text{ COAT } \text{GREEN clfr:V-JUMP-DOWN}

clfr:V-RUN-UNDER THEY-TWO clfr:V-SIDE-BY-SIDE

'Whoops! (The one in the) green jacket jumped down (from the table) and ran under (the table)--and there were the two of them, side by side (under the table)'

39) EVERYONE pro.NEAR there-near SEE BELLY-LAUGH

FUNNY clfr:V-ABOVE TABLE clfr:V-ABOVE clfr:V-BELOW

'Eeveryone there saw (this happen) and laughed uproariously. It was funny--one on and one underneath the table'

Notice that in 37), three different verbs are used, RAPID-RUN, clfr:V-JUMP-OVER, and clfr:V-LAND (=come down). The nominals which appear are the agent, ONE COAT GREEN (=the monkey in the green jacket) and a locative postpositional phrase, J-I-M J-O-A-N BETWEEN. Notice that this phrase relates to the path of the movement and that no lexical item appears to specify the goal or end point of the movement. Rather, the classifier pronoun is held (clfr:"
=a crowd of people) and the movement of the verb clfr:V-LAND, places the end point in the center of the crowd.

In 38), no full noun phrase appears to specify the location. The classifier (clfr:Bd =a flat, horizontal, surface) serves pronominally as source for the first verb and goal of the second. We know from the prior context that

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this monkey is on a table, and thus the meaning of 38) is clear. The last two signs indicate the relationship of two arguments to each other; this is easily accomplished without case-marking or any adpositions. Yet, if we examine eye gaze and facial orientation behaviors, we can see that the locative relation under is also encoded.

38') ...THEY-TWO clfr:V-SIDE-BY-SIDE
   e: ▽
   h: ▽ chin down

The eyes and head have been oriented straight ahead; with the verb, the chin is drawn in and the eyes gaze down to the right. This emphasizes the place of the monkeys, under the table, which we know from the previous part of the string.

Now let us look at another sequence that exhibits both linked verbs and non-occurring locative object:

40) WRONG[^id] CAT poss.3L V-A clfr:V-RUNR-L
   ENTERR-L clfr:V-RUN-&-JUMP-UP-&-LAND
   'TAIL-WAVING' clfr:V-SIT

'Whoops! Virginia's cat came running in, took a running leap and landed (on the table). Looking very satisfied, (the cat) sat (on the table)'

40) has a series of verbs, some of them the same as in 34) and, like 34), makes no overt mention of a locative object.
(Some of these verbs are strictly motional/directional with-
out need of an explicit goal.) Yet, the interpretation is unambiguous. The discourse allows us to make the proper interpretation in several ways.

In terms of content, the sign WRONG leads us to expect something untoward to occur. The signer's space has been constructed such that the table's space is exactly where the verbs LAND and SIT are articulated. And, once again, eyes and head aid in locating the action. They match the direction of the motional verbs, adding redundant information about the cat's movements. Since all this information is conflated within both the manual and non-manual channels, it seems dangerously narrow simply to look at the probable sign-class (noun, verb, etc.) of each manual gesture and declare this utterance to be a "verb-second" type of sentence, with some elaboration about deletion of nominals.

Rather, by looking at some of the complexity of the string, we can see that the locative object is subtly embedded in the structure of the verbs, by the use of signing space, eye gaze and head orientation. (This is unlikely to be a complete accounting of how the passage works; body behaviors, muscular tension variations, and more exact measures of eye gaze are some of the as yet unexplored and likely contributors to the structure. See Chapter III.)

39) demonstrates that the logical subject NP need not appear on the surface of a given string. More importantly, however, is that many strings in the data take the form of
39): \( V_i \ O_{\text{loc}} \ V_i \). It might be that this is an intrusion from English, and that the repetition of the verb is a sort of self-correction, putting the verb in final position, more neutral for ASL.

Let us, therefore, look at some other VOV strings:

41) clfr:1-GO-AROUND WATER clfr:L clfr:1-GO-AROUND

'(The bear) walked around a body of water'

42) clfr:V-GO-OVER FENCE ROCK FENCE clfr:V-GO-OVER clfr:B

'(The bear) Went over a rock wall'

43) GO-THROUGH-WITH-DIFFICULTY TREE clfr:B GO-

THROUGH-WITH-DIFFICULTY clfr:B

'(The bears) made their way into the woods'

The crucial point about these strings is that none of them has an overt subject nominal, and that, though it is repeated, just one verb is used. The subject is known from the context in each of these cases; it is old information. Since they are represented in the verb forms, there is no need to repeat their full forms, and indeed, there is an apparent preference not to do so. The locative objects in 41) - 43) are new information and therefore it is crucial to include them fully. Since verbs are mostly utterance-final, this would leave a string that is \( O_{\text{loc}} + V \). This runs counter to the general discourse constraint, possibly
universal, against new information (here the locative nominal) preceding old or given information (the incorporated agent pronoun in the verb and the fact of motion). Thus, the verb appears on both sides of the object. Notice that the movement in 41) - 43) is new information; that is, it describes the path and manner of movement. For 41) and 42), the newness of this information is possibly offset by the incorporation of agentive "old" information encoded in the handshape.

While this holds for 41) and 42), 39) and 43) present problems not covered by the old/new argument. In 39), the phrase following FUNNY represents old information; that is, the narrator has already told us that one monkey is on the table and the other is beneath it. That this phrase appears at all is probably an artifact of narrative style. This restatement has two functions in the narrative: it is the object of the laughter (SEE BELLY-LAUGH FUNNY) and links this segment of the story to the next, in which two new characters enter the room (see Appendix A).

In 43), the form of the verb is not a classifier, rather it is a modulated form of the adposition BETWEEN. Thus, the old/new information argument does not apply here, at least as it stands. Let us look, therefore, at larger patterns of discourse. By examining the discourse chunks in Tables 4 and 5, we can tease out some larger patterns of ordering. (There is also an interesting variation in use of
Table 4
Portion of Bears in the Night (Consultant 2)

ACROSS FENCE RED oblong clfr:ū-GO-OVER C'MON OTHER clfr:ū-GO-OVER[\text{x:pl}] clfr:ū-GO_L pro.3-L

'(The bear) went over a brick wall; (he) beckoned and the rest of the bears went over (the wall);

clfr:ū-GO-UNDER BRIDGE clfr:ū clfr:ū-GO-UNDER OTHER clfr:ū-GO_F \text{x:pl} clfr:ū-GO-AROUND

(the leader) went under a bridge; the others followed; (the leader) went around

WATER clfr:ū clfr:ū-GO-AROUND_L ROCK ROCK cylinder-shapes clfr:ū-GO_F ... clfr:ū-GO_F TREE

a lake and the others did too; (they came to) two tall rocks (and) they walked forward, (the leader) came to a tree;

pro.3-C clfr:ū-GO OTHER...TIPTOE...TIPTOE ... TIPTOE GO-THROUGH-WITH-DIFFICULTY TREE

(the leader) went ahead, beckoning to the others; (they) tiptoed along, ... tiptoeing along,

clfr:B\text{A} GO-THROUGH-WITH-DIFFICULTY
clfr:B\text{A}

(they came to and) made their way into a forest...'}
Table 5

Portion of Bears in the Night (Consultant 5)

Well clfr:V-GO-OVER fence clfr:V-GO-OVER
clfr:B7 fence clfr:B7 c'mon clfr:IN-A-LINE clfr:IN-A-LINE-GO-

'...well, (the bear) went over the wall, (and) beckoned to (the rest of the bears and they) (also)

R-&-OVER 'CLAWS-WALK' clfr:1-GO clfr:B clfr:L BRIDGE clfr:1-GO-UNDER UNDER clfr:1-GO-UNDER -&-GO-
clfr:B clfr:B7

went over (the wall) (and) the bears walked along; (the leader) went under a bridge (and the rest of the bears) went under (the bridge too); they went around;

clfr:R ROCK cylinder-shapes TWO

the bears walked along and went around a lake; (and they came to) two rocks---very tall (rocks);


(the leader) went between (the rocks and the others) went between; (they) entered a dark woods

Tree dark black area clfr:BA cold clfr:GO-IN-A-LINE clfr:1-GO

(that was) cold; they proceeded, all in a line, the leader in front....'
classifiers which we shall take up in detail in Chapter III.)
Table 4 and 5 are taken from two versions of the same
story, in which the peregrinations of a group of bears are
recounted. The same portion from each version is displayed
for Consultant 2 (Table 4) and Consultant 5 (Table 5)

Since consultants were free to recount the stories as
they wished, the versions vary; but the same information
is encoded. By eliminating all signs which are not strictly
involved with moving the bears along their path, we find
the following:

44) $V_a$ Loc$_1$ $V_a$ V V $V_a$ | $V_b$ Loc$_2$ $V_b$ $V_b$ $V_b$

$V_c$ V $V_c$ Loc$_3$ $V_c$ | Loc$_4$ V $V_d$ $V_d$ $V_d$

$V_e$ Loc$_5$ $V_e$ $V_e$

(Table 4, Consultant 2)

45) $V_a$ Loc$_1$ $V_a$ V Nom $V_a$ V | $V_b$ Loc$_2$ $V_b$

Nom $V_b$ | $V_c$ Loc$_3$ $V_c$ | Loc$_4$ V $V_d$ $V_d$ | Loc$_5$ $V_e$

Nom V V V $V_e$ Loc$_5$ $V_e$

(Table 5, Consultant 5)

Notice that the nominal signs in 45) are all the sign OTHER
( =the other bears); the same information is encoded in 44)
pronominally in the classifier verbs. The vertical dashed
lines roughly divide the passages by locational/motional
meanings; locatives are subscripted as follows: 1=wall,
2=bridge, 3=lake, 4=rocks, 5=woods. Verbs are similarly subscripted when, though they may have different shapes, they encode the motional relationships of the nominals, e.g. a=over, b=under, c=around, d=between, e=into. Notice that most of the verbs are classifier verbs.

Looking at this very loose division, we can see one striking consistency: verbs are utterance-final. More relevant to our immediate problem is the remarkable repetitiousness of the verbs. No locative nominal has fewer than two verbs; one has six. By referring to Tables 4 and 5, we can see that not all the verbs in a given string are identical forms, but those in 44) and 45) encode a motional meaning and usually a physical relationship between two arguments. The classifier forms also encode the subject pronominally and often include a classifier form on the non-active hand which represents the locative object nominal. Thus an immense amount of information is packed, more or less simultaneously, into a single sign.

2.9. Because of this very tendency to conflate a lot of information into single signs, ASL has often been characterized as a bare-bones sort of language. Yet, here we have a remarkable amount of redundancy: verbs identical in form and meaning (motion, path, physical relationship of agent to locative) are repeated at least once in any given string.

This repetitiousness has more than one function.
First, it seems plausible to posit some sort of lower limit on compactness in human language. If a great deal of information is packed into a single unit (such as is the case with classifier verbs), and we add the fact that the information is encoded simultaneously, then repetition of that unit (or another carrying similar information) represents a means of producing a necessary redundancy to the language signal.

Secondly, Baker and Padden (1978) point out some crucial facts relating to blinking. Notice that in a visual language, any addressee blinking behavior has the potential of cutting off linguistic information from entering the brain. Baker and Padden point out that the blinking behavior they observed would probably not cause any signs to be missed. (Average female blink = 150-200 msec; average signs per second = 3.00, or 333 msec per sign.) Then they state "...there is probably enough redundancy in the system to make up for a missed sign" (Baker and Padden, 1978, p. 46). The data from Tables 4 and 5 is, I think, evidence for just such an intrinsic redundancy. Even though addressee blinking cuts off information, redundancy in the message allows efficient communication.

When we examine the linear ordering of signs and the information encoded in these signs, we find, not surprisingly, a balance of economy and redundancy. The economy is represented by the conflation of large amounts of informa-
tion into single units. The redundancy is represented by an initially random-looking repetition of signs and by non-manual behaviors. The redundancy suits the decoding mechanism. Unlike the auditory system, the visual perceptual system tires comparatively rapidly and is vulnerable to being shut off. Repetition of the same signal therefore reduces any potential "holes" in the perceived information.

2.10. Recall that essentially three proposals have been forwarded as to constituent order in ASL. Fischer and Liddell hold that the basic order is SVO. They both note that other orders are possible under certain circumstances, such as the use of directional verbs, topicalized constituents, and non-reversible arguments. Liddell also claims that locatives are normally OSV, and not topicalized. Friedman claims that no basic order holds in ASL, except for a tendency for verbs to be final, and that nominals appear in a haphazard way. Yau, by contrast, demonstrates that extra-linguistic constraints have an effect on sign ordering, and claims that SOV is most natural for signed languages. Anderson's old-to-new principle fits with Yau's hypothesis and accounts for certain variations in ordering.

Since I have restricted myself to locative data, there is perhaps little I can say to directly refute or support the SVO claim of Fischer and Liddell. Yet, it has become clear that the very notions of subject and object are not the most useful means for describing the data here. This
perhaps represents a crucial fact which a word order approach cannot account for.

Friedman rejected the notion of a basic order in ASL in favor of a discourse approach. Yet, by only obliquely referring to the more simultaneous features of ASL, she missed some important facts about the grammar: the crucial importance of the functions of non-manual behaviors in ASL grammar.

Because so much can be encoded simultaneously in a single sign, the linear order of a series of signs becomes somewhat less crucial than the linear order of words in a spoken language. Flexibility in sign order is less bizarre than it initially seems if we realize that a single sign may contain agent/experiencer, verb, and patient/goal, and that the signer's eyes, face and body can, at the same time, add information, both semantic and syntactic. Such a system is admirably suited for encoding with a set of muscles which, by comparison to the speech tract, are large, slow to move and quick to tire. This concentration of information works to offset the potential disadvantages of such an encoding system. We may also speculate that the redundancy proposed as a design feature of human languages (Hockett, 1960) can be reduced, but that such a reduction has a lower limit. It may be that this is a feature required by the brain for decoding, and thus imposed by the brain on encoding.
It is difficult to separate an examination of the grammar of any signed language from the question of what the visual and spatial modality imposes on any potential grammar of a sign language. For instance, we know that the vocal-auditory modality imposes a large degree of linearity on spoken languages. Is it similarly the case that the spatial-visual modality imposes simultaneity on signed languages or does simultaneity simply represent efficiency for encoding? We are left to speculative conclusions and often find ourselves working circularly from modality to specific grammar and back to modality.
Chapter III

Classifiers in ASL

3.0. Classifiers in language are forms which indicate the class or semantic category of their associated nominals. In ASL, classifiers are commonly used to express locative and motional events. In this chapter, I will first present an inventory of classifiers occurring in the present corpus, along with a list of some possible referents. Then we shall briefly review two approaches to ASL classifiers before looking at the morpho-phonological analysis by Supalla (1978).

Using Supalla's framework we shall examine how classifiers function in the data. Then, using Talmy's (1975) semantic view of motion situations, we shall examine how Supalla's morphological structures map the semantic components of locative/motional utterances. Finally, we shall briefly consider the question of iconicity as it relates to classifiers.

