

## Historical Change: From Iconic to Arbitrary

**3** One way to explain the paradox of a language that has its roots in iconicity and yet is abstractly structured is to observe its changes over time. ASL signs exhibit diachronic development in the direction of increasing abstract formational constraints. When signs have changed, they have changed in ways that have made them more conventional in form and thus more arbitrary in meaning. Historical changes confirm that the language as a whole has become more systematic: it has limited the number of possible formational specifications for each of the parameters and has used these more efficiently.

We can trace changes in some ASL citation-form signs over the past two hundred years. The earliest records are not American but French; the history of American Sign Language is intimately related to the history of the education of the deaf and has roots in France during the Age of Enlightenment. In the middle of the eighteenth century, Charles Michel de l'Épée, a priest dedicated to providing education for indigent deaf children, developed a new approach to deaf education. Rather than attempting to teach with pictures and words, l'Épée learned the signs that the deaf children in his charge used to converse among themselves and made that the language of instruction. He added to the signs he learned, adapting existing signs or inventing new ones to serve as what he called methodical signs, corresponding to French grammatical formatives or other French terms for which no signs existed; these methodical signs were intended to teach the deaf pupils how to read

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This chapter was written by Nancy Frishberg. Portions of chapter 3 appeared in N. Frishberg, "Arbitrariness and iconicity: historical change in American Sign Language," *Language* 51 (1975): 696–719, and in N. Frishberg, "Some aspects of the historical development of signs in American Sign Language" (Ph.D. diss., University of California, San Diego, 1976).

and write in French. L'Épée described the language of signs he used, Old French Sign Language (O-FSL), in his *La véritable manière d'instruire les sourds et muets* (1784).

The success of L'Épée's system of using sign language as an instructional tool brought him students from other countries who came to learn the techniques and the sign language used in Paris; they then returned home to establish schools for the deaf in their own countries. Though not accepted in England, where oral education was used, L'Épée's method spread throughout western and into eastern Europe (Stokoe 1973).

It was through contact with L'Épée's successor at the Paris National Institute for Deaf-Mutes, the Abbé Roch Ambroise Sicard, that an American learned L'Épée's educational techniques. Supported by a local committee that had determined to establish a school for the deaf in Hartford, Connecticut, Thomas Hopkins Gallaudet, a theology student, went abroad in 1815 to learn techniques for teaching the deaf. After studying with Sicard in Paris for a year, Gallaudet returned to the United States, bringing with him one of the star deaf graduates of the Paris school, Laurent Clerc. Together they established the Abbé de L'Épée's method of instruction at the American Asylum for the Deaf and Dumb (now the American School for the Deaf) at Hartford, founded in 1817. Just as L'Épée had done in France, they combined the signs used by the deaf with methodical signs invented or adapted to correspond to the grammatical formatives of English.<sup>1</sup> Clerc taught for more than forty years; his pupils included not only deaf students but also teachers of the deaf who came to him to study signs.

The development of schools for the deaf with instruction in methodical signs had several effects on the development of sign languages, both in France and in the United States. It brought the signs developed by deaf people into contact with educators who could learn and elaborate on the signs. Moreover, it permitted the development of methodical signs expressing grammatical morphemes of spoken language to be used in educational processes (though the system turned out to be cumbersome for ordinary conversation). The collaboration between deaf students and their instructors is illustrated in Sicard's writing about his pupil Massieu, a deaf man from a deaf family: "There wasn't a day in which he didn't learn more than fifty names, nor a day in which I didn't learn from him the signs of as many objects, whose names I made him write. Thus by a happy exchange, when I taught him the written signs of our language, Massieu taught me the imitative signs of his . . . thus neither I nor my illustrious teacher [L'Épée] is the inventor of the language of the deaf" (quoted in Lane 1976, p. 89).

For the development of the sign languages used today, the most im-

portant effect of a school was that it created a signing community, bringing together deaf people from different parts of the country, each with his idiosyncratic signs, and thus creating the conditions for evolving a language of standardized signing.

A crucial development in both countries was the abandoning of the system of methodical signs, an elaborate attempt to develop a grammatical structure like that of the surrounding culture's spoken language and to graft it onto the existing signs. Methodical forms were used educationally for several years, but the graft did not hold. By the mid-nineteenth century an American visitor to the Paris Institute reported that "the laboriously developed system of methodical signs (so far as those signs represent words and not ideas, or were arbitrarily devised to dictate grammatical particles and terminations) . . . have gradually gone into total disuse and oblivion" (quoted in Lane, 1976, p. 220). Keep (1871) reports that the methodical system developed for English was similarly abandoned by the American School by about 1835: "It was a cumbrous and unwieldy vehicle, ready at every step to break down under the weight of its own machinery" (p. 226). Thus although certain individual signs from the methodical system are still used, the system that imposed the grammar of spoken language onto signs has dropped away.<sup>2</sup> The morphological and grammatical processes that have developed in American Sign Language are indigenous to the language and bear little or no mark of English. (These processes are discussed in part III.)

Through the schools and the signing communities, there has been a continuity of signing tradition in America for the past 160 years. Although a change in educational policy in both America and France in the last part of the nineteenth century all but excluded the use of signs in strictly oral education, within the deaf community sign language has been continuously used. The citation forms of contemporary signs of ASL have their roots in older forms of signs in this country and even occasionally in French signs from the eighteenth century. Thus some ASL signs have a history of two hundred years. Although this is a relatively short span of time as far as language histories go, it is long enough to observe some important kinds of language change.

For a comparison of the formational properties of signs at various stages in ASL history, the earliest stage for which we have evidence is that represented in the work of l'Épée (1784). We can assume that forms described by him represent the standard forms used in the National Institute in Paris up to at least the time that Gallaudet visited the school and came back to America with Clerc. These signs will be identified as Old French Sign Language (O-FSL).

The largest proportion of the older forms of ASL signs come from the

1918 manual by J. Schuyler Long, *The Sign Language: A Manual of Signs*, which lists approximately 1500 signs with their corresponding English glosses and descriptions of the signs' formations; many of the signs are illustrated by black-and-white still photographs. Of the signs given in this source (referred to here as 1918-ASL) about 15 to 20 percent have since undergone formational changes.

The primary source for the forms of today's ASL signs is the *Dictionary of American Sign Language (DASL)*, which lists 2500 signs by their formational components; it provides an English gloss for each sign and often gives usage notes. This dictionary represents a limited lexicon of modern ASL but includes more items than any other reference now available; we shall call these M-ASL.

Other sources consulted include teaching manuals and several films of ASL made around 1913.<sup>3</sup> The sign style in these films is rather formal; thus we can take it to match fairly closely the stage of Long's manual (1918). Because the signs being compared here all come from teaching manuals or other formal language sources, the assumption is that they represent stylistically comparable data at several stages in the language's history.

Careful comparison of the formational characteristics of signs represented in historical sources with the formational characteristics of the corresponding contemporary ASL signs reveals that when signs have changed they have exhibited one or more of several tendencies. One tendency is to focus lexical information in the hands and their movements rather than in movements of the face or body. Another tendency is to displace locations of signs in regular ways within the signing space. A third tendency is toward symmetry between articulators. A fourth is toward assimilation of the formational components of multi-part signs, resulting in a fluidity characteristic of unitary lexical items. All of these changes are in the direction of simplifying visual-manual forms. Some of the particular ways the signs have changed seem motivated by such familiar principles as ease of articulation and ease of perception. Another kind of change seems motivated rather by language-internal considerations: there is a tendency toward generalization of parameter values. In general, when signs change, they tend strongly to change away from their imitative origins as pantomimic or iconic gestures toward more arbitrary and conventional forms.

### *Concentration of Lexical Content in the Hands*

Part of the transition from iconic gestures toward arbitrary signs is the process of limiting articulation to that made with the hands. Our sources provide a great number of examples of signs that once required body and head movement, facial gesture, or environmental contact in

their citation forms but are today limited to movements in the hands alone. We find no citation-form signs that have changed from being made solely with the hands to requiring one of these paralinguistic additions.<sup>4</sup>

The sign BORING in Long's book has the forefinger pressing against the end of the nose, and the head bending forward "as if in obedience to the pressure of the finger" (p. 44). Today the forefinger touches the end of the nose, and a turn of the wrist has been substituted for the head movement (see figure 3.1a).

COMPARE (figure 3.1b) is one of the few signs for which we have information from O-FSL as well as from Long (1918-ASL) and from DASL. Originally this sign was made by holding two flat hands separated, facing the signer, while the eyes moved from one hand to the other; then the hands moved together and the eyes focused on both at once. Long describes a later stage in which the hands, side by side, have begun moving "inward and up before you, side by side, as if [you are] looking at them and comparing palms" (p. 99). In the modern form the two hands simply rock, either in alternation—which can be related to the eliminated eye movements—or in unison: the sign has assumed an increasingly less mimetic, more arbitrary shape.

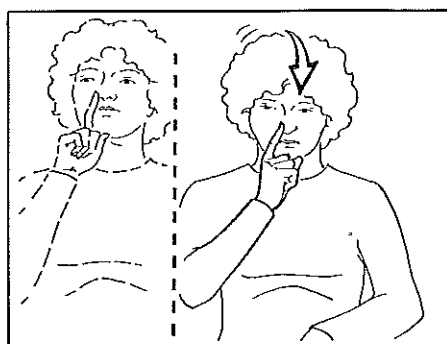
Another example illustrates this point clearly. In the O-FSL sign for THINKING (figure 3.1c) an index finger rested on the forehead and the head moved in a circular motion. Today the index finger moves in a small circle near the forehead, the head itself remaining still: a change replacing pantomime by manual articulation.

At least three signs cited by l'Épée have environmental contact in their description. The description of the O-FSL signs meaning 'able,' 'present,' and 'therefore' included the signers' striking the table in front of them. The signs ABLE, PRESENT, and THEREFORE (M-ASL) bear no relation to the O-FSL forms; nor are there any vestigial forms of these older signs in ASL.

### *Displacement of Signs within Signing Space*

In gesturing or signing, the hands move in space. Pantomime allows body movement as well as use of all the space within reach of the arms. In the process of becoming a language system, signs have been restricted to a particular space for signing. Figure 3.2a illustrates the normal signing space: signs normally do not extend below waist level or above the head, nor beyond the reach of the arms to the sides, with elbows close to the body. Relatively few signs occur at the edges of this space, especially the lateral and lower edges. (Of the large number of signs in DASL, only about ten occur regularly beyond the normal space; six of these are listed as pantomimic.)

Figure 3.1 Concentration of lexical content in the hands.



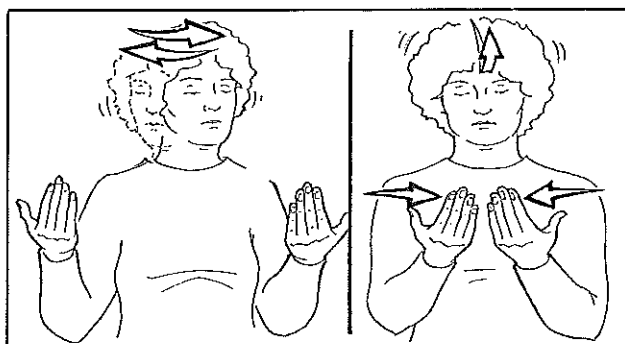
1918-ASL



M-ASL

(a)

BORING



0-FSL



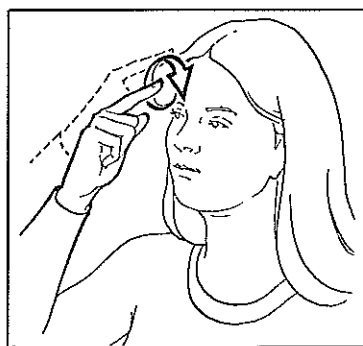
M-ASL

(b)