3.1. The classifiers which appear in the present corpus are listed below and are illustrated in Figures 1 through 21.

1) clfr:1 -- a person or an anthropomorphized animal
(Mel, monkey)

2) clfr:V (-legs) -- a person or an animal (Mel, cat)

3) clfr:V' (-legs) -- a small animal (monkey, snake)

4) clfr:B_b -- a horizontal, relatively flat surface (table, bed)

5) clfr:\ddbar -- a slender object (pencil, cigarette), or a moveable object of indeterminate size (cat, car)

6) clfr:3 -- vehicle (car, ship)

7) clfr:\ddot -- a round shaped object (rock, bowl)

8) clfr:FF -- a long, slender, cylindrical shaped object, horizontal or vertical (fence rail, stick)

9) clfr:4 -- thin objects vertically arrayed (fence)

10) clfr:BT -- a thin vertical object (wall, book)

11) clfr:4' -- several countable objects or people (a crowd of people, several dolls)

12) clfr:C -- a cylindrical container (can, bottle)

13) clfr:A -- a moveable mass? (house, lamp)
clf:FF
(two orientations)
Figure 8

clf:4
Figure 9

clf:Bτ
Figure 10

clf:4
Figure 11

clf:C
Figure 12
14) clfr:CC — a relatively narrow, horizontal, flat object (bed, kitchen counter)

15) clfr:L — a round, flat, relatively shallow object (saucer, lake)

16) clfr:F — a small, relatively round, flat object (spot, button)

17) clfr:CC — round, thick, tall cylinder(s) (pillar, telephone pole)

18) clfr:B — a tall, cylindrical object (tree)

19) clfr:l — a tall, thin, cylindrical object (tree, telephone pole)

20) clfr:XX — legs of a person or animal (monkey, girl)

21) clfr:H — a narrow long object (suspenders, tape)

A few things should be noted here. First, this is not an exhaustive list of all ASL classifiers. Second, classifiers are named here for their handshapes, not in reference to their meanings. There is some precedence for this in ASL linguistic literature (Friedman, 1977; DeMatteo, 1977; Klima and Bellugi, 1979). It may be more appropriate to transcribe them by meaning, but for ease of presentation
here, I have used the handshape designation. Third, number-incorporation can effect the shape of clfr:1 to indicate two (clfr:2), three (clfr:3†), or many, unspecified number (clfr:4†). Fourth, some classifiers, because of the notation conventions, must be specified for orientation as well as handshape. This will prevent confusion, for instance, between clfr:3 (vehicle) and clfr:3† (three people). Notice that this is purely an artifact of the notation used here.

3.2. There have been several descriptions of ASL classifiers in the past (Kegl, 1976a; Kegl and Wilbur, 1976; Mandel, 1977; DeMatteo, 1977; Supalla, 1978; Klima and Bellugi, 1979; Forman and Fischer, 1979; Fischer and Forman, 1979). I shall briefly outline the analyses of Kegl and Wilbur (1976) and DeMatteo (1977), as these are representative views.

3.2.1. Kegl and Wilbur (1976) begin their paper with a moderately extensive suggestion as to what phonetic, phonological and morphological rules in ASL might look like. More relevant to us here is their discussion of classifiers. Kegl and Wilbur view classifiers as derived forms which are "substituted when the use of a sign will result in a violation of the signing space or when the articulation of a sign in conjunction with another movement will destroy the structure of the sign" (Kegl and Wilbur, 1976, p. 387). They include in this category signs like MEET, which
they claim "requires classifier substitution for both the subject and object" (Keel and Wilbur, 1976, p. 387). They also claim that signs like clfr:V-WALK are instances of phonological modification where a pronoun is replaced by a classifier and is realized simultaneously with the verb. These suggestions are supported by derivations stated in terms of relational grammar.

Keel and Wilbur's analysis was not intended to be a complete explanation of classifiers. There are, however, some things which are less than satisfying. First, they seem to view all instances of classifier handshapes as classifiers. That is, they do not apparently distinguish between the morphological status of classifiers and the frozen forms which no longer share the same independence. Secondly, they overlook the connection between classifiers and verbs of motion and location. We shall return to their analysis below (section 3.6.1).

3.2.2. DeMatteo (1977), although not naming classifiers as such, includes them as part of his justification for claiming that ASL cannot be accounted for by a grammar whose syntactic or semantic components are made up of discrete units. He bases his claim on a variety of morphological and lexical data.

The most relevant to us at this point is his observation that "a group of signs...are used productively to construct visual images in the signing space" (DeMatteo, 1977,
p. 125). He points out that such signs are descriptive in a variety of ways. Some, he says, have "lexical denotation /\ in the basic configuration / but the movement in the sign has meaning only in context" (DeMatteo, 1977, p. 126). His descriptions are, to be honest, somewhat opaque to me; the crucial point, though, is his view that these signs can only be accounted for by appealing to a system of visual imagery, built as some sort of analogue system. Clearly his claim, if accurate, would make ASL remarkably different from other languages, in that it must perforce be considered as non-discrete. As we shall see, Supalla (1978) has suggested an alternative analysis.

3.3. Recognizing that features of any parameter (place, handshape, movement) \can\ serve as morphemes (see Chapter I), Supalla (1978) addresses handshape classifiers and verbs of motion/location. It is his view that, while iconicity does exist in the system of classifiers, it is nonetheless organized into a limited number of morphemes which are demonstrably discrete.

First, Supalla discusses handshapes as classifier morphemes. He divides these into two groups. One group is known as size-and-shape-specifiers (SASSes) (Klima and Bellugi, 1979). These classify referents based on their shape and size. Supalla views these as multi-morphemic, each finger, the thumb and forearm acting as a morpheme. (The system is more complex than this, but full exposition
is unnecessary at this point.)

The second group of classifiers are more abstract and are based on semantic categories. As Supalla points out, these classifiers may have begun as SASSes but they are not now multi-morphemic and no longer refer to the visual geometry of their referents (Supalla, 1978, p. 10).

Three classifiers in each group from the data base listed above are listed here to exemplify Supalla's grouping:

22) **SASSes**

   clfr:F (button, spot)  clfr:3 (car, submarine)
   clfr:C (bottle, can)  clfr:A (house, lamp)
   clfr:Ś (rock, bowl)  clfr:Ś (bird, snake)

As Supalla points out, "SASSes represent visual-geometric attributes...through internal morphological hand parts... used to refer to one component of the referent...or to the whole object.... Abstract classifiers always represent the whole object.... [T]he entire handshape of abstract classifiers is a single morpheme" (Supalla, 1978, p. 11).

Supalla discusses seven basic movement morphemes, from which "all the verbs are derived" (Supalla, 1978, p. 12). They are as follows, with the approximate meanings:

23) **hold** -- no movement, "be stationary"

24) **contact** -- brief movement before stopping at a specified place, "be located at point X"
25) **linear** -- movement through a straight path from initial-point to end-point, "move (straight) from X to Y"

26) **arc** -- movement in an arc-shaped path, "move from X to Y without specifying the path"

27) **circular** -- movement in a circular path, "move in a circular fashion"

28) **end-pivotal** -- wrist extension/flexion so that the hand changes orientation, but the arm remains still, "a change in orientation (? of a relatively moveable object)"

29) **mid-pivotal** -- hand changes in orientation as a result of elbow extension/flexion, "a change in orientation (? of a relatively non-moveable object)"

(The meanings of end- and mid-pivotal are only suggested in Supalla.)

Supalla points out that these morphemes can occur alone, in sequence, or simultaneously; the combinations, whether in sequence or simultaneous, represent complex movement events.

Handshape classifiers and movement roots are the morphemes found obligatorily in the active hand of the verbs being discussed. The second (base or non-dominant) hand also involves a set of morphemes. The base hand will specify a "secondary object" in relation to the argument represented by the active hand. The handshape of the base hand will be one of the handshape classifiers, either a
SASS or an abstract classifier.

The placement of the base hand "reflects the semantic relationship of the secondary object to the central object" (Supalla, 1978, p. 17). The limited set of places for the base hand Supalla calls the base grid system and the locations themselves are called base points. Each movement root morpheme's base grid system is divided into four groups. The first is base points falling along the path of the movement root. The second group is made up of base points adjacent to the movement. The third group of points are those ahead of or behind the movement path, and in the fourth, the whole movement path itself is marked with a base hand.

Supalla discusses only the first two groups of base points. There are just three points in each: initial-, mid- and end-point. These lie either along the movement path or adjacent to it. Semantically, the initial-point can be, according to Supalla, source, agent or instrument, while the end-point represents goal, patient or recipient. The mid-point represents 'obstacle' (Supalla, 1978, p. 18).

Supalla points out that ASL morphology is unique in that these morphemes (handshape, movement, base point) are simultaneously realized. Just the same, like other languages, the system is made up of discrete units, finite in number. There are also constraints on inflections, not germane to our discussion, but supporting the notion that ASL morph-
ology resembles morphology in spoken languages more than it differs.

3.4. Let us now examine how Supallà's system can be applied to the present corpus. In the utterance immediately preceding 30), Virginia has told Mel and his monkeys that everyone is partying in the kitchen (see Appendix A), and the kitchen has been established on the left side of the signing space.

30) \[ \text{M-E-L} \quad \text{V-A} \quad \text{THEY-TWO} \quad \text{WALK} \quad \text{clf:\text{r:2-GO}} \]

'Mel and Virginia walked off (to the kitchen)'

This utterance is immediately preceded and followed by blinks, which suggest that it is a complete utterance (see Baker and Padden, 1978). The first two signs, M-E-L V-A, are marked as a topic. That is, the chin is raised slightly, as are the eyebrows (see Lidzellel, 1977). The WALK sign is accompanied by a quick head shift slightly to the left and then an immediate return to the front. Notice that this sign is not directional. It is perhaps best understood as "go by foot", with no source or goal implied.

So far, the two actors and the idea of movement have been established by full lexical signs (M-E-L V-A WALK). The classifier has the form meaning "two people or anthropomorphized beings". Notice that number- incorporation here represents a kind of agreement marker with the NP’s, M-E-L V-A & THEY-TWO. The movement of the classifier also agrees
with or at least reiterates the verb, since this movement of this classifier is normally understood as "go by foot". The movement morpheme here is **linear** and the classifier moves to the left of the signing space, that is, towards the locus previously established for the kitchen. At the same time, the eye gaze shifts to the left and remains there until the blink marks the utterance boundary. This leftward direction of the path of the movement morpheme is representative of an issue which Supalla does not deal with directly. He does indicate that "a different set of morphemes would be needed to mark the orientation of the movement path..." (Supalla, 1978, p. 19). I would like to speculate briefly about this need.

3.4.1. The fact is that, for at least several of the movement root morphemes, there is a potential for an immensely large set of orientations. Let us look at the **linear** root, as an example. Supalla does not define the absolute direction of movement, but rather states that the path moves directly from initial- to end-point (without arc, circle, etc.). This means that, theoretically, the movement could start at any point within the roughly 180° area demarcated as signing space (see Figure 22). So long as the path describes a straight line within the space, it could move towards or away from the signer, up or down on any plane, or any of a large number of other directions. Each direction of movement would represent a different
orientation. For ordinary lexical signs in citation form, Klima and Bellugi point out that neutral space (where all classifiers are formed) "can be thought of as partitioned into mutually intersecting planes, horizontal, vertical (frontal) and sagittal (the plane of bilateral symmetry)...." (Klima and Bellugi, 1979, p. 52). While mime is not constrained by such divisions of space, in fact lexical signs seem to be "attracted" to these planes and some can be minimally differentiated thereby (Klima and Bellugi, 1979, p. 53). In fact, some highly complex verb inflections hinge on differentiations on these planar loci (see Klima and Bellugi, 1979, Chapter 12 for a fuller exposition). This suggests that planes in the signing space can and do
function "phonemically" and conceivably could hold morphemic status.

Such planes are exactly those which can be delineated by the linear movement morpheme. Since this morpheme can theoretically move along any plane within the signing space, we might have to posit morphemes to account for every possible orientation represented by different planes.

It has been suggested that classifiers behave differently from lexical signs (Klima and Bellugi, 1979; Supalla, 1978). If classifiers in fact depend on differentiations so fine as seems possible at this point, DeMatteo would be correct in his assessment, and we would need to have a "visual imagery" type of grammar with direct analogue mapping from real world to language code (DeMatteo, 1977, p. 134).

Let us look back at some data and examine how linear movements actually interact with various loci on a plane in the sign space. Remember that in the utterance before 30) the kitchen was established on the left. In 31) we can see the whole passage:

31) Nod EVERYONE COME-ON Nod there-L COOK M-E-L V-A V-A

TWO-WALK clfr:2-GO_L

"Come on (in). Everyone (is in) the kitchen". Mel and Virginia walked off (to the kitchen)"
The 'location' of the kitchen is established by a deictic directed to the left side of the signing space, as in 32).

32)  kitchen
     \        X
        signer

When the deictic is directed to the left it does not pick out one single locus at so many degrees away from the center. Rather, it selects an area, a range of loci, to be associated with the argument 'kitchen'. Any linear movement of a motional verb within that range will be interpreted as movement to or towards the kitchen. As Liddell points out, movement a few degrees outside the area so designated no longer relates to that argument (Liddell, 1977, p. 152). That is, if the linear movement looked like 33), one could not get the interpretation that "Mel and Virginia started towards the kitchen, but missed by a few feet":

33)  kitchen
     \        X
        signer

Nonetheless, within that range, as stated above, the interpretation is clear. The orientation (direction) of the movement need not match exactly the locus picked out by the deictic gesture preceding it.

This fact is at least partially controlled by the
fact that the number of arguments that can be established in the signing space is generally limited to four (other than speaker and addressee). In general, the signing space can be divided as below (see Baker and Cokely, 1980, for a more complete discussion of these facts):

Another way of stating this fact is that on the perimeter of the horizontal plane of the signing space, only four endpoints are available for any linear movement. (The situation is more complex than this, but I believe the argument will hold.) Thus a morphemic status can be posited for orientation towards each of these loci.

It is worth noting that when only a single argument is established on one side, the single locus is between and overlaps the other two possible. (Compare 35), a) and b).

Much of this discussion is speculative and open to change. I am presuming upon an area which I suspect Supalla will cover in further work. It is indicative, however, of the feasibility of an analysis based on discrete units, rather than direct analogue mapping.
3.4.2. So far we have seen in a small way how Supalla's proposed morphemes work. Let us look at more data. In 36) we see an utterance which uses both hands, one active and one base hand:

36) ROCK clfr:CC-UPRIGHT-TALL-CYLINDER-SHAPES

TWO clfr:55-DOME-SHAPES clfr:1-GO-BETWEEN

C'MON clfr:1-GO-BETWEEN clfr:4†-GO-BETWEEN

'(There were) Two rocks, tall and columnar; the leader walked between them, beckoned to the others, and they followed single file'

In 36), clfr:CC is used to establish the rocks on the left and right of the signing space. Then clfr:5 is signed with both hands simultaneously on right and left re-indicat-
ing the location of the rocks, and this time focussing on their heights, as well as their locations. The left hand (normally the base hand for right-handed signers) then is held across the final four signs of the utterance. In Supalla's terms, the two clfr:5 signs are base point(s) and lie adjacent to the active hand's movement path, at mid-point. This is diagrammed in 37a):

37) a) \[ \text{\textbf{5} \textbf{5}} \] b) \[ \text{\textbf{5}} \text{X} \]

The left hand is sustained as (part of) the base point, while the right (active) hand represents the moving object(s), as in 37b). Notice that although only one of the two clfr:5 base points is sustained, the meaning is still, and only, "go between". We shall return to this point below.

The possibility of sustaining the non-dominant hand is one of the most obvious ways in which ASL expresses meaning simultaneously, as well as sequentially.

This ability for the non-dominant hand to sustain the secondary object is clearly shown in 38):

38) KNOW MY HOME FENCE WOOD clfr:PF++
     MY \[ \text{\textbf{5}} \text{ cat} \text{ strange} \text{ pro.-3\textsubscript{RC}} \text{ fence} \text{ can} \text{ clfr:V-} \text{ clfr:4} \]
     WALK-UNDER MAYBE clfr:V-ON BUT pro.-3\textsubscript{R} CAT

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'You know how my house has that rail fence? Well, my cat is strange--she could go under it or sit on it, but that cat tends to jump between the rails. For a long time, I've seen her going between the rails--never under, never over--I don't know, maybe she's loony.'

In 38), the left hand classifier is sustained across eighteen signs--the entire anecdote, in fact. Essentially, the two nominals ('the fence at my house' and 'my cat') are introduced, and then the fence-referring classifier is held for the remainder of the utterance, until the final comment is made. In this instance, the utterance is a self-contained unit, rather than part of an on-going narrative. It was offered during an elicitation session in response to a question about the cat jumping between the rails of a fence.

The locative relations expressed in 38) suggest another set of morphemes that can be conflated within classifier constructions. I use the term 'classifier construction' to specify the verbs of motion and location using classifier handshapes and (at least) Supalla's movement morphemes.
With the single classifier clfr:4 sustained by the non-dominant hand, the active hand expresses four different locative relationships: under, on, between, and across/over.

Looking back to Supalla, we find the following: "...

The placement of the base hand with respect to the path of the active hand reflects the semantic relationship of the secondary object to the central object. The location of the base hand is selected on the basis of case features e.g., agent, source or goal, instrument) of the secondary object" (Supalla, 1978, p. 17).

We have already seen, in 36), how the base point can be located adjacent to the path of the linear movement root. For example, the following classifier construction from 38) has an arc movement root and the base point lies along the path of the movement:

38') ... clfr:v-JUMP-THROUGH
     clfr:4

i.e., SMALL-ANIMAL-MOVE-ALONG-AN-ARC-THROUGH-
     VERTICALLY-ARRAYED-THIN-OBJECTS

'...cat jumps through the rails of the fence...'

As far as I can tell, Supalla's system will so far deal with motional/locative relationships such as 'be-at-point-X', 'move-from-point-X', 'move-to/past/through-point-X', 'move-from-beside-point-X', 'be-next-to-point-X', 'move-alongside-point-X', and 'move-to-beside-point-X'. These cannot account for the highly specified constructions in 38'):
38") \[ \text{clfr:V-MOVE-UNDER} \quad \text{clfr:V-ON} \quad \text{clfr:V-JUMP-OVER} \]

i.e., SMALL-ANIMAL-MOVE-UNDER/BE-ON/MOVE-ALONG-
AN-ARC-OVER-FOUR-HORIZONTAL-THIN-Straight-Shapes

'...the cat runs under...sits on...jumps over
the fence...'

In clfr:V-MOVE-UNDER, the movement morpheme is linear. It
can be diagrammed as follows:

39)

\[ \begin{array}{c}
\downarrow \\
\text{X}
\end{array} \]

The base point (clfr:4) lies along the path of the move-
ment. In clfr:V-ON, the movement morpheme is contact; the
location of the base point is not immediately clear in
Supalla's framework, since he only examines how linear
interacts with two parts of the base grid system.

I am surmising that the base point will be considered
as occurring along the path of movement. There needs to be,
however, a set of morphemes which will account for the move-
ment under (in 39)) and the movement to a position on.
There needs to be something as well which will account for
the distinction between 38') (clfr:V-JUMP-THROUGH...) and
the last classifier construction of 38") (clfr:V-JUMP-
OVER...).
Supalla hints at such a set of morphemes: "...a group of morphemes...locates the movement path and the base grid in the signing space" (Supalla, 1978, p. 19). From the very brief example he discusses there, I am extrapolating the notion that this set of morphemes will be able at least to specify meanings such as 'move-from-a-point-on/under-X', 'be-at-a-point-on/under-X', 'move-(on-an-arc-like-path?)to-a-point-on/beyond-X' and the like.

Such a set of morphemes would simply specify the base point more narrowly in relation to the movement path. In 40), there is a diagrammatic representation:

40) a)               

MOVE-TO ____.

MOVE-THROUGH ____.

MOVE-FROM ____.

Some base points of the linear movement root.
(from Supalla, 1978, Table 7)

b)               

?MOVE-TO-ON ____.

?MOVE-ACROSS ____.

?MOVE-FROM-ON ____.

Some complex base points of complex movements.
The complex base points in 40b) are purely suggestion at this point. The data demonstrate the need for morphemes which will specify such complex events.

3.4.3. We saw above (section 3.4.1., example 32) one way in which a locus on the horizontal plane of signing space can function as a base point. Let us look at another kind of classifier construction in which the base point is a part of this neutral plane. In this case both bands are functioning, in Supalla's terms, as a classifier for the primary object.

41) CAT ... bh: clfr:V-RUN ENTER\textsuperscript{R>C}

bh: clfr:V-RUN-&-JUMP-UP bh: clfr:V-LAND-ON ...

'The cat...came running in, and took a running leap up onto (the table)....'

Here, the normally one-handed clfr:V (legs of a human or (anthropomorphized) animal) is articulated with both hands. This form is restricted in reference to four-legged animals. The movement of clfr:V presents an interesting problem for Supalla's system. There is hand-internal movement, in which the fingers are rapidly flexed and extended. This is accompanied by a slight flexion and extension at the wrist so that the hands describe an oval-shaped path in space, as illustrated in Figure 23.

The classifier is placed on the right side of the signing space and is oriented towards the center. ("Orient-
ed' here means the direction that would be taken if the classifier had forward, linear movement. Orientation, a quasi-phonological parameter, is not at issue at this juncture.)

The combination of hand-internal movement and the orientation, or potential direction of movement, of the hands represents the meaning "a four-legged animal runs from the right." Yet there is nothing here which can be identified as any of Supalla's movement morphemes. Normally, clfr:V has hand-internal movement, a back-and-forth movement of the fingers which accompanies linear movement, to represent walking. I would suggest that the movement transcribed in 41) as clfr:V-RUN is a manner of motion morpheme, which blocks the linear movement morpheme. The path of movement is encoded by the following lexical verb, ENTER. Notice that no base point appears, except as
implied by the path of the movement itself.

The two final classifier constructions (bh: clfr:V-RUN-&-JUMP-UP and bh: clfr:V-LAND-ON) are both two-handed as well. The first has the same complex manner morpheme, but is this time oriented away from the body at the line of bilateral symmetry. Then it moves upward. The second classifier moves downward, stopping at a point above the neutral plane from which the upward movement originated.

An important point here is that no base point is indicated lexically or with a classifier within the utterance. Points on the planes within the signing space are used as base points. Supalla correctly states that use of a base hand classifier is not obligatory (Supalla, 1978, p. 16). By implication, obviously, the neutral horizontal plane in signing space then acts as the base grid system for both one-handed classifier constructions and for classifier constructions in which both hands are representing the primary object.

We saw in 30) (about Mel and Virginia) how a locus on the perimeter of the horizontal plane served as the endpoint for the linear movement of the one-handed form, clfr:2. In 41), two-handed classifiers are used to represent the primary object. In this case, the neutral plane again acts as the base grid system. Let us diagram the movement of the classifier constructions:
If we imagine that every point on the horizontal plane is a potential base point morpheme for linear movement, once again DeMatteo's visual analogue analysis seems a realistic possibility. If we examine the data carefully, however, it turns out that the visual analogue view does not reflect how signs actually behave.

The classifier diagrammed in 42a), moves upward. As the movement path changes to a downward direction, the classifier handshape changes from clfr:V to clfr:V̅ (straight fingers to curved fingers). The end-point of the downward movement is on a horizontal plane above the neutral plane. (I surmise that up and down will be orientation morphemes in Supalla's expanded system.)

What is important here is that the base point, representing the location of a secondary object TABLE, is on a plane in the signing space, without any adjacent explicit indication of its location or its existence. It is the end-point of the movement of the last classifier, clfr:V̅-LAND-ON, on the non-neutral horizontal plane that represents TABLE.

Once again, since we know that there are a very large number of parallel horizontal planes within the signing space.
space, we must look to see whether they are differentiated continuously or whether there is a set of discrete units of morphemic status. The neutral plane is at roughly the middle of the chest; this is usually understood as ground level. Two planes with morphemic status are above the neutral level. These are diagrammed below. (There is also at least one plane below the neutral level.)

43)

--- 'high'

--- 'mid'

--- 'neutral'

The horizontal plane here labeled as 'high' represents the high flight path of an airplane or the top of a refrigerator. The plane labeled 'mid' is that noted in 41) above as representing a table top. (Notice that for the airplane classifier, 'mid' level is the unmarked location for the movement path.)

We saw in section 3.4.2. a suggestion of some complex base points needed to account for the paths specified as 'move-from-on/across/to-on'. These were posited for classifier constructions with one hand active, the other functioning as a base. The planes which serve as the locations for these movement paths are just those which appear to have morphemic status in classifier constructions with
only one hand or with two hands active.

I am thus speculating that when Supalla more fully develops this group of morphemes "that locates the movement path and the base grid in the signing space" (Supalla, 1978, p. 19), they will center around these horizontal planes. I have not intended to develop a complete morphemic analysis in this section. Rather, I have used the beginnings of Supalla's analysis to speculate how such a morphemic system might work in the understanding of data.

3.5. In looking at how various languages handle motion and location, Talmy (1975) discusses four components of such utterances:

The object that is considered as moving or located ...(functions as) the Figure...The object with respect to which a first object is considered as moving or located is (functions as) the Ground...The respect in which one object is considered as moving or located to another...(functions as) the Path...(a locational 'site' is considered the limiting case). The moving or located state that one object is considered to be in with respect to another...(functions as) the Motion...(a located state is considered to be the limiting case...).

(Talmy, 1975, pp. 181-182)

By considering locative and motional sentences in this light, Talmy (1980) is able to characterize languages as typically (though not exclusively) incorporating various components into verbs of motion and location. Manner is another element that Talmy discusses as being conflated into verb stems of motion and location.

As an example of Talmy's typology, he points out that
Spanish typically incorporates Fact-of-Motion (equivalent to Motion above) and Path into verbs of motion, as in 44):

44) la botella salió de la cueva (flotando)
the bottle moved-out from the cave (floating)
'The bottle floated out of the cave'

(Talmy, 1980, p. 6)

The verb salió incorporates the notion of Path as well as Fact-of-Motion. Notice also that the English translation uses a verb which incorporates Fact-of-Motion with Manner, a pattern which Talmy says is typical for English. In his analysis Talmy points out that the verbs of motion and location in Atsugewi typically incorporate Fact-of-Motion and Figure. That is, verb stems carry information regarding the movement (or location) of a specific sort of object. Other information—Path, Ground, Manner, aspect, person—is encoded in affixes, or what Talmy calls verb satellites.

By looking at how Supalla's morphemic system interacts with Talmy's we gain two benefits. One, we add dimension to Supalla's insights. By observing the semantic work that the morphemes do within a semantic framework, we can make broader sense of their interaction. Secondly, Talmy's framework allows us to view ASL within a typology of languages. We can make some observations as to how much and in what ways ASL behaves similarly to other languages. Since
ASL and other signed languages are distinct in some self-evident respects from spoken languages, it behooves us to judge the impact of these distinctions. In this section we shall see how Supalla's and Talmy's frameworks fit. We shall then look at one instance of ungrammaticality and homophony. In the final section we shall address the problem of iconicity.

3.5.1. An implicit fact in the data discussed so far is that, while handshapes classify nominals, those nominals must be expressed in full lexical form when some classifier forms are used. This is the case with the abstract semantic classifiers such as clfr:3 (vehicle) or clfr:Â (moveable mass). Because SASSes are often used to express referents which have no standard lexical expression, they are in at least those cases exempt from this constraint. (See Klima and Bellugi, Chapter 10, for a thorough discussion of this function of SASSes.)

In verbs of motion and location, this means that the handshape morphemes act an anaphoric pronouns for the argument(s) they classify. For instance, two arguments in 45) are stated lexically:

\[
45) \text{FENCE} \quad \begin{array}{c}
\text{CAT} \\
\text{clfr:V-NEXT-TO} \\
\text{clfr:4}
\end{array}
\]

'The cat was/is (sitting) next to the fence'

In Talmy's terms, the Figure (cat) and Ground (fence) are expressed as full lexical items. The handshapes in the
classifier constructions are anaphoric references to these arguments. The motion morpheme is Supalla's *contact*; this is Talmy's "located state", the limiting case of Motion. Path, the way that Figure and Ground are moving/located in relation to each other, is encoded through Supalla's base grid system.

Recall that each movement root morpheme has a base grid system, which is the set of all base points ("locations around the movement path that can be marked with a base hand" (Supalla, 1978, p. 17)). The base grid system is composed of four groups of base points; one of these groups is base points adjacent to the movement path. In this case, then, it is the morpheme related to the placement of the base hand (adjacent to the movement path) which encodes the semantic notion Path.

Thus, the classifier construction encodes all four semantic notions. Two, Figure and Ground, are encoded pronominally via handshape classifiers. Motion, is encoded by the movement root morpheme Supalla calls *contact*, a locative predicate. Path is indicated via the base point morpheme of the base (Ground-referring) hand which locates that hand in relation to the movement path of the active (Figure-referring) hand.

Because the handshape classifiers act as anaphoric pronominals for the nominals in such utterances, classifier constructions are propositional in nature. This makes them
quite distinct from other locative or motional verbs. We can see this by re-transcribing 45) as follows:

45') FENCE CAT SMALL-ANIMAL-BE-LOCATED-ADJACENT-TO-FOUR-HORIZONTAL-THIN-Straight-SHAPES

The simultaneous realization of all of these morphemes makes ASL different in character from spoken languages. This is essentially, however, a trivial point.

This simultaneous nature of classifier constructions does present a challenge to determining the morphological structure. Let us continue examining how Supalla's morphemic system interacts with Talmy's view of motional situations. This time, we take a somewhat more complex example from the discourse data.

46) CAT ... bh: clfr:V-RUN ENTER\textsubscript{R\&C} bh: clfr:V-RUN-\&-JUMP-UP bh: clfr:\textit{V}-LAND-ON ...

'The cat...came running in and took a running jump up onto (the table)...'

We have already seen the morphemes that are functioning in these classifier constructions: handshapes (clfr:V and clfr:\textit{V}), a complex manner morpheme, orientation morphemes (up and down) and horizontal planes. The handshapes are a classifier morpheme referring to the Figure (cat). Fact-of-Motion is conflated with a manner morpheme in clfr:V-RUN,
is intrinsic to the lexical verb ENTER, and is also encoded via upward and downward orientation morphemes. Talmy's notion Path is encoded lexically by ENTER ("move into X") and morphologically by the horizontal plane which refers to TABLE as well as the upward and downward orientations (presumably applied to linear movement).