COMPARE



0-FSL

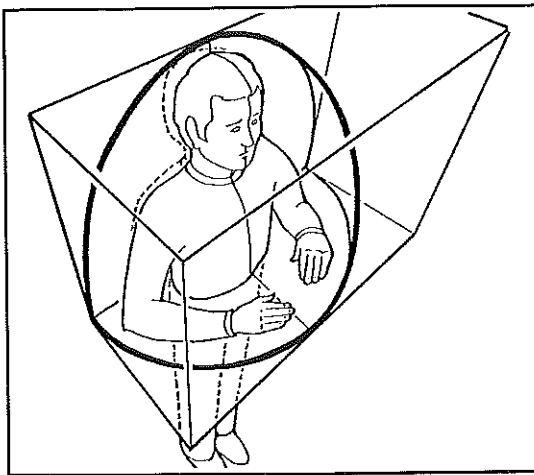


M-ASL

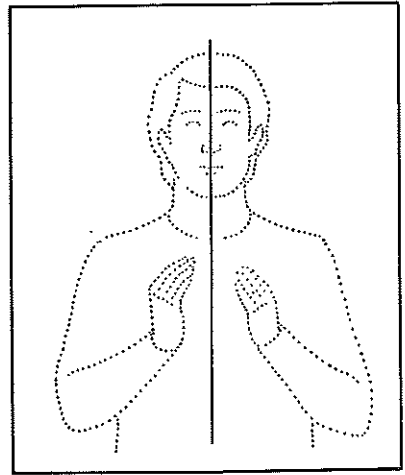
(c)

THINKING

Figure 3.2 The signing space and a partitioning of it.



(a) The area of the normal signing space



(b) The line of bilateral symmetry which attracts signs

Historically, signs have tended to move from the edges to within the signing space, and the space has developed further constraints. Certain crucial axes across the face and body attract signs. The vertical axis that divides the body into two symmetrical halves is one important partition of the space; this is also called the line of bilateral symmetry (see figure 3.2b). The hollow of the neck is the articulatory center of the signing space.

We can characterize the general historical changes in the location of signs—displacement—and the way they correlate with other parameter changes (such as hand arrangement) in the following way. When sign displacement occurs, two-handed signs made in contact with the face tend to become one-handed or tend to be displaced from the center of the face to the periphery; one-handed signs made below the neck tend to become two-handed or tend to centralize, moving in toward the line of bilateral symmetry and up toward the center of the signing space, the hollow of the neck.

Long (1918) cites the following as two-handed signs: CAT, CHINA, COW, DEVIL, HORSE. All of these signs were, and still are, made in contact with the face (on the perimeter), but today they are most often made in one-handed form. We find also a number of signs that have changed location toward the perimeter of the face. For example, PICKLE, a one-handed sign that used to be made in a corner of the mouth is now made lower on the chin. Three signs from O-FSL have moved from the area of the upper lip to on or below the chin: NOTH-

ING, DENY, and WRONG. The first part of the sign for PICTURE, formerly made on the nose, has now moved to the outer cheek (figure 3.3).

Of signs made below the neck, several one-handed signs have become two-handed since Long's time, for instance, HURRY, DIE, ANGRY,<sup>5</sup> and JOURNEY (these last two are illustrated in figure 3.4a,b). A second tendency for signs made below the neck is to centralize—to approach the line of bilateral symmetry. Thus LIKE, PLEASE, LOVE, FEEL, and SWEETHEART (figure 3.5a) have moved from a location over the heart to the center of the chest; whereas these signs previously iconically represented the heart on the left side (as the source of emotions), they now have moved into a more neutral central position. The sign HELP (figure 3.5b) can be seen in historical films with the dominant hand lifting the nondominant forearm from underneath, as if taking someone's arm to help him; today, the much less mimetic sign has the dominant hand pushing up on the centrally located nondominant fist.<sup>6</sup> Centralization has lessened the iconicity of all of these signs.

One other trend in the displacement of signs includes those signs which have moved up from the lower edge of the signing space. WILL ('future') (figure 3.6), ANGRY (figure 3.4a), YOUNG, and TIRED have all been raised from waist level to near the center of the signing space: WILL to near the cheek, the other signs to the chest area.

The tendencies toward displacement support in several important ways predictions made by Siple (in press) about the relation between visual acuity and sign production and perception. She notes that ad-

Figure 3.3 Displacement to the periphery of the face.

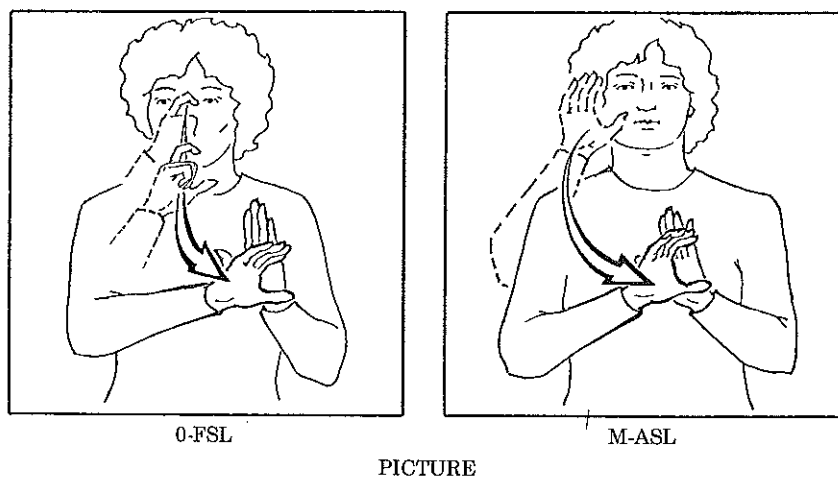




Figure 3.4 One-handed signs that have become symmetrical two-handed signs.