In this case, when a complex manner-of-motion morpheme appears, the potential linear morpheme is inhibited. The motion is no longer linear but is held at what would be the initial-point base point for a linear movement. Thus Path is hinted at, that initial-point being a vestige of the Path-encoding base grid system which indicates direction of movement. Path is explicitly encoded by ENTER in the first proposition ("the cat came running in"). Similarly, direction of movement is indicated by the orientation of the second clfr:V-RUN, but actual Path is encoded by the orientation upward of the linear movement. Finally, the Path of clfr:V-LAND-ON is encoded by the downward orientation of linear movement and the end-point on the 'mid' plane.

3.5.2. Recall that Talmy suggests three language typologies of conflation of various components of motion situations (Figure, Ground, Path, and Motion) into verb stems. One type of language characteristically conflates fact of Motion and Manner/Cause. English is an example of such a language. An example of the second type is Spanish, in which Path is characteristically conflated with fact of
Motion (section 3.5.). The third typological pattern is one in which Figure and Motion are characteristically expressed conflatedly. Notice that Talmy defines a characteristic pattern as having three properties: it is colloquial, it is frequent, and it expresses a broad range of semantic ideas (Talmy, 1980, p. 5).

I would like to suggest that ASL belongs to the second type, in which Motion and Path are characteristically conflated in the verb stem. This is not to say that ASL verbs of motion are exclusively of this type; as Talmy points out, within a language of any typology, motion verbs of another type are to be found. Rather, it is the characteristic for ASL motion/location verbs to conflate Motion and Path. I wish to argue that classifier forms are characteristic and that they indeed conflate Motion and Path.

It is clear that classifier verbs are colloquial. They have for some time not been considered "part of the real language" and they have been labeled "Sign-mime", and the like. They are seldom used in formal situations or with hearing people (Supalla, 1978, p. 27). I would say that skill in handling the classifier system is viewed unconsciously by deaf signers as one mark of fluency and often serves as the cause for mistaking fluent hearing signers for deaf or native signers. Classifier verb forms are seldom listed in dictionaries or "text books" of signs,
most commonly authored by hearing people.

As to frequency, I have not done a statistical analysis of the corpus gathered for this dissertation or of any other speech sample. A count of two stories in this corpus, however, supports the notion that classifiers are "frequent". In two arbitrarily selected stories by two arbitrarily selected signers, lexical motion/location verbs are outnumbered by about two to one by classifier motion/location verbs. This, I believe, is at least indicative of actual frequency in usage.

In terms of range of meanings, we have seen above (section 3.4.2.) that Supalla's initial suggested system, admittedly incomplete, includes morphemes which can encode a vast number of meanings. In the discussion we have seen that other meanings are encoded via morphemes not yet fully exposed in Supalla's work. In sum, classifier constructions appear to involve a class of verbs which potentially ought to serve as the test for typology in Talmi's terms.

We have seen that the Figure- and Ground-referring classifier handshapes can be thought of as agreement markers of a particular sort. It is the set of morphemes relating directly to motion that give us the evidence we need.

Supalla has shown there is a set of discrete motion/location morphemes (section 3.3.), as well as a base grid system made up of morphemes which relate the location of the secondary object (Ground) to the location of the
primary object (Figure). We have seen that orientation of the active hand and planes and loci in signing space also take on morphemic status in classifier motion/location predications. As we have observed, the Ground-referring base hand is not obligatory. When it does not appear, it seems that those morphemes of orientation, planes, and loci pattern much like those posited by Supalla as parts of the base grid system. It seems that there is but one morphemic system which "locates" the secondary object and that the optional base hand, when used, occupies the loci and planes which are morphemic in that system.

It is important to separate the path of the movement morpheme, which is phonetic, physical fact, from Path, which is the meaningful interaction of two morphemes, movement and location in space. The path of the movement morphemes (contact, linear, etc.) is, in theory, limited only by the bounds of the signing space (see Figure 22). In fact they interact in a limited, structured fashion with a set of discrete morphemes in that signing space, which are optionally indicated by the placement of the non-dominant hand. This fact makes this class of movement/location verbs bimorphemic--Motion and Path. In this respect, ASL is different from other languages within Talmy's Motion + Path typology. Notice that the verb stems he sets forth as examples cannot be so divided (salir "to go out", cruzar "to cross", bajar "to go down"). Yet the simplest form of
these movement verbs must co-occur with a base point to be meaningful or even grammatical. Thus Motion and Path are the most closely allied components of these motion/location verbs.

I will repeat my caution that this is not an exclusive pattern, for there are many ASL verbs of motion which do not fit the typology. This is, rather, the characteristic patterning of form with meaning.

3.6.0. In this section, we shall deal with a case of homophony, ungrammaticality and object-incorporation. The conclusion will be related to constraints between classifiers and lexical signs.

3.6.1. In their discussion of classifiers, both Kegl and Wilbur (Kegl, 1976a; Kegl and Wilbur, 1976; Wilbur, 1979) view a large number of signs formed with classifier handshapes as classifiers. For instance, in a discussion of ASL morphology, Wilbur refers to the "use of V...as the 'by legs' classifier...in such signs as DANCE, STAND, KNEEL, CLIMB,...FALL, TOSS-AND-TURN...etc." (Wilbur, 1979, p. 86). As pointed out above, this view ignores the fact that there are many frozen forms in ASL which have some apparent historical relationship to classifier verbs. That is, one would not deny that the verbs Wilbur lists have a morpheme V, which is related to action by the legs. As Supalla points out, however, these frozen verbs have lost "the separability and significance of the internal elements" (Supalla, 1978,
Now that these forms have fossilized, they are no longer capable of participating in classifier constructions. We shall return to this question below.

A second point crucial to Kegl's and Wilbur's understanding of classifiers is their view of them as derived forms. Kegl (1976a) outlines a rule of object-incorporation (Kegl's term), in which classifiers figure as handshapes which are "incorporated" into verb-stems when the NP undergoing the process is "phonologically incapable" of being incorporated (Kegl, 1976a, p. 32).

Kegl and Wilbur (1976) discuss one motional utterance, 'The boy walked around the lake,' which they present as a derivation in Relational Grammar terms. They view the sentence underlyingly to be as follows:

47) BOY GO AROUND LAKE LEGS

NP₁ V NP₂ NP₃

(Kegl and Wilbur, 1976, p. 388)

A series of rules is applied, by which LEGS, which they view as Instrument, is advanced, and then "Object-Incorporated" to a slot in the verb; a number of other operations take effect, and clfr:V-GO(walk)-AROUND is realized phonetically.

This misses the point that clfr:V is an independent
morpheme, and that the directional movement represents a root morpheme. It does not seem clear, either, what would motivate a choice of clfr:V over another classifier form, clfr:l. The latter, when appearing in motional predicates, is also understood in most cases as "go by foot" (see 36)). Since clfr:l is understood to refer to an animate being, it would entail (questionably) a demotion of NP₁, preceding object-incorporation, or a new rule of subject-incorporation. Either way, this does not look promising. Kegl and Wilbur make no statement as to what the verb stem might look like.

3.6.2. Another reference to a process termed Object-Incorporation appears in Meier's (1978) discussion of ASL verbs of motion. Meier is attempting to demonstrate that an approach to ASL requiring visual representation, much like DeMatteo's, cannot be successful. His point is that movement in certain verbs of motion is morphemic in status, thus agreeing with Supalla's analysis.

He uses two ASL verbs of motion, PUSH and RAISE, indicating that the movement morpheme is identical, even when one or both handshapes are "replaced" through Object-Incorporation. One example he uses is the following:

48) \[ \t \]
   \text{CAR MAN PUSH}

'The man pushed the car'


From his discussion, it appears that a better representation
is as follows:

48') \$	\frac{t}{\text{CAR MAN PUS}}\ \text{clfr:3}

Meier does not describe how an Object-Incorporation rule would work. I am assuming that he is referring to Kegl's suggested rule. If this is the case, Kegl's rule would presumably not apply in this case, since it is motivated by a potential "violation of the signing space or when the articulation of a sign in conjunction with another movement will destroy the structure of the sign" (Kegl and Wilbur, 1976, p. 387). Neither of these conditions appears to apply here, as far as I can understand Kegl and Wilbur's discussion. More importantly, my consultant's judgment of 48) is that it cannot mean what Meier says it means.

PUSH is articulated, in this case, by a '5' handshape, either with straight spread fingers or slightly lax--\$. Most interesting to the eventual point of this section is my consultant's interpretation of 48): "it looks like five men pushing a car." This would indicate that she is interpreting the handshape as a classifier morpheme (a number-incorporated form of clfr:1) with the movement of PUSH.

3.6.3. In analyzing information regarding the locative notion 'under', the following facts should be kept in mind: clfr:3 and clfr:B\$ can represent (the underside of) a car. The sign UNDER has a stative and an active form, the latter having directional movement. The base hand of the
UNDER is a B handshape, held palm down; Wilbur considers UNDER an instance of a handshape classifier, clfr:\(\breve{A}\) (Wilbur, 1979, p. 58). Keeping these facts in mind, let us look at the following data:

49) CAR there-L CAT \(\text{clfr:} \breve{1} \text{-GO-UNDER} \) clfr:W-UNDER \(\{\text{clfr:B}_{\text{d}}\} \)

'\text{The cat ran under the car and stayed there}'

50) CAR there-L CAT UNDER clfr:W-UNDER clfr:B_{\text{d}}

'\text{The cat is (sitting) under the car}'

51) *CAR there-L CAT UNDER clfr:W-UNDER clfr:3

Viewing these data as Kegl and Wilbur would, I am puzzled as to how the classifiers for CAT would be 'advanced.' One might imagine that LEGS are an Instrument, as in their example discussed above (47)). Given an underlying RUN, requiring rapid directional movement, this could force selection and incorporation of clfr:\(\breve{1}\) over clfr:W. Yet when we look at the stative predicate, it is hard to imagine that LEGS could be an Instrument. We might then suggest that clfr:W is simply the verb SIT. This would not, however, explain why a person sitting on or under, say, a table, cannot be represented by clfr:W. (Notice that Supalla's interpretation of clfr:W as a classifier for small animal handles this problem.) Similarly, Kegl and Wilbur's approach cannot account for the ungrammatical status of 51).
One other point is relevant here. If I understand them correctly, Kegl and Wilbur imply that citation forms of "prepositions" represent frozen forms which do not appear on the surface (Kegl and Wilbur, 1976, p. 389). Yet UNDER does appear in 50) (and so do other such signs. See Chapter IV.). They could say that the handshapes $\ddagger$ and $\ddagger\ddagger$ are classifiers, but $\ddagger$ is the incorrect choice of classifier for CAT. This could then lead one to suggest that the base hand, $\ddagger\ddagger$, represents CAR, advanced and incorporated, but that CAT (or LEGS?) had not, leaving behind the 'frozen' or neutral form $\ddagger$. What the motivation for such a situation might be escapes me.

Let us take a different approach to these data. 49) clearly indicates that either clfr:3 or clfr:$\ddagger\ddagger$ can serve as reference point for the under-side of a car. We have already seen a suggestion of how Supalla's system of morphemes might handle the classifier constructions in 49) and 50). (The selection of clfr:1 here is, I believe, controlled by an adverbial morpheme, meaning 'fast', which applies to the movement root, linear. Rapid movement of indeterminate manner is consistently represented by clfr:1, which can classify moveable referents as varied as CAR, CAT, and BICYCLE.) UNDER in 49) is exactly what it seems--the instance of an adposition. It happens that the base hand of UNDER is 'homophonous' with the clfr:$\ddagger\ddagger$ used in the following classifier construction.
The reason 51) is ungrammatical is as follows: a 3-handshape is the incorrect base hand for the lexical sign UNDER. The A-handshape can indeed be a classifier, but not for the animate referent CAT. Notice, then, an utterance where clfr:A-UNDER is correct:
clfr:3

52) CAR there-L BEER CYLINDRICAL-CONTAINER
clfr:A-UNDER
clfr:3

'A/The beer bottle is under the car'

In this case, clfr:A is exactly the appropriate classifier handshape for the NP in question.

Taking these data, along with my consultant's judgment regarding CAR MAN PUSH, I would like to suggest a general constraint on classifier usage. A classifier construction, using one active and one base hand, represents a single sign unit, multi-morphemic and propositional in nature. When the base hand is sustained (or precedes the actual motional/locative predicate), other, lexical, signs cannot form propositions using these classifiers as part of the proposition. Only active hand classifier verbs or indexes are permitted to hold close syntactic relationships with classifier base points.

This explains why 51) is ungrammatical and 48) is questionable. Remember that classifiers referring to Ground or 'secondary objects' can be sustained over several signs, as we saw in 38). When this is the case, otherwise two-
handed signs become one-handed and the sustained classifier becomes a dummy base hand, as in 53):

53) ...clfr:4... MAYBE clfr:V-ON BUT ...
(part of 38))

The signs MAYBE and BUT are normally two-handed. MAYBE is here signed only with the right hand. BUT normally requires contact of the two index fingers before they are pulled apart. In 53), the signer articulates the sign by touching the right index finger to the index of the classifier and moving only the right hand away.

Co-occurrences of lexical signs with a sustained classifier often violate Battison's Dominance Constraint (Battison, 1974), which states that the base hand (i.e. inactive) of a two-handed sign must have one of six unmarked hand-shapes. These strings are rather like a special type of encumbered signing, and do follow the rules Battison indicates have control over encumbered signing. The fact that classifier constructions themselves often violate the Dominance Constraint I take as further evidence of Supalla's multi-morphemic analysis and of a view of such constructions as strongly unified propositions.

This constraint allows us one sort of 'test' to see whether a lexical sign, such as UNDER, may be considered a frozen form or a true classifier whose parts have morphemic status. Clearly, UNDER failed that test and is incorrectly
viewed as a classifier. It is altogether likely that many lexical forms originated as classifiers—(Supalla's example of FALL is just such a case). To term every such instance as a 'classifier' is to confuse that notion with 'morpheme.' Classifiers are, by definition, just that set of morphemes which can participate in classifier constructions. (I am grateful to L.B. Anderson for leading me to this point.)

3.7.0. In closing, I wish to touch briefly on the question of iconicity. Many other people have discussed this issue and quite adequately, to my mind, laid to rest the uninformed myth of transparency in ASL grammar (Frishberg, 1976; Supalla and Newport, 1978; Supalla, 1978; Klima and Bellugi, 1979). It seems that every time someone puts their attention to the problem, it turns out that ASL has phonological, morphological, and syntactic structures consistent with what we know about spoken languages.

One does not wish to deny, indeed it is impossible to deny, the iconic nature of many signs and syntactic structures. Classifier constructions, for example, are highly iconic (Supalla, 1978, pp. 1, 5, and 6). Why should this be so? Given that classifier constructions express spatial (motional and locative) relationships, and given that they do so in space, it would be more puzzling if they were not iconic. It would be counter-productive and counter-intuitive not to take advantage of the facts of space as medium. Notice, for instance, how counter-intuitive it would be to
have 'up' encoded by a downward, lateral, or any directional movement other than upwards.