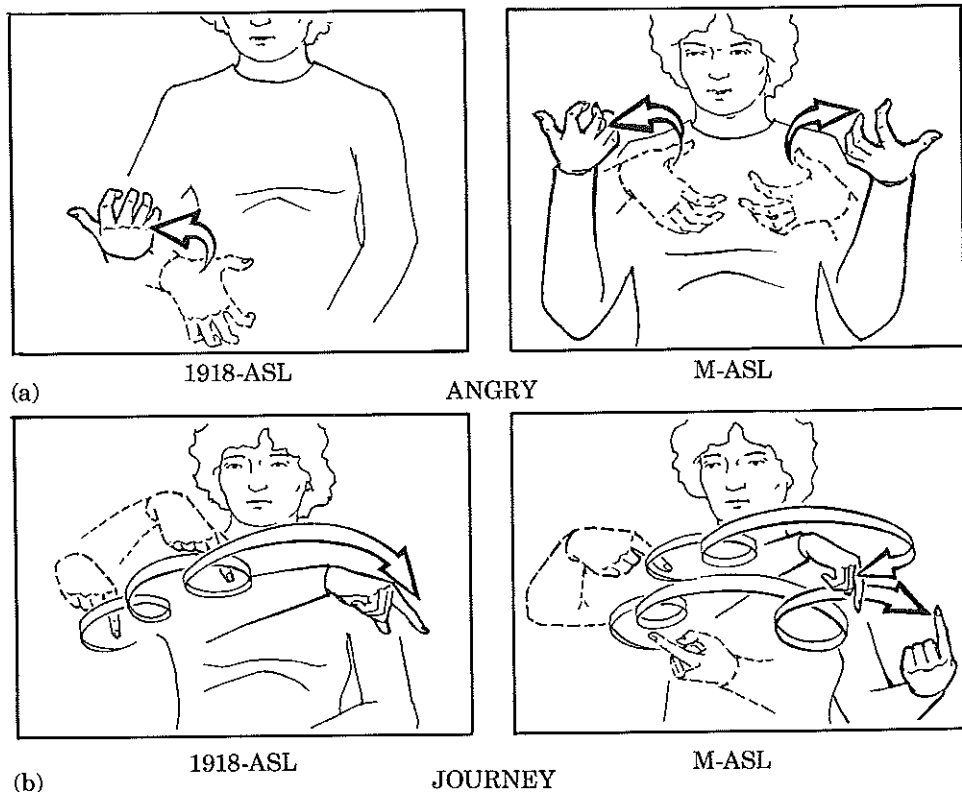


Figure 3.5 Attraction of signs to the line of bilateral symmetry.

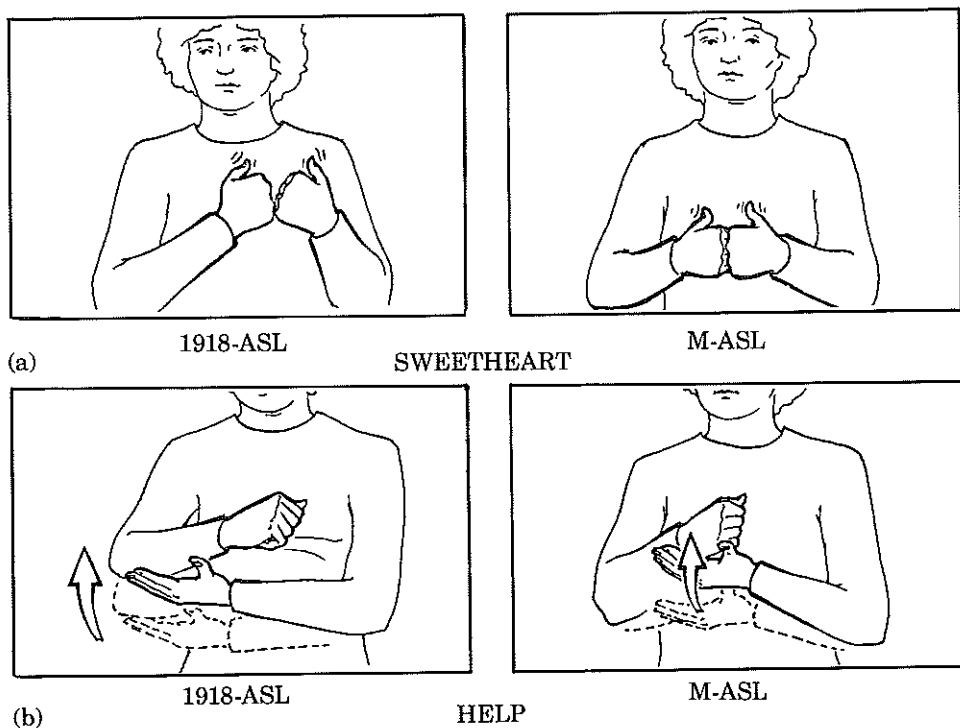
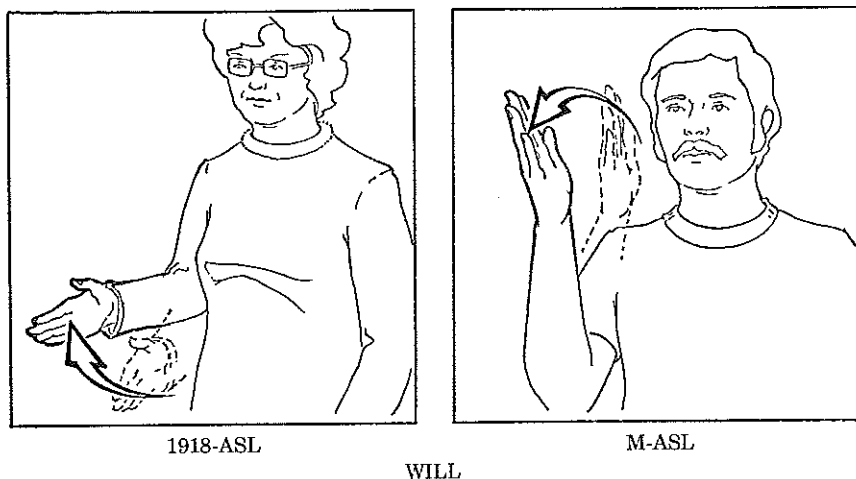


Figure 3.6 Displacement from lower edge of signing space.



дрессеes tend to look at the signer's face when in conversation rather than allowing the eyes to move around the visual field following the activity of the signer's hands. Since visual acuity is not uniform throughout the visual field, we can ask whether signs differ in formation depending on whether they are made in an area of higher acuity (the face), or in an area of lower acuity (below the neck). Siple predicts that signs made around the face will have finer detail with respect to distinctions in all parameters, whereas signs made below the neck will tend to be two-handed, symmetrical, and made with large motions, especially in the horizontal and vertical dimensions.

We have found that when signs change in hand arrangement, they tend to follow these predictions: on the face, signs become one-handed; this reduction, together with displacement to the perimeter, opens the face for paralinguistic information. Off the face, signs tend to become two-handed; as we shall see, these two-handed signs are often symmetrical, presenting the same information to both halves of the visual field.

### *Symmetry in Two-Handed Signs*

Not all hand configurations can occur in all places of articulation with all orientations and types of movement. There are restrictions on what is physically possible to articulate; more importantly, there are arbitrary constraints on the form of signs (see chapter 2). Signs may be made with one hand active, one hand acting on the other as a base, or two hands active. Battison (1974) first articulated a Symmetry Constraint on the formation of ASL signs: if both hands are active, they must be identical in HC and highly constrained in PA and MOV specifica-

tions, and thus be symmetrical. The tendency toward symmetry is observable historically.

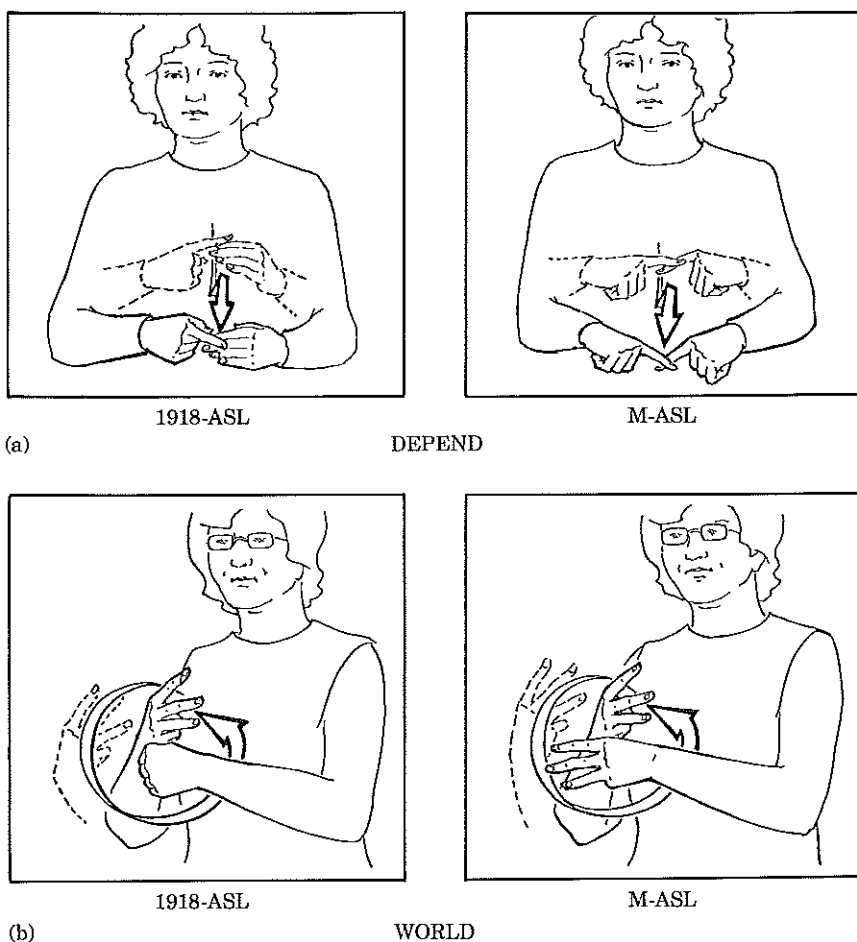
When signs have changed from one to two hands, the second hand has been added in symmetrical HC and MOV. The earlier one-handed forms of the signs ANGRY (figure 3.4a), JOURNEY (figure 3.4b), HURRY, and DIE<sup>7</sup> have all now added the other hand in an identical HC with identical or reciprocal MOV. AMBITIOUS previously had an /A/, or fist, hand brushing upward against the chest once; in the modern form of the sign the two hands are in the same HC, alternating in upward brushes against the chest.

The tendency toward symmetry is also observable historically in signs made with one hand acting on the other as a stationary base. Many such signs today are symmetrical in HC. For some of these the configurations of the two hands once differed; they became symmetrical over time, as the base hand assumed the shape of the active, articulating hand. The sign DEPEND was formerly nonsymmetrical, resting the right index finger, palm side held toward signer, on the edge of the open left hand; in contemporary ASL, both hands have extended index fingers (figure 3.7a).<sup>8</sup> The sign SHORT earlier had on open, flat base hand; that hand has become symmetric with the active hand, assuming its /H/ (index/mid-finger) handshape. The sign WORLD (figure 3.7b) has assumed a /W/ hand as a base, matching the HC of the moving hand. In each of these cases, a base hand has assumed the HC of the dominant or active hand.<sup>9</sup> This tendency is still active in ASL. Although their citation forms have not yet changed, signs such as INSTITUTE, ISLAND, WHISKEY, and HARD, which all have a fist for a base handshape, are often seen in conversational signing with the base hand in the same shape as the articulator.