Another fact, often overlooked, contributes to the high level of iconicity in ASL. Relatively few denotata in the human experience lend themselves to (non-poetic) sound iconicity. (What is the "sound" of a flower?) Often, too, the potential sounds are not readily expressed by the human vocal mechanism. But most parts of daily existence have a visual aspect. Indeed, speakers of non-signed languages often resort to 'drawing in the air' to help them through difficult descriptive tasks ("It's about so tall..."). Similarly, as Supalla points out (p. 16), deaf signers resort to an explicit, deliberate sort of 'drawing in the air' for the same purposes. This is structurally quite different from classifier constructions.

Because of this more or less natural potential relationship between the visual aspects of human experience and a language designed for visual perception, iconicity is characteristic of ASL (and presumably other signed languages). But, to return to the initial point, iconicity fails utterly when it is the basis for analyzing ASL. The structure of ASL can only be understood in linguistic terms--of discrete units of form and meanings whose psychological reality depends on rules and constraints, not on pictures or images.
Chapter IV

Locative Adpositions

4.0. In Chapter III, we looked at how some locative and motional meanings are encoded by the use of classifier constructions. Classifier constructions are simply one of several means for expressing locative relationships. In this chapter we shall look at some alternative strategies in ASL for encoding locatives. We shall examine in particular three of those semantic relationships—IN, UNDER, and OUT. Finally, we shall briefly address the question of why certain signs exist, have existed for generations, and yet are seldom used.

4.1. Four basic syntactic strategies exist in ASL for expressing locative relationships. Combinations of these strategies are also often common. The four are exemplified as follows:

1) by a verb taking a locative argument:

\[
\text{CIGARETTE} \quad \text{LEAVE}_{\text{R}} \quad \text{YOUR CAR}
\]

'I left my cigarettes in your car'

2) by a deictic:

\[
\text{YOUR BOOK} \quad \text{there} \quad \text{MY BEDROOM}
\]

'Your book is in my bedroom'
3) by use of an adposition
FRANCIS IN RUSSIA SIX WEEK
'Francis is in Russia for six weeks'

4) by use of a classifier construction:
HOUSE T-A-R-A HER MANY FLOWER TREE
clf:ǐ-in-a-circle
'Tara has lots of trees and flowers outside her house'

Each of these can combine with each of the others or with two of the others, so that a large number of possibilities are available to the signer. Below are examples of the more commonly occurring combined constructions within the data:

5) verb plus deictic:
ICE-CREAM ME FIND there R-E-F
'I found ice cream in the refrigerator'

6) verb plus adposition:
BEAR ... THINK ALONE AWAKE IN STORE
'The bear...thought he alone was awake in the store'

7) deictic plus classifier:
CAT there L T-R-U-C-K clfr:ǐ-sit-under
'The cat is (sitting) under the truck'

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8) adposition plus classifier:

\[
\text{ACROSS FENCE RED SASS } \overline{\text{clfr:4}} \overline{\text{v-over}}
\]

'(They went) Over the brick wall'

4.1.1. First, we will discuss utterances using verbs only. Some of the verbs are locative or motional by nature; others easily take locative phrases. In the case of one of these verbs, MOVE, the semantic relationship is directional:

9) \( V\text{-A MOVE}_{R} \) CHICAGO

'Virginia is moving to Chicago'

In another instance in the data, the movement of the directional/motional verb PUT is modified for height to indicate the meaning 'on':

10) \( \text{BOOK YOUR ME PUT}_{\text{high}} \) R-E-F

'I put your book on the refrigerator'

In all other instances in the data, the meaning encoded by a locative/motional verb alone is 'in', as in 11):

11) \( \text{T-A-R-A SIT there LIVING ROOM} \)

'Tara is sitting in the living room'

Presumably this strategy is successful because it is allowed only when there is no possibility of ambiguity. Given this situation, exact locative relationships are left to
inference.

In some cases, such as MOVE or PUT, the verb itself is directionally marked to indicate the locative relationship of the two nominals. That is, these verbs must be realized with a specific movement which indicates the semantic relationship to 'to', 'in', 'on', or 'under'. In other cases, verbs like STAY and LIVE require no case-marking or morphological changes in their forms:

12) FRANCIS STAY RUSSIA SIX WEEK
   'Francis was/will be in Russia for six weeks'

13) ME LIVE O-R-E-G-O-N ONE YEAR
   'I lived in Oregon for a year'

These are understood in the only possible way, and thus are accompanied by no case-markers.

Similarly, locative NP's which hold scope over whole propositions are not marked:

14) ? ELEVATOR T-A-R-A BREAK 'leg'
   'Tara broke her leg in the elevator'

Again, 'in' is the only reasonable interpretation, and no specification is required.

4.1.2. I note in passing that deictics are beyond the purview of the present analysis. They will not be the focus of any further discussion, but may enter peripherally into the analysis.
4.1.3. The use of adpositions as the only indication of a locative relationship holding between two arguments is relatively rare. The most commonly used adpositional sign is IN. The following two utterances are taken from the narrative data:

15) \textit{EVE}RY\textit{O}NE \textit{IN} KITCHEN

'Everyone is in the kitchin'

16) MONKEY NOT ON T-A-B-L-E

'Monkeys don't (belong) on the table'

15) and 16) both use English prepositional patterns. They are acceptable ASL. Notice, however, that both utterances can be equally grammatically expressed by using deictics or classifiers or both, as in the following two utterances (both also taken from the narrative data):

17) \textit{EVE}RY\textit{O}NE WHERE\textit{K}ITCHEN \textit{there}_R \textit{clf}:^5 \textit{high}_R

'Everyone is in the kitchen'

18) \ldots GRUMBLE MONKEY TABLE NOT NOT-LIKE NOT\textit{POLITE}

'(They were) Unhappy. Monkeys don't (belong) on tables. (They) Didn't like it, it's not proper!'

One pair of elicited utterances is significant because the choice of IN apparently is related to a time consideration. 20) is parallel to 12):
19) FRANCIS IN RUSSIA SIX WEEK
   'Francis is in Russia for six weeks'
   = 3)

20) FRANCIS STAY RUSSIA SIX WEEK
   'Francis was/will be in Russia for six weeks'
   = 12)

Only 19) applies to Francis' whereabouts at the time of the speech act. 20), by contrast, is indeterminate as to future or completed action, but cannot mean that he is there now. These facts lead one initially to view adpositions as verbs.

4.2. So far we have seen three possible syntactic means for encoding locative relations in ASL: verbs, deictics and adpositions. Classifiers, a fourth strategy, are discussed in detail in Chapter III. Let us now look at some of the more common combinations which occur.

4.2.1. The first combination of constructions is that of a lexical verb with a deictic. Probably the most striking consistency in this set of utterances is the ordering. Almost without exception, the deictic precedes the locative object NP and the locative NP is the final constituent of the utterance. Notice 21) and 22):

   21) ˆEGG FRANCIS TAKE there R-E-F
       'Francis took the eggs out of the refrigerator'
22) **KID** EAT there LIVING ROOM

'The kids are eating in the living room'

The most commonly expressed semantic relation in this category is IN. Notice that the deictic can be modified for quite specific relationships:

23) **R-I-C-K** L-I-Z **MARRY** there-far M-D **LIVE**
there-near N-R

'Rick and Liz got married in Maryland, but they live in Northridge'

24) **CHAIR** clfr:CC BABY CAT SLEEP there-under clfr:BP

'The kittens are sleeping under the sofa'

The modified deictics in 23) encode explicitly the fact that Maryland and Northridge are distant from each other and that Northridge is near the speaker. The exact relative distance is not relevant; rather, deictics in ASL simply demand that distance from the speaker be indicated as 'near' or 'far'. (The actual rules for usage are presumably more explicit than this; the question remains open for further investigation.)

The modified deictic in 24) specifies the notion 'under' by using a flat hand classifier, clfr:BP. This is also the base hand for all forms of UNDER (see 4.3.2.). Like the non-dominant hand in classifier constructions, this flat hand establishes the base point for the relevant
locative relationship.

4.2.2. Another combined strategy is the use of a verb and an adposition without any overt locative NP. This sort of construction is used only with the adposition OUT. The citation form of OUT is a relatively simple reverse of IN, in which the movement is up and out of the container base hand. Interestingly, this form never appears in the data gathered for this study.

There are several other forms which do appear. They will not be analyzed in detail in this section. Rather, at this point, we shall simply note that these forms of OUT generally occur in one of two slots: utterance final, after a verb such as in 25), and in penultimate position, before an intransitive verb, as in 26):

25) \underline{BABY} SHARON \underline{TAKE}_R \underline{OUT}

'Sharon took the baby out(side)'

26) SHARON OUT SWIM

'Sharon is out swimming'

or

'Sharon went out to swim'

A more detailed discussion of OUT and its varieties is in section 4.3.3.

4.2.3. Most instances of the verb plus adposition strategy include a locative object. Also, most occur in the narrative data. Perhaps these data are vulnerable to
the unconscious influence of English, and some instances of adpositions here may be intrusions from English usage. It is worth noting that adpositions in the narrative data are usually prepositional, while elicited utterances show more variety. In any case, there are many narrative instances of adpositions in combination with a verb:

27) ME DREAM LIVE IN BIG HOME
    'I've dreamed of living in a large home'

28) SEW 'thread-needle' SEW [X: on body] ON BEAR
    '(She) Took a needle and thread and sewed (the button) onto the bear'

29) M-E-L DRIVE TO WHERE, V-A HOME
    'Mel drove to Virginia's home'
    (?'Where did Mel drive? Virginia's home.')

28) is interesting because the second occurrence of SEW has been modified to indicate the specific location of the action. The phrase ON BEAR is accompanied by raised eyebrows and followed by a nod. The phrase seems to be for clarification, then, lest there be any misunderstanding of the modified form, SEW. This use of the sign ON is supported by the informal comment made by another consultant that adpositions, when used, are to make sure 'there is no misunderstanding.'

29) uses a rhetorical question structure. This is a very common discourse strategy, in which a WH sign is
accompanied by raised eyebrows, appropriate to a yes/no question. Such a strategy is far less marked or unusual than in English, as can be seen from the translation. Notice that the same meaning is encoded by a different strategy in another version of the same story:

30) M-E-L GO-TO_R VISIT V-A HOUSE_R DRIVE-FAR_L-R

clfr:3-pull-to-a-stop
clfr:Bd

'Mel went to visit Virginia's house...(he) drove there'

This version includes three verbs and a (frozen?) classifier which means "to arrive by vehicle."

Some elicited utterances use the combination of verb and adposition:

31) BOOK_CE MY LEAVE_R TABLE UNDER

'I left my book under the table'

32) PAST-WEEK CLASS MEETING OUT (GRASS)

'Last week our class met out on the grass'

The locative object in 32) is notable in that its appearance is determined by pragmatics, rather than syntax. The NP GRASS (not, strictly speaking, the locative object of OUT) occurs only if the 'fact' of grass is significant, i.e. if the class meeting occurred at an elementary school where there is not much grass.
4.2.4. Two other combined constructions for encoding locatives are the use of deictics with adpositions and deictics with classifiers. While deictics are not within the main focus of this analysis, a pair of sentences that fit into this category may shed some light on common usage.

33) HOUSE ^SNAKE_ there ^clfr:BA_  
'There's a snake outside the house'

34) SNAKE there OUT ^cs_  
'There's a snake outside (the house)'

The crucial difference between these two utterances is pragmatic: 33) is used to describe a situation viewed from a distance, either physical or psychological, whereas 34) is properly uttered only inside the house. That is, 33) might be used to describe a picture or an incident in the past; 34) would be used to inform the addressee of the current state of affairs. No other ordering of constituents is permissible for either 33) or 34).

4.2.5. The final combined construction we will look at in any detail is the use of adpositions with classifier constructions. This strategy appears primarily in the narrative data. Most incidences of this combination have one or two classifier verbs and end with a prepositional phrase:

'The cat jumped up onto the table'

36) MONKEY ... clfr:V–BELOW–&–JUMP-UP TO clfr:C

KITCHEN clfr:CC

'The monkey... jumped up from beneath (the table) onto the kitchen counter'

It is clear from other signed versions of the same story and from elicited data that the use of adpositional signs is virtually never required and is seldom found in a classifier construction. We saw in Chapter III that classifiers properly occur only after their referent NP's are established in the discourse. 35) and 36) then, present a problem, in that they do not conform to the pattern of classifier constructions discussed in Chapter III, i.e. they are not verb-final.

The easiest solution might be to claim that these utterances are the result of English influence. Since the adpositions are prepositional here, it may be that knowledge of English is responsible to some degree.

Another factor should, I think, be considered, and that is the nature of the locative NP's. The NP's in these utterances are of two sorts. Either they have already been established in the discourse or they are, for ASL, relatively heavy. In the case of 35), T-A-B-L-E has already been
mentioned and established as the location of the two monkeys. The NP in 35) has the function of clarifying that the surface where the cat arrived is indeed the same as that previously referred to. It may be a sort of afterthought. We have already seen evidence of aversion to locative objects occurring in final position without either a deictic or an adposition before it (4.1.3., 4.2.1., 4.2.3.).

In 36), the locative object referent, 'kitchen counter' has no standard sign. Various means of expressing this NP appear in the data, all of which are heavy in ASL. That is, they are two or more signs long, they are non-frozen, non-standard signs, and they often involve the spelling of a longish English word. All have been right-dislocated. As well as being heavy, the phrase represents new information, a shift in focus. The use of adpositions in such a phrase adds a somewhat formal but utterly unambiguous statement of the locative relationship.

4.3. In the following sections, we shall examine in turn three ASL adpositions: IN, UNDER, and OUT, and the semantic concepts expressed. These three are the most commonly occurring of all the adpositions. We shall look at historical information on each, as well as morphological variants and, in some cases, syntactic constraints.

Historical data have come primarily from two sources: Sicard's *Théorie des Signes* (1808) and Long's *The Sign Language* (1918). Sicard's volume is not so much a manual
of old French signs as it is a set of suggested mimes to teach concepts. Some signs, however, appear to be standard Old French Sign Language (OFSL).

Long's book was written at a time when signs had been banished from the classroom. Long, like Sicard, was not deaf; he did believe that signs were of high social and educational value to the deaf community. These caveats are given simply to recognize that such historical data are suspect since they do not come from the community itself. They are, however, the only sources readily available.

IN, UNDER and OUT were selected for discussion for two reasons. First, they are the most frequently used adpositions in the data collected. (For instance, (A)CROSS occurs once; UNDER appears twenty times.) Second, they each have two or more forms. That is, they occur not just in the citation form (in the case of OUT, never in this form), but have some subtle variations which offer an enriched view of how these meanings can be encoded.

4.3.1. IN (dans) is described in mime-like terms by Sicard:

1°. Figurer, de la main gauche, un contenant quelconque, une sorte de vase. 2°. Figurer l'introduction des doigts réunis de la main droite, dans ce vase, ou dans ce contenant.

(1st. Represent, with the left hand, a container of some sort, a kind of vase. 2nd. Represent the insertion of the right hand, fingers bunched together, into this vase or container.)

(Sicard, 1808, Vol. II, p. 585)
Long's description indicates no change in this sign: "Place the right 'a' hand downward into the left 'O' hand" (Long, 1918, p. 173). Stokoe's dictionary entry offers the same sign. We can surmise then, that this sign apparently has not changed its citation form.

\[\text{IN}\]

Figure 24

In modern ASL, there is a second form of IN glossed \(IN_a\). \(IN_a\) has a double movement but is otherwise formationally the same as IN. Let us look at two elicited utterances, involving the semantic notion, 'in'. (Notice in 37) that HAVE is the verb; this is a common construction used for locative existentials and presentatives.)

37) \texttt{R-E-F \ there \ HAVE \ WHAT-Q}
    \textquote{What's in the refrigerator?}

38) \texttt{R-E-F \ there \ IN}_a \texttt{ \ WHAT-Q}
    \textquote{What's in the refrigerator?}
The distinction between these two is a pragmatic one. is spoken of a 'normal' kitchen refrigerator assumed to have normal functions. , by contrast, is in reference to a refrigerator kept on the porch, in the garage, or some other unlikely place.

\[ \text{IN}_a \] can only appear after the locative NP object. Notice also, from 39) and 40), that it seems restricted semantically to NP's that are ordinarily thought of as containers.

39) BOOK YOUR A-T-T-I-C BOX \[ \text{IN}_a \] 'Your book is in the attic--(I put it) in a box'

40) *BOOK YOUR A-T-T-I-C \[ \text{IN}_a \]

The implication of \[ \text{IN}_a \] is apparently one of putting, possibly for safe-keeping. There are related verb-forms, with different orientations, which mean 'save/store up' and 'stuff (a turkey).'</n
In a variety of elicited utterances related to 39), many possibilities for expressing 'in' appear. Most of them rely on diectics, however, The use of IN with A-T-T-I-C or BASEMENT is questionable at best:

41) *? BOOK YOUR there-up IN A-T-T-I-C

42) * BOOK YOUR there-up A-T-T-I-C IN
Notice that 41) is slightly more acceptable if it is uttered outside the house, although one consultant still finds it unacceptable (Sharon Neumann Solow, personal communication).

In the case of a second locative NP, BOX, as in 39), IN can be used prepositionally, IN BOX. It is less preferable, however, than the post-positional INₐ. Neither of them is likely to occur in a string with a lexical verb, as in 43) and 44):

43) BOOK+ YOUR ME FINDₑ there-downₑ BOX+ there-down BASEMENT
'I found your books in boxes down in the basement'

44) BOOK+ YOUR BOX+ ME PUT+ there-downₑ BASEMENT
'I put your books in boxes down in the basement'

Here, no adposition is used; rather deictics are the only means of marking location in 43). In 44), PUT is articulated with both hands and has the reading 'put into/pack.'

It appears that INₐ is a verb, quite likely related to the verb PUT. IN can be a verb, as we saw above in 19). This function is apparently limited to larger, geographical entities, rather than smaller, spatial areas, as in 41) and 42). If these locations can be indicated with a deictic (including geographical areas, as in 23)), then they usually are. Most other instances of IN as a preposition I consider likely to be due to influence from English (see 15) and 27)).
In another set of utterances there is some evidence of IN functioning as a sort of prepositional case-marker for right-dislocated or utterance-final locative objects.

45) REMEMBER ME WORRY there_L KID EAT [X:iter] BUG
    ME BRING_R DOCTOR, DOCTOR EXAMINE FIND Nod

\[
\begin{align*}
\text{STOMACH} & \quad \text{SCADS} \quad \text{BUG} \\
\text{there-L} & \quad \ee \quad \{ \text{IN} \} \quad \text{STOMACH} \\
\text{SCADS} & \quad \text{BUG} \quad \{ \emptyset \} \quad \text{there-L}
\end{align*}
\]

'You know how I've been worrying about my kid eating all those bugs? I took her to the doctor, the doctor examined her and found scads of bugs in her stomach.'

46) HOW-MANY CHAIR IN ROOM ONE there_L

'How many chairs are there in Room 1?'

In 45) the NP STOMACH is preceded by IN only when it is in final position.

In 46), the locative NP, ROOM ONE, is in effect stranded because of the question-sign, HOW-MANY. Most WH question signs are utterance-final; HOW-MANY is an exception, because it is commonly utterance-initial. CHAIR, most closely tied to the question, is therefore left-dislocated, leaving ROOM ONE in final position. Notice that there is a deictic following, in ultimate position. More importantly, the alternate and preferred version is without IN:
47) HOW-MANY CHAIR there_L ROOM ONE

= 46)

So again we see that IN is possible, but not preferred.

The meaning 'in' can be expressed in other ways, without IN or IN_a. 47) shows the use of a simple deictic for this purpose. As stated above (4.1.1.), motional or locative verbs, such as MOVE and STAY, often need no accompanying locative case-marker. Similarly, locative NP's can occur without any deictic or other marker, when the interpretation is clear, as in 48):

48) \[ \underline{E-I-L-L-Y} \ GROW-UP \ (there) \ WASHINGTON \ \underline{Nod} \]

\[ \underline{N o w} \ \underline{N o d} \ (\underline{IN} \ \underline{h e r e}) \ \underline{C A L I F O R N I A} \]

'Billy grew up in Washington, but he lives in California'

In summary, the semantic notion 'in' can be expressed via several different syntactic means. The sign IN is used seldom and is almost never required. The notion of IN as a verb ('be in') is supported by instances where it is the only candidate for such status in a given string, such as 19). A morphologically related variant IN_a is normally interpreted as 'put-in (for safe-keeping)'. It is worth noting here that IN, a highly iconic sign, has not apparently changed form historically. We shall return to this point below.
4.3.2. UNDER, like IN, is highly iconic in all its forms. There are two signs in DASL which are glossed as 'under.' Both use base hands of a flat B hand held palm down. One has a dominant A hand which moves to a position underneath the base hand. Another, related, form is made by circling the A hand (dominant) beneath the non-dominant base hand. DASL lists this as 'basement; underneath.'

\[ \text{UNDER}_A \]

Figure 25

The second form is related to ENTER. The dominant hand has the same shape and orientation as the base hand (B); it moves in an arc under the base hand and away from the body, with fingertips pointed towards the addressee. For ENTER ("enter/into"), the back of the moving hand brushes the palm of the base and normally comes to rest with the base hand resting on the wrist of the moving hand. \text{UNDER}_B has the same movement, but no contact need be made. Rather, the arc of movement is normally made well below the
base hand (see Figure 26). The movement can carry the hand well beyond the limiting plane suggested by the base hand; this means 'go under (and come out the other side)'. Normally, however, the elbow of the moving hand is extended only sufficiently to bring the hand under the other hand; this means 'go to/be at a place under'.

UNDER

Figure 26


Long (1918) describes three relevant signs. The first he calls "below": "Hold the right open hand under the left, palms of both down; move the right around in a circle"
(Long, 1918, p. 171). This sign still exists in modern ASL as 'basis, foundation; basement'. The second sign in Long is "under (if stationary)". "With the left open hand, palm down, in front, and right 'A' hand between it and self, let the right hand pass down under the left. Or place the 'A' hand under the left and describe a circle with it" (p. 171). As we have seen, these are now two separate signs; the first meaning 'go under' and the second 'basement; underneath (? be under)'.

The third sign Long describes as follows: "Under (if in motion). Same position and movement as the immediately preceding 'under' sign, but carry the right hand completely under the left and let the thumb come up above its edge" (p. 171). This is the same extended movement that is now possible for UNDERB, described above.

Long also describes another sign, 'Into' as follows: "Holding the left open hand out in front, palm down, and pointing toward the right, push the right 'B' hand, palm down, from toward self down and under the left" (p. 173). Presumably, this is similar or identical to the modern ENTER, which also means 'into'.

Long describes, then, four forms meaning 'under'. Three still exist, with related meanings. Long's 'below' (two 'B' hands, palm down, one circling beneath the other) now means 'basis, foundation' and in some dialects 'basement'. Of his two 'under (stationary)' forms, both still
exist, but with distinct meanings. One (circling beneath) means 'be under; basement'; the other, which has a down and outward movement, now means 'go under'. His form, 'under (motion)' no longer exists. Rather, the sign 'Into' has apparently taken on at least three different forms: 'enter', 'go to/be at a place under', and 'go all the way under'.

<table>
<thead>
<tr>
<th>Long (1918)</th>
<th>DASL (1965)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BELOW</strong></td>
<td></td>
</tr>
<tr>
<td>$B^D_B^D\circ$</td>
<td>$= \text{basis, foundation, basement}$</td>
</tr>
<tr>
<td><strong>UNDER (stationary)</strong></td>
<td></td>
</tr>
<tr>
<td>$B^D_A\circ$</td>
<td>$= (\text{be}) \ \text{under, basement}$</td>
</tr>
<tr>
<td>$B^D_A\perp$</td>
<td>$= (\text{go}) \ \text{under}$</td>
</tr>
<tr>
<td><strong>UNDER (motion)</strong></td>
<td></td>
</tr>
<tr>
<td>$B^D_A\perp\wedge$</td>
<td>$=$ ?</td>
</tr>
<tr>
<td><strong>INTO</strong></td>
<td></td>
</tr>
<tr>
<td>$B^D_B^D\perp$</td>
<td>$= \text{enter; (go to/be) under}$</td>
</tr>
<tr>
<td></td>
<td>$\quad (+ \text{extended elbow})$</td>
</tr>
<tr>
<td></td>
<td>$\quad \text{go all the way under}$</td>
</tr>
</tbody>
</table>

The locative relation 'under' is most commonly expressed using a classifier. Such utterances often also have a deictic, an adposition, a verb or some combination of these strategies. Many examples of classifier constructions are discussed in Chapter III. Therefore, we will concentrate here on utterances which depend on the use of the adposi-
tions, either alone or in combination.

49) BOOK MY LEAVE R TABLE UNDER B
    'I left my book under the table'

50) CAR CAT UNDER B clfr:3 ASK-YOU
    'Did the cat go under the car?'

Both of these elicited utterances use the form of UNDER which is related to ENTER. We should note that, while it is possible for UNDER B to occur prepositionally, there is a preference to place it after the locative object. (As we shall see, the same is true for UNDER A.)

While UNDER B only occurs in three utterances from the discourse data, it is interesting that the three are all from the same passage of the same story:

51) FIND there-down R COAT UNDER B BLANKET (just)
    B-L-A-N-K-E-T ON FLOOR there-down
    '(They) Found the jackets under the blanket on the floor'

52) SEE there-down BLANKET FLOOR UNDER B
    'See (if the jackets) are there under the blanket on the floor'

53) MAYBE UNDER B BLANKET
    'Maybe (the jackets) are under the blanket'

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I would like to suggest that the use of UNDER$_B$ is controlled by the visibility of the located NP when it is in place. This would explain the use of UNDER$_B$ by three different consultants in the same passage and in that passage only. There are two counter-examples, one from the prompted narrative, one an elicited utterance:

54) WELL HIDE there$_{DR}$ B-L-A-N-K-E-T BLANKET

UNDER$_A$ SOMEONE there-rear there$_{DR}$ SEE-SEE YOU

'Well, see if (the jackets are) hidden under that blanket somewhere back there'

55) TABLE UNDER$_B$ SEE MY BOOK ASK-YOU

'Did you see my book under the table?'

It may be that the use of the verb HIDE in 54) is sufficient to indicate the invisibility of the jackets. It may also be that a dialect difference exists.

In 55), however, since the lexical verb is SEE, it is difficult to imagine that UNDER$_B$ implies invisibility. It could be that if the located NP is or is thought to be invisible then UNDER$_B$ is the preferred form. In all other cases the two forms are not restricted and the signer may choose either form.

There is, however, another possible distinction between the two; this one is syntactic. With few exceptions, UNDER$_B$ is the sole indicator of the meaning 'under', and is

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most likely to occur with a lexical verb, such as FIND, SEE, or LEAVE. UNDERₐ, by contrast, usually appears in conjunction with classifiers and deictics. Notice the following strings, all from the discourse data:

56) clfr:₁-GO-UNDER clfr:₁-SIT-UNDER UNDERₐ
clfr:Bₐ
T-A-B-L-E
'The Monkey) Went under the table and sat there'

57) BRIDGE clfr:₁-GO-UNDER UNDERₐ
clfr:₁-GO-UNDER
clfr:Bₐ
'The bears) Went under a bridge'

58) MONKEY OTHER thereₐ UNDERₐ TABLE
'The other monkey was under the table'

This seems to indicate a greater freedom of occurrence for UNDERₐ. Notice, too, that it means that UNDERₐ is often redundant, whereas UNDERₐ is not, since it usually is the only indicator of the locative relationship.

UNDERₐ can occur alone, as can be seen in 59):

59) OTHER UNDERₐ T-A-B-L-E MONKEY EYEBALLS-
LOOK-R ...
'The other monkey--the one that was under the table--looked (after the cat)...

This phrase, UNDERₐ T-A-B-L-E, is used as further identi-
fication of the NP MONKEY. In ASL, relative clauses are
clearly marked by a set of non-manual behaviors (Liddell,
1977) and they are not so often used as in English. Rather,
short identifying phrases, accompanied by raised eyebrows
and usually direct eye contact with the addressee, are used
to restrict or specify the referent. Notice that these
behaviors occur with other sorts of phrases besides locatives,
as in 60), and that a relative clause is used in 61):

60) OTHER MONKEY GREEN JACKET Nod GREEN
RAPID-RUN
'The other monkey--the one in the green jacket--
ran...'

61) WELL ATG FRIEND GREEN there DR CLOTHES-ON MONKEY ...

'Oh well. (And he) Signalled to his friend, the
monkey with the green outfit...'

Notice that in colloquial English, one might translate 60)
as 'The other one--the green jacket--ran...'.

UNDER B is used in a series of elicited utterances that
are interesting for two reasons: they involve reversible
arguments and they were produced as a result of 'staging'
rather than the use of any direct English or signed inquiry.
They all involve a table, a piece of paper and one or two
books. The book(s) and paper were manipulated so as to
exemplify a variety of locative relationships, 'on', 'under',
and 'between', among the arguments. (It is of interest to

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note here that the order of arguments remains static. This was discussed in Chapter II.)

62) $\text{TABLE}_{\text{clfr:B}_D} \quad \text{BOOK \ ON \ clfr:B}_D$

\[ \text{PAPER \ ON} \]

'The paper is on the book on the table'

63) $\text{TABLE}_{\text{clfr:B}_D} \quad \text{BOOK \ ON \ clfr:B}_D$

\[ \text{PAPER \ UNDER}_B \]

'on

CS

'The paper is under the book (which is) on the table'

64) $\text{TABLE}_{\text{clfr:B}_D} \quad \text{BOOK \ UNDER}_B \quad \text{PAPER \ ON \ clfr:B}_D$

'The paper is on the book (which is) under the table'

65) $\text{TABLE}_{\text{clfr:B}_D} \quad \text{BOOK+ 1h:ON \ clfr:B}_D$

'The paper is between the two books stacked on the table'

These sentences exemplify yet another possible consideration in the selection of $\text{UNDER}_B$ over $\text{UNDER}_A$. The formal characteristics of both ON and $\text{UNDER}_B$ are such that they are virtually identical (?: homophonous) with the classifier used here (clfr:B_D). The handshape and orientation of $\text{UNDER}_B$ are the same as the classifier which represents all horizontal, relatively flat objects, such as tables, sheets of paper and the books in these utterances. Thus it may be the nature of the arguments themselves which determines the choice of two adpositions with apparently similar meanings.
Finally, however, I find no satisfying explanation for the suggested distinctions between the two forms of UNDER. One suggestion was the fact of visibility. Counter-evidence to this factor exists in 63), 64), and 65), since all arguments are visible, yet UNDER₂ is the invariable choice. Secondly, it was suggested that UNDER₁ freely co-occurs with deictics and classifiers, while UNDER₂ is the preferred form with lexical verbs or alone. Counter-evidence is found in 59) (see above).