Symmetry is a pervasive characteristic of two-handed signs in ASL; it facilitates articulation by allowing the signer to program both hands at once; it may ease perception by increasing the redundancy in the signal. The tendency toward symmetry appears in the errors made by children and second-language learners (Battison and Erting 1974). It is also reflected in the slips of the hand made by adult deaf signers; when a one-handed sign becomes two-handed in an error, there is a striking tendency for the added hand to be symmetrical with the first in HC and MOV (see chapter 5). Certainly the tendency toward symmetry is an important process in historical change; because symmetry depends on the existence of two independent articulators for its realization, it has no direct analogue in spoken language.

The tendency toward symmetry represents another pressure toward systematizing the symbols. In pantomimic gestures the hands can be independently used in shape and movement. The tendency toward

Figure 3.7 From nonsymmetrical to symmetrical handshapes.



symmetry in two-handed signs can override their iconic aspect and greatly constrain the form of signs in ASL.

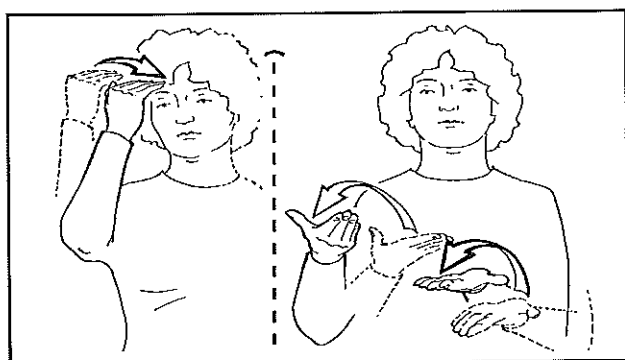
#### *From Multipart to Unitary Signs: Assimilation and Fluidity*

Another kind of historical change is observable in the reduction of multipart signs to unitary signs. In signs that were once two signs used as single lexical units, hand configurations and orientations have become assimilated and movements—especially transitions between parts of compounds—have become smoothed (see chapter 9 for discussion of compound signs in contemporary ASL). The result is a fluidity that characterizes the merging of such compounds into the form of single signs. In the process, the iconicity of the original signs is often diminished, and sometimes completely lost.

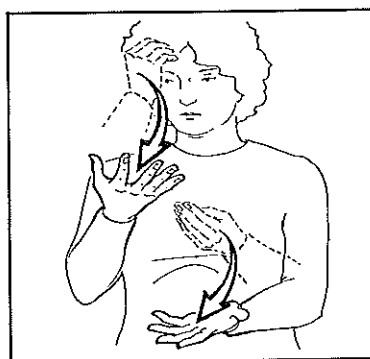
Historically the sign **INFORM** was composed of the two signs **KNOW** (one-handed sign) and **OFFER** (two-handed sign) (Long p. 58). These two parts have now been blended into the form of a single sign characterized by a single opening motion of the hands: one hand is at the forehead and the other is directly below it in neutral space, both opening into the same final configuration as the sign **OFFER** but no longer transparently related to it (figure 3.8a).<sup>10</sup> Another two-part sign that is now blended into a single integrated movement is **GOLD**, previously a compound of the mimetic **EARRING** (grasping the ear lobe) and **YELLOW** (twisting a /Y/, or pinkie/thumb, hand). **GOLD**, now much less mimetic, assumes a /Y/ hand with the index finger extended as well, starting with contact at the ear and moving downward with a far quicker and more integrated twisting or shaking movement.

Still another example, of many possible ones, is the former compound **TOMATO** (figure 3.8b). Long (p. 139) describes a combination of

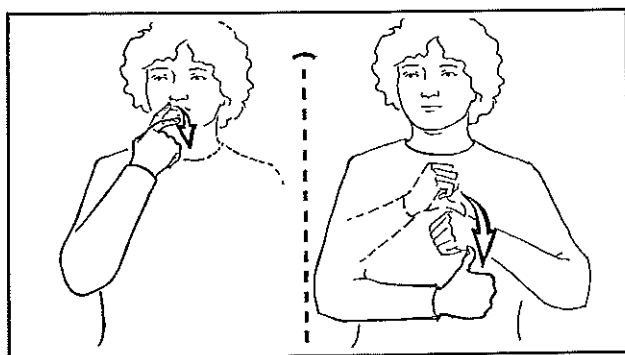
Figure 3.8 The reduction of two-part signs to unitary signs.



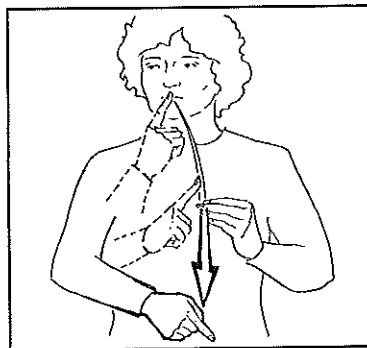
(a) KNOW OFFER meaning 'inform' in 1918-ASL



INFORM in M-ASL



(b) RED SLICE[+] meaning 'tomato' in 1918-ASL



TOMATO in M-ASL

two signs: RED and a form meaning a slice or cut on the hand. The contemporary form has maintained the HC of the first part throughout the whole sign but changed the orientation of RED in anticipation of the second part. The resultant sign no longer resembles either RED or SLICE. Like INFORM and GOLD, TOMATO has become a lexicalized, opaque symbol.

The sign HOME demonstrates how these merging processes are maximized. HOME was previously a composite expression consisting of two highly iconic signs, EAT followed by SLEEP (something like 'bed and board'). In EAT an /O/ hand moves as if bringing food to the mouth; SLEEP is made with the cheek laid on the open palm. As a result of historical change the second sign has assumed the HC of the first, and the PA of the first contact has moved toward that of the second, so that the citation form today is a unitary sign with an /O/ hand touching two distinct places on the cheek (that is, a simple two-touch movement). In conversational signing, we frequently find an even more compact variant of this noniconic HOME, an iterated contact at a single location on the cheek; the two-touch (citation) form is undergoing further change and reduction.

The two parts of other signs have so completely blended that they are now unitary signs with but a single movement. L'Épée, in his description of O-FSL, describes the expression meaning 'for' (French 'pour') as consisting of two parts, with the index finger first touching the forehead and then pointing toward the object. By 1918, when Long described it, FOR had a single movement, a smooth outward twist of the upper arm starting at the forehead, as it is today.

The indexic sign meaning 'we' can be seen in the old movies as a multipart form—a series of separate thrusts, sometimes as many as five or six, first pointing at one's own chest, then at three or four other persons (real or imagined) and finally at the chest again. (WE) was simply made up of (ME) + (YOU)<sub>1</sub> + (YOU)<sub>2</sub> + . . . (YOU)<sub>n</sub> + (ME). Today the sign makes two touches on the chest with a smooth (and small) sweep of the wrist or arm between the touches. (WE) clearly exhibits lexicalization—from a composite, explanatory, and iconic representation of the concept to a more arbitrary form.

We can easily see how maximizing fluid movement makes articulation easier. Flow in a sign implies not simply motion in a single direction but also blending of any separations or fragmentations into a smooth movement. Consistent shape and orientation of the active (moving) hand throughout a single sign also contributes to ease of perception; the single fluid movement cues the viewer that the sign is to be considered as one lexical item.

The tendency for multipart signs to merge into single simplified

units is very strong (see also chapter 9); the loss of iconicity appears not to constrain the merging process at all. The original iconic motivation in the constituent signs is easily lost under pressure from linguistic (language-internal formational) processes.

### *Generalization of Meaningful Parameter Values*

There are families of signs in ASL that share some constant formational element that is also a constant meaning element. This is not unlike certain types of so-called sound symbolism in spoken languages (see Brown 1958). In English, groups of words like *gleam*, *glisten*, *glare*, *glimpse* have in common an initial phonetic shape /gl/ associated with a common semantic element, which Bloomfield (1933) called "unmoving light." (Naturally, not all English words that start with /gl/ share this semantic association, for example, *gland*, *glove*.) Sign families related in both formational elements and meaning are not uncommon in ASL (see Frishberg and Gough 1973). For instance, the bent /V/ HC, [V̥], is a common component of many signs having to do with difficulty. The bent midfinger [8] HC is a common component of many signs having to do with the senses and the emotions. Signs with opposite direction for the movement parameter are often opposite in meaning. Changes in the form of some signs seem to be related to the occurrence of these meaningful parameter values.<sup>11</sup>

The sign STEAL (figure 3.9) has changed from a claw hand, [5], to a bent /V/, [V̥]. The HC now used for STEAL is common to a family of signs that share the meaning of difficulty or socially offensive behavior: DIFFICULT, PROBLEM, HARD, RASCAL, STRICT, MISCHIEVOUS, SELFISH.

Figure 3.9 Change in handshape of the sign STEAL.

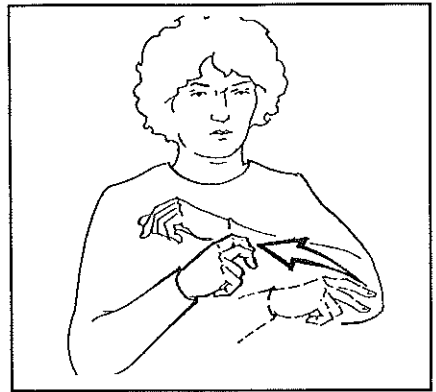
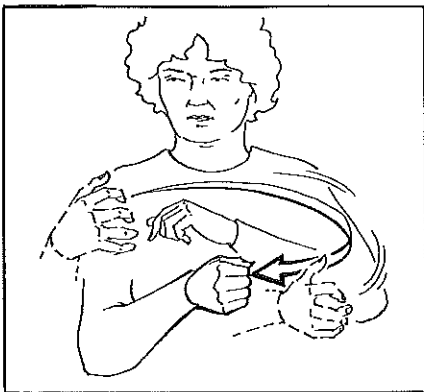
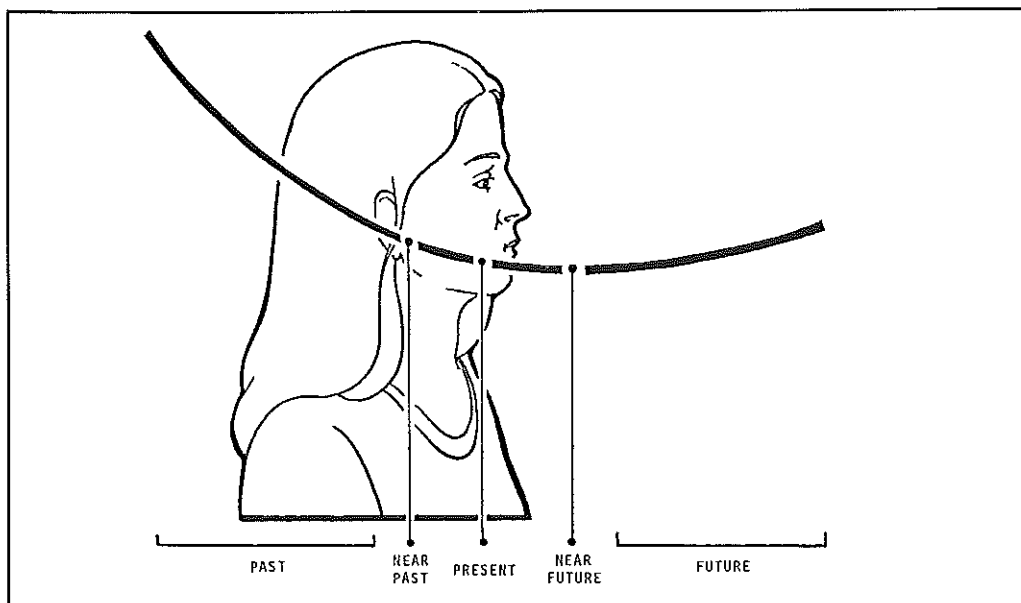


Figure 3.10 The time line, showing points of reference for past and future.  
(Adapted from Frishberg and Gough 1973.)