Finally the shape of the argument was suggested as influencing one 'under' over the other. However, since some arguments are used with both forms of 'under', this suggestion is apparently invalid. Notice 66) and 67):

66) CAR CAT \[\underline{\text{UNDER}}_2\] clfr:3 ASK-YOU

'Is the cat under the car?'

67) CAT UNDER₁ \[\underline{\text{WHAT}}-Q\] clfr:B_d-

'What's the cat under?'

Since CAT can co-occur with both forms, it does not seem likely that the characteristics of the experiencer NP have control over the selection of the adposition.

It seems most likely that all three factors have some influence on the situation. The definitive answer will have to await further investigation.
4.3.3. OUT is probably the most interesting of all the adpositions for two reasons: it virtually never allows a locative object and it has several forms which carry subtle distinctions in meaning. There are four signs which interest us here, and two others which are peripherally connected.

The citation form, OUT, is a relatively simple reversal of IN, in which the movement of the dominant hand is up and out of the 'container' base hand. This form is listed in most ASL vocabulary books, yet it does not occur once in the present corpus and will not be referred to hereafter. A second form, OUT\(\wedge\), has the same initial orientation and hand configuration as OUT. As the dominant hand is drawn up out of the base hand, it moves away from the signer’s body and the palm is turned up.

OUT, OUT\(\downarrow\), and OUT\(\wedge\)

Figure 27

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A third sign is related to the first two. \( \text{OUT}_A^+ \) has the same initial hand configuration and orientation as \( \text{OUT}_A \), but has a quick, double movement; and this movement often ends by changing the palm orientation slightly, though not as much as \( \text{OUT}_A \).

The next two forms, \( \text{OUT}_\perp \) and \( \text{OUT}_A^\perp \) are parallel to \( \text{OUT}_A \) and \( \text{OUT}_A^+ \). The same hand shapes are used; a non-dominant 'container' and a dominant hand which starts as a modified '5' and changes to an 'O' as the hand is drawn out of the 'container' 'C'. The palm of the dominant hand is oriented towards the signer's body and is drawn out and directly away from the body. \( \text{OUT}_\perp^+ \) has a short, double movement, similar to \( \text{OUT}_A^+ \). \( \text{OUT}_\perp \) has a single movement, parallel to \( \text{OUT}_A \). \( \text{OUT}_\perp \), without a base hand, becomes GONE-AWAY.

In examining Sicard's descriptions of two words, \textit{hors} and \textit{sortir}, we find it very clear that his goal in this volume was to suggest to teachers how to teach concepts, rather than how to sign them.

\begin{quote}
\textit{Hors. 1°. Figurer, en tracant un grand cercle, de la main droite, un \textit{espace} qui serve de contenant. 2°. Indiquer un lieu qui ne se trouve point dans l'enceinte qu'on a tracée, mais qui est \underline{hors} du cercle. 3°. Signe de préposition.}
\end{quote}

\begin{quote}
(Out. 1st. Represent, by tracing a large circle with the right hand, a space which serves as a container. 2nd. Indicate a place which is not within the embrace of this circle that you have traced, but which is completely \underline{outside} the circle. 3rd. Sign for \underline{preposition}.)
\end{quote}

\textit{(Sicard, 1808, Vol. II, p. 587)}
Sortir. 1°. Action de quitter le lieu où l'on est.
2°. Signe d'aller, de s'évader, de s'échapper, de se
retirer, de changer de place.... 3°. Signe d'ouvrir
une porte, et d'en passer le seuil. 4°. Mode indéfini.

(To go out. 1st. Action of leaving the place where
one is. 2nd. Sign for going, escaping, breaking free,
withdrawing, changing seats.... 3rd. Sign for opening
a door and go across the doorsill. 4th. Indefinite
mood.)

(Sicard, 1808, Vol. I, p. 558)

These are not very helpful in allowing us to guess the
French sign current in 1808. From a later book of French
signs by Péliissier, we see that hors de is illustrated,
though not described in text, as being homophous with OUT
in modern American sign texts (Péliissier, 1856, n.p.).

Long (1918) describes two signs for 'out':

Out. Place the right '5' hand, pointing upwards, in
the left 'C'; let it drop down and out of the left,
the latter closing over it to 'O' hand (sic).

Out of (Away from). Placing the right '5' hand
in the left 'C', pointing it downward, lift it upward
and out toward the front, and close the left hand
under it to 'O'.

(Long, 1918, pp. 173-174)

Both these signs are recognizable in modern ASL. The
first is related to OUT, although it has a different orienta-
tion. Long's 'out' is listed in DASL as GONE. It is trans-
lated as 'gone; disappear (of an animate creature); absent'.
The entry in DASL says "sig [movement] may be in any direc-
tion away from signer and [Base hand]..." (Stokoe, et al.,
1965, p. 250). Thus Stokoe collapses OUT with GONE.

Long's sign 'out of' is recognizable as the sign here
notated as OUT. The same sign is listed in at least one
ASL vocabulary book as OUTSIDE (O'Rourke, 1978). I shall argue that all four forms—OUT\_, OUT\^, OUT\_| and OUT\^\_—should be considered verbs or adverbs.

First, let us consider a pair of sentences, 68) and 69):

68) SHARON OUT\_| SHOP
   'Sharon has gone (out) shopping'

69) *SHARON OUT\^ SHOP

These two sentences demonstrate a crucial difference between OUT\_| and OUT\^: they both mean 'out', but the former is distal while the latter is proximal (i.e. within sight). This explains the ungrammaticality of 69), since one does not normally shop nearby. Let us now look at three more utterances using different forms of OUT:

70) SHARON $\text{CS}$ OUT\_| SWIM
   'Sharon just left (went out) to go swimming'

71) SHARON OUT\^ SWIM
   'Sharon went outside for a swim'

The distinction of distance is similar to that in English between 'to go out' and 'to go outside'.

The notion that OUT\^ and OUT\_| should be considered as verbs receives further support from the following pair of sentences:
72) CAT WANT OUT^[X:iter]
    'The cat wants (to go) out all the time'

73) CAT WANT OUT⊥^[X:iter]
    'The cat wants (to go) out all the time'

Both forms, proximal and distal, can be modulated with an inflection identified as iterative in meaning (Klima and Bellugi, 1979). This modulation can be applied to punctual verbs such as '(take a) LOOK-AT' and adjectival predicates, such as '(become) SICK'. The fact that both OUT^ and OUT⊥ can be so inflected offers strong evidence that they should both be considered verbs.

Notice that the proximal/distal contrast is neutralized when these forms are so inflected. This neutralization is not unheard of in other reduplicated forms. The sign GO-TO can be modified for distance. In its unmodified form it connotes a relatively nearby goal. Its reduplicated form has been frozen as ATTEND ('go to regularly/again and again'); this form no longer connotes distance at all. (This fact was pointed out to me by Sharon Neumann Solow.)

The two related forms, OUT^+ and OUT⊥+, do not seem to be so strongly distinct from each other. They are, however, readily distinguished from the first pair, OUT^ and OUT⊥.

74) WEDDING OUT^
    '(For the) Wedding, (we) went outside'
75) \[ \text{WEDDING} \left\{ \text{OUT}_{\uparrow}^{\uparrow} \right\} \]

'The wedding (took place) out of doors'

76) \[ \text{*WEDDING} \quad \text{OUT}_{\downarrow} \]

Both \text{OUT}_{\uparrow}^{\uparrow} and \text{OUT}_{\downarrow}^{\downarrow} appear here to be adverbial in meaning, rather than active verbs, although this is not necessarily a consistent distinction (see below).

As stated above, they do not carry such strong proximal/distal connotations as their single-movement counterparts. They can occur in the same slot, and denote only slight distinctions, if any:

77) \[ \text{SUMMER TIME} \quad \text{A-N-D-Y} \quad \text{TEND SLEEP} \left\{ \text{OUT}_{\uparrow}^{\uparrow} \right\} \]

'In the summer, Andy usually sleeps outside'

78) \[ \text{CAT WANT} \quad \text{OUT}_{\uparrow}^{\uparrow} \]

'The cat wants out'

79) \[ \text{CAT WANT} \quad \text{OUT}_{\downarrow}^{\downarrow} \]

'The cat wants out'

Either form can appear in 77), without indicating much distinction in distance. The sole distinction between 78) and 79) is that 79) indicates a slightly farther distance; this distance is not particularly significant, and the distinction was only made upon my insistence. If the two are compared, it seems that \text{OUT}_{\uparrow}^{\uparrow} has a more clearly proximal
meaning, 'outside but nearby'; OUT₁⁺, by contrast, seems to have a more nearly neutral meaning, 'outside, neither near nor far.' Notice, for instance, 80):

80) \(\text{CS}\) SNAKE \(\text{there}\) OUT₁⁺

=34)

'There's a snake outside (the house)'

This is pragmatically limited to being uttered within the house. Notice that 'cs' occurs here with the deictic, indicating in this instance spatial proximity.

Although constituent order has been discussed in Chapter II, OUT presents some interesting facts worth discussing here. Looking at the following data, we notice that OUT follows transitive verbs, but precedes intransitives:

81) BOX⁺⁺ LARRY BRING OUT₁⁺

'Larry took the boxes out'

82) SHARON OUT₁⁺ SWIM

= 71)

'Sharon went outside to swim'

83) BABY SHARON TAKE₁ R OUT₁

'Sharon took the baby out'

84) SHARON OUT₁⁺ SHOP

= 68)

'Sharon went out shopping'

85) COFFEE ME LEAVE OUT₁⁺

'I left my coffee outside'
86) CHILDREN NOW READY OUT₁+ PLAY

'The children are ready to play outside'

87) BOX++ ME BRING OUT₁+

'I carried the boxes outside'

88) WASH—DISHES DISH+_ FINISH OUT₁+ READ+

'When I'm done washing the dishes, I'm going out and read'

In each case, when any form of OUT occurs with a transitive verb, OUT is the final constituent. When OUT occurs with an intransitive verb, that verb is the final constituent in the string, and OUT is penultimate.

From this, we might make the generalization that transitivity of a companion verb is the crucial factor in deciding the order of OUT. That is, if the subject NP of the utterance is 'out', OUT will be penultimate; if there is a direct object which is 'out', OUT is the final constituent.

There are, however, some data which appear to violate this generalization. In 89) and 90), below, OUT appears before PAINT and PUT, both transitive verbs:

89) TABLE BRING OUT₁+ PAINT

'I took the table out and painted it'

90) OLD FURNITURE D₀ THINK PUT OUT₁ PUT++
'I think I'll put the old furniture outside and arrange it (on the patio?)'

These data are actually in congruence with the generalization, however. There is an overall rule in ASL that constituent order tends to follow order of occurrence in the real world (Fant, 1977). The occurrence of PAINT (89) and PUT (90) is explained by this 'time-order principle'; they are properly viewed as separate predicates.

Two other strings have OUT occurring after intransitive verbs:

91) CHILDREN V-A GO-AWAY OUT+A PLAY
'Virginia sent the children outside to play'

92) MONKEY ... SPLIT OUT+A FINISH
'The monkey ran outside'

Notice that, although the equivalent English string in 91) uses a transitive verb, 'send', the ASL utterance is in the form of a direct quote. The most important thing to notice about the two verbs here is that they are both motional. In this case, OUT seems to be functioning as a locative adverb. It may be that when OUT is functioning in this way, it is ordered after the verb.

If this is the case, it would explain the following:

93) CHILDREN PLAY OUT+A IN+ WHICH
'Are the children playing outside or inside?'
94) T-A-R-A SIT OUT\_+
'Tara is sitting outside'

95) LARRY WORK OUT\_+
'Larry is working outside'

In the case of 93), it is the location of the children which is unknown, and therefore is focussed upon. CHILDREN PLAY is known information and is thus mentioned first.

In 94) and 95), the two verbs SIT and WORK refer to actions which could properly take place either inside or outside. Thus, the location becomes the item of interest and OUT functions as an adverb, rather than a verb. Notice that when the order is reversed, OUT must be a predicate:

96) T-A-R-A OUT\_/, SIT
'Tara went outside and sat down'

The same notion will account for 97):

97) PAST MONTH MY NEPHEW TWO NIGHTLY SLEEP OUT\_+
'Last month my two nephews slept outside every night'

Notice that this is parallel to 77). The different ordering of constituents in 98) and 99) suggests a stronger generalization:

98) PAST MONTH MY NEPHEW TWO NIGHTLY \{OUT\_+/\{OUT\_+/\text{iter}\}\} SLEEP
'Last month my two nephews went outside every night to sleep.'

99) ^PAST MONTH MY NEPHEW TWO NIGHTLY SLEEP
    OUT_{iter}

Notice that 99) is ungrammatical because of the iterative modulation on OUT_{iter}. Since such modulations are permitted on predicates, and since that form is permitted in penultimate position in 98), this suggests a generalization.

It appears that when OUT occurs after intransitive verbs, it is an adverb. Of more interest is that OUT after transitive verbs can also be profitably considered as adverbial in function. An important exception is OUT_{iter}.

OUT_{iter} does not normally occur after intransitive verbs. And, in fact, OUT_{iter} appears to have no adverbial functions.

100) BOX^{RC} LARRY CARRY OUT_{iter}

'The boxes that Larry took are gone'

OUT_{iter} must have a motional meaning. Notice 101) and 102), which have only one verb:

101) ^WEDDING OUT_{iter}
    = 76)

102) WEDDING Nod OUT_{iter}

'When the wedding was over, we went (out)'

It can be argued that the nod between the two signs should
be considered a verb (Coulter, 1979). This, however, is not crucial to the argument here. The point is that because it is motional and distal, OUT\_ cannot otherwise occur in this string, although the other three forms can:

\[
\begin{align*}
103) & \quad \text{ WEDDING } \overline{\text{CC}} \{\text{OUT}_A^+\} \{\text{OUT}_I^+\} \\
& = 75 \\
& \quad \text{'The wedding was outside'}
104) & \quad \text{ WEDDING } \overline{\text{CC}} \text{ OUT}_A \\
& = 74 \\
& \quad \text{'For the wedding, (we) went outside'}
\end{align*}
\]

I would suggest that when OUT\_A^+ or OUT\_I^+ occurs alone, as in 103), they are functioning as stative verbs. And, in fact, it is most likely that an economical statement of the facts will hold OUT\_A^+ and OUT\_I^+ to be stative verbs ('to be out (side)') which can function adverbially. Similarly, OUT\_A should be considered a motional verb ('to go outside') which can function adverbially. OUT\_I, by contrast, is a motional verb ('to go (outside)') which does not function adverbially.

In summary, there are four forms which encode the semantic notion 'out'. One, OUT\_I, is a motional predicate and is probably correctly collapsed with similar forms meaning 'gone', as indicated in DASL (Stokoe, 1965). It can contrast, as a distal form, with OUT\_A, 'to go outside'. The latter is also a motional predicate and is proximal in meaning. Both these forms can be modulated by at least the
inflection meaning 'repeatedly.' When this is the case, the proximal/distal contrast contrast is neutralized.

Two other forms, $\text{OUT}^+\text{A}$ and $\text{OUT}^+\text{l}$, have quick double movements. They are stative in nature and mean 'to be out (side)'. The proximal/distal contrast is partially neutralized. The functions of both these forms, as well as the function of $\text{OUT}^\text{A}$, vary depending on co-occurrence with other verbs.

As adverbials, $\text{OUT}^\text{A}$, $\text{OUT}^+\text{A}$ and $\text{OUT}^-\text{l}$ appear post-verbally. They function as such after transitive and intransitive verbs. As predicates, they occur pre-verbally before intransitives or as complements of higher predicates such as WANT.

4.4. In looking into most instructional texts on sign language, one finds signs for 'prepositions' of a wide variety (O'Rourke, 1978; Riekehof, 1978; see Baker and Cokely, 1980 for an outstanding exception). In looking at the data collected for this dissertation, one finds locational meanings of a wide variety, but relatively few instances of adpositions. One also finds adpositional and locative forms in the data which do not appear in texts. This incongruency is a result of two sets of factors: social and linguistic.

4.4.1. One social factor is the possibility that at least as many hearing people as deaf people use some form of sign language (Woodward, personal communication). Deaf
people rarely use ASL in the presence of hearing people and most hearing people do not know ASL, but rather a pidginized form of ASL and English (see Chapter I). Despite this, it is hearing people, in the main, who produce texts for teaching sign language. These have not been, in the past, language texts in the generally understood sense of the word. Rather, they are glossaries of sign-to-English equivalencies.

Traditionally, signing skills have been taught in a fashion that reflects the implication of such texts: that one should learn a sign for a word and that ASL either has no grammar or is merely a shortcut version of English ("Leave out the short words" has often been the advice on how to sign ASL). Hearing people learning to sign (but not to sign ASL) thus are reinforced by text and often by instruction in their need to have a sign for all English words, certainly including English prepositions.

Other social factors are related to the phenomenon of wide-spread bilingualism in the deaf community. Deaf people in the United States, when they are literate, are literate in English. Educational programs for hearing-impaired children are imbued with an attitude of English supremacy over signing (Woodward, 1975). Even those programs embracing a philosophy of "Total Communication" (see Chapter I), seldom make ASL a functional portion of their curriculum (Cokely, 1978; Woodward, 1978b). Most hearing-impaired people have hearing parents (Rainer, et al., 1963).
Deaf adults are under-represented in the staffing of educational institutions serving the deaf population (Cokely, personal communication). English, then, in whatever form, is transcendant in the lives of deaf children, whereas ASL is seldom consistently or formally represented.

As a result, ASL is often devalued, even by the community of users (Stokoe, 1970). (This situation has been changing for the past several years, albeit slowly.) Often status in the deaf community is accorded not necessarily to skilled ASL signers, but rather tends to be given to those post-lingually deafened members whose English skills match or exceed their ASL abilities (Stokoe, et al., 1980). These social factors work towards retention of sign forms which are more suited to signing in English than in ASL.

4.4.2. As has been stated, in situations requiring formal usage or in contact with hearing signers, PSE is the generally preferred dialect. As Supalla points out (in explaining why classifiers are often thought to be outside of "real" ASL), frozen forms are generally single-morpheme units and more nearly match English morphology (Supalla, 1978, p. 27). The prepositional forms taught to hearing signers are just such frozen forms. Given that deaf signers, when they use PSE, and hearing signers can likely process mono-morphemic units more easily, the mono-morphemic prepositions are maintained for just such needs.

The normal means of expressing locatives in ASL—
deictics and classifier constructions—are often outside the skills acquired by hearing signers. More to the point, however, is that the grammars of the two systems--ASL and PSE--are different. This has been discussed at length elsewhere (Reilly and McIntire, 1978; Woodward and Markowicz, 1980); one small piece of data is added here. In the data for this dissertation, I asked one consultant to re-tell one of the stories (Corduroy) in PSE. A detailed discussion of differences between the two versions is not germane here (see Reilly and McIntire, 1978), but one point is relevant. Adpositions in the PSE version outnumber those in the ASL version by three to one. While this is not conclusive evidence, it does indicate the degree of difference between locative expressions in ASL and PSE.

Locative adpositions, then, are used sparingly in ASL. IN, UNDER, and OUT are those most commonly used. Unmodified forms of adpositions are used in PSE; because of the bi-dialectal communication patterns of deaf signers, these forms are maintained, despite their small load in ASL.
Chapter V

Summary

In Chapter II, I discussed some of the proposals made in the past regarding ASL constituent order. I concluded that notions such as subject and object were less helpful than topic and comment. Locative and motional verbs are mostly utterance-final. Otherwise, considerations of "old" vs. "new" information are the crucial factors in deciding the ordering of nominals.

Chapter III was a discussion of classifier constructions. Supalla's analysis of this class of signs as a set of discrete morphemes was found to be the most profitable approach. I have suggested several directions in which Supalla's framework can be expanded. A constraint on the co-occurrence of classifiers and lexical signs suggests a test for the morphological status of handshapes in frozen forms.

Chapter IV focusses on various syntactic constructions used to encode locative and motional propositions. Adpositions are the least likely construction to be used. Three locative adpositions which do occur frequently in the data---IN, UNDER, and OUT---are examined. They function as verbs or locative adverbs. A wide range of adpositions are maintained in the ASL lexicon because of bi-dialectical needs.
for communication with hearing signers.
APPENDIX A

Stories Used for Collection of Narrative Data

Original Story

One day, Mel came to visit at Virginia's house. He brought with him his two pet monkeys. He pulled up in front of Virginia's house and told the monkeys, "Put your jackets on." (These were very clever monkeys!) The monkeys just looked at him. Then he said, "Where are your jackets? You are probably sitting on them." The monkeys looked underneath where they were sitting, but no jackets. Mel said, "Look under the blanket on the floor." Sure enough, the monkeys' jackets were on the floor, under the blanket. The monkeys picked up their jackets, and, because they were feeling mischievous, threw them out the window. "Oh no!" cried Mel. "I've told you not to throw things out the window." He got out of the car, picked up the jackets and handed them through the open window to his mischievous pets. They put them on.

"Okay, you two can get out now," said Mel. "Do you want to come through the window or can you climb over the seat and get out through the door?" One monkey climbed over the seat and out the door, with his friend right behind him. The monkey in front had a blue jacket, while the monkey
behind had a green one. Mel walked behind the monkeys to Virginia's front door.

All three of them knocked on Virginia's door, and when she opened it, she was a little surprised that Mel had come with his monkeys. But she smiled and said, "Come on in. Everybody else is in the kitchen." She headed off toward the kitchen ahead of Mel. But the monkeys, because they knew how Virginia's house was arranged, went around through a different door. They got to the kitchen before Mel and Virginia did.

Side by side, they stood in the doorway of the kitchen, looking for cookies. They had been to Virginia's house before, and they knew that she always had cookies for her visitors. The one in the blue jacket jumped onto the table where the punch bowl was sitting. He had to jump right between Jim and Joan, who were standing near the doorway. When the monkey stood up on the table, he was in the middle of all the people who were standing around the table. He looked behind him and signalled to the other monkey that there were no cookies on the table.

The monkey in the green jacket could see his friend's signal by peering around Jim. He then ran between Jim's legs and under the table. Imagine that! One monkey on the table and the other one underneath. All the people who were standing around the table started to laugh.
Just then, Virginia and Mel came into the room. They saw the monkey on the table, but they didn't laugh. The two of them rushed towards the table, but the monkey got down quickly and hid under the table with his friend.

Jim said, "Hey, Virginia! There are two monkeys under the table." Virginia said, "Yes, I know. The monkeys under the table are Mel's. Maybe we can get them to go outside. Would you please open the door?" Jim opened the back door, but the monkeys wouldn't go out. Instead, Virginia's cat came in and jumped up on the table. Now there were two monkeys under the table and a cat on the table.

Suddenly the monkey in the blue jacket ran out from under the table and got up on the kitchen counter. Then he opened the cupboard and climbed into it. Joan reached under the table to get the other monkey. "Ouch! I've been bitten by the monkey in the green jacket!" she yelled.

"Take that cat off the table," said Virginia. Larry was standing next to her. He reached across the table to get the cat. But the cat was too quick and ran out the door just ahead of the monkey in the green jacket. Just then the monkey in the blue jacket jumped out of the cupboard, over Virginia's head. He landed on the floor behind Larry and ran out the door. Jim closed the door quickly.

Virginia turned to Mel and said, "You can come here anytime. But please don't ever let your monkeys near this house again!"
APPENDIX B

Transcription Conventions
(manual signing behavior)

<table>
<thead>
<tr>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEAR</td>
<td>Signs are written as glosses in capitals</td>
</tr>
<tr>
<td>LOOK-AROUND</td>
<td>Hyphenated words gloss a single sign</td>
</tr>
<tr>
<td>P-A-L-A-C-E</td>
<td>Capitals and hyphens indicate a fingerspelled word</td>
</tr>
<tr>
<td>BED ROOM</td>
<td>Curved superscript links compound signs</td>
</tr>
<tr>
<td>BEAR pro.3</td>
<td>Simultaneously enacted, upper = right hand, lower = left</td>
</tr>
<tr>
<td>WANT THAT BEAR</td>
<td>Line indicates that one hand sustains previous sign while other hand continues signing</td>
</tr>
<tr>
<td>pro.1</td>
<td>Deictic personal pronouns identified as first, second, and third person (Index finger points at self, addressee, obliquely)</td>
</tr>
<tr>
<td>pro.2</td>
<td></td>
</tr>
<tr>
<td>pro.3</td>
<td></td>
</tr>
<tr>
<td>WANT SOMEONE TAKE [X:S→R]</td>
<td>Superscripts indicate inflections and aspectual information (hand enacting TAKE moves from self to right)</td>
</tr>
<tr>
<td>'I want someone (on my right) to take me'</td>
<td></td>
</tr>
<tr>
<td>MOTHER SAY-NO</td>
<td>Subscripts indicate directions (down, right) (U, up; L, left; S, signer)</td>
</tr>
<tr>
<td>DR</td>
<td></td>
</tr>
<tr>
<td>[R]</td>
<td>Indicates that signer's arms come to full rest position at waist or below</td>
</tr>
<tr>
<td>AWAKE</td>
<td>Relevant facial or other non-manual behaviors are indicated on a line over the sign representation; line length represents duration of such behavior relative to manual signing behavior (see Appendix C for symbols)</td>
</tr>
</tbody>
</table>

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APPENDIX C

Transcription Conventions
(non-manual behavior)

Head Orientation

\[ \downarrow \]
Face forward

\[ \langle \rangle \]
Full left, full right profile

\[ \langle \frac{1}{2}, \frac{1}{2} \rangle \]
3/4 profile; left, right

\[ \langle \frac{1}{2}, \frac{1}{2} \rangle \]
Face midline slightly left or right of center

\[ \odot \]
Head down

\[ \langle \rangle \]
Face forward, chin tilt left or right

\[ \downarrow \downarrow \]
Head turn, left or right

\[ \uparrow \uparrow \]
Chin up (with head back)

\[ \downarrow \]
Chin lowered (with head forward)

nod
Affirmative nod (vertical)

NEG
Negative head shake (horizontal)

Eye Gaze (integrated with head orientation)

\[ \downarrow \]
Down

\[ \downarrow \downarrow \]
Down left, down right

\[ \uparrow \]
Closed eyes

\[ \rightarrow, \leftarrow \]
Right, left
Body Orientation

Right shoulder raised
Left shoulder raised
Shoulders horizontal, body leans left
Shoulders horizontal, body leans right
Right shoulder rotated toward addressee
Left shoulder rotated toward addressee

Facial Gestures

Raised eyebrows
Furrowed brows
Wide open eyes, "Big eyes"
"Squinched" nose, wrinkled bridge
Tensed labio-nasal muscles
"Bar mouth," tight-lipped smile
Tense depressor angui-oris muscle DAO
Closed mouth, lower lip protrudes
th  Tongue extended interdentally
o  Pursed protruding lips
pɔ̃  Puffed out cheeks
tʃ  Tense chin
ɔ  Jaw relaxed, mouth open
Appendix D

Symbols for Writing the Signs of American Sign Language
(from Stokoe, Casterline, & Croneberg, 1965, endpapers)

Tab Symbols

Ø  zero, the neutral place where the hands move,
in contrast with all places below

⊙  face or whole head

⊙  forehead or brow, upper face

⊙  mid-face, the eye and nose region

⊙  chin, lower face

∩  cheek, temple, ear, side-face

∩  neck

[ ] trunk, body from shoulders to hips

\  upper arm

\  elbow, forearm

Q  wrist, arm in supinated position (on its back)

D  wrist, arm in pronated position (face down)

Dez Symbols
(some also used as tab)

A  compact hand, fist; may be like 'a', 's', or 't'
of manual alphabet

B  flat hand

5  spread hand; fingers and thumb spread like '5'
of manual numeration

C  curved hand; may be like 'c' or more open
contracted hand; like 'e' or more clawlike

"three-ring" hand; from spread hand, thumb and index finger touch or cross

index hand; like 'g' or sometimes like 'd'; index finger points from fist

index and second finger, side by side, extended

"pinkle" hand; little finger extended from compact hand

like G except that thumb touches middle phalanx of second finger; like 'k' and 'p' of manual alphabet

angle hand; thumb, index finger in right angle, other fingers usually bent into palm

"cock" hand; thumb and first two fingers spread, like '3' of manual numeration

tapered hand; fingers curved and squeezed together over thumb; may be like 'o' of manual alphabet

"warding off" hand; second finger crossed over index finger, like 'r' of manual alphabet

"victory" hand; index and second fingers extended and spread apart

three-finger hand; thumb and little finger touch, others extended spread

hook hand; index finger bent in hook from fist, thumb tip may touch fingertip

"horns" hand; thumb and little finger spread out extended from fist; or index finger and little finger extended, parallel

(allocheric variant of Y); second finger bent in from spread hand, thumb may touch fingertip

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Sig Symbols

\[
\begin{align*}
\uparrow & \quad \text{upward movement} \\
\downarrow & \quad \text{downward movement} \\[1ex]
\uparrow \downarrow & \quad \text{vertical action} \\
\uparrow \uparrow & \quad \text{up-and-down movement} \\
\rightarrow & \quad \text{rightward movement} \\
\leftarrow & \quad \text{leftward movement} \\
\rightarrow \leftarrow & \quad \text{sideways action} \\
\rightarrow \rightarrow & \quad \text{side-to-side movement} \\
\rightarrow \rightarrow \rightarrow & \quad \text{movement toward signer} \\
\rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{movement away from signer} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{horizontal action} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{to-and-fro movement} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{rotary action} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{supinating rotation (palm up)} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{pronating rotation (palm down)} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{twisting movement} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{nodding or bending action} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{opening action (final dez configuration shown in brackets)} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{closing action (final dez configuration shown in brackets)} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{wiggling action of fingers} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{circular action} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{convergent action, approach} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{contactual action touch} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{linking action, grasp} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{interaction} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{crossing action} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{entering action} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{divergent action, separate} \\
\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow & \quad \text{interchanging action}
\end{align*}
\]

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