Long gives the sign LIKE with PA, MOV, and orientation just as in the modern sign; but the HC he indicates is not the spread flat hand with middle finger bent [8] of the current form but rather the closed hand with index finger and thumb tip touching [bO]. The HC now used in LIKE occurs also in the ASL signs FEEL, THRILLED, DEPRESSED, EXCITED, SENSITIVE, TOUCH. Thus the generalization of the common HC to the sign LIKE integrates that sign into a family of signs related to sensation or emotion.<sup>12</sup>

A line along the vertical plane near the signer's ear and cheek, which we have called the time line, is used consistently for many signs that denote time other than the present, signs for 'past,' 'future,' 'tomorrow,' 'yesterday,' 'recently' (see figure 3.10). Such signs were made along the time line in Long's day and have not changed in location. Only the sign WILL was different; it was made very low in the signing space, below the level of the waist. The contemporary sign WILL has moved up into the signing space and joined the other signs that are related by virtue of their occurrence along the time line near the cheek (figure 3.6).

In one of the 1913 films the meaning 'worthless' was conveyed by making two signs: WORTH ('important') and NOTHING. In modern ASL, this meaning is conveyed by a single sign made by reversing the



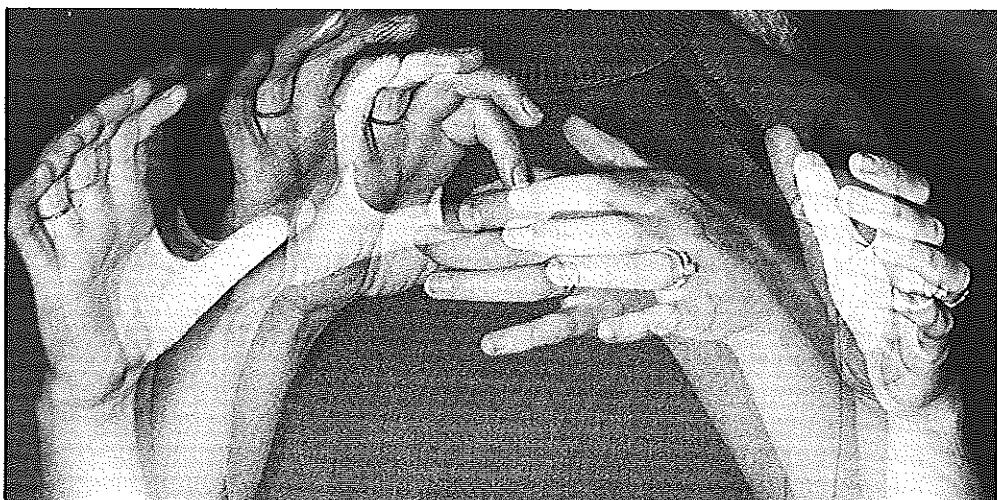
movement parameter of the sign WORTH. Whereas for WORTH the hands move upward into contact with each other, WORTHLESS begins with contact and the hands move downward and away from each other. This use of inverse movement for antonymous forms is found frequently in ASL: THRILLED versus DEPRESSED, JOIN versus DISCONNECT, SET-UP versus COLLAPSE.

These kinds of parameter changes are based on the generalization of primes to which some meaning has already accrued.

Historical change in ASL has occurred at an abstract formational level. The trend of changes—concentrating lexical content in the hands, delimiting and regularizing the use of the signing space, increasing symmetry, smoothing movement—has moved the language from unlimited varieties of articulation to a more well-defined, limited set of specifications for sign formation. Historical changes confirm that the language as a whole has become more systematic. ASL signs are not a random set of unstructured gestures but a systematized set of lexical items undergoing regular, formationally-based change.

Strobe illustration of JOIN and INFORM (photographer, Jerry Miller).

## II. The Structure of the Sign



THE analyses in part I show that there is a continual interplay between the representational character of ASL signs and their encoded character. It is possible to analyze signs in terms of a relatively small set of sublexical formational parameters and to show that these parameters constrain new signs that enter ASL, and even account for the diminishing iconicity in signs over time.

Yet the residual iconicity is readily apparent to signers and even to the untrained observer. The linguistic analysis of signs in terms of simultaneously realized elemental components might, after all, be a description imposed by the analyst, a function of his zeal for cataloging and categorizing. In order to determine whether the internal organization posited for signs is psychologically real for signers, we felt that we needed experimental and behavioral evidence—evidence that the sublexical components are functional for the users of the language. Part II offers such evidence.

A fundamental question about the internal structure of signs is whether the posited sublexical elements play a part in the coding and processing of signs by signers. Chapter 4 reports a series of experiments that study such coding and processing in short-term memory; the results clearly support abstract, sublexical coding for signs. A different approach to this issue is represented by chapter 5, which investigates coding not in an experimental setting but in everyday signing behavior. Involuntary errors that signers make in forming signs provide further support for internal structure and for the independence of internal components.

Even if signs exhibit a systematic internal structure, however, another important question arises: is the system of sign formation within a language so constrained by linguistic rules that certain physically possible gestures are excluded from the language? One approach to this question is to determine whether there exist actual signs in another sign language which are impossible sign forms in ASL. Chapter 6 explores similarities and differences between two independent sign languages to determine whether certain formational elements occur in one but not the other and whether these languages place different restrictions on the combinations of such elements.

Are the structural components of ASL signs, like the sound segments of spoken languages, systematically related as a network of oppositions based on shared features? Chapter 7, a study of perceptual confusions that occur when ASL hand configurations are viewed mixed with visual noise, provides preliminary data with regard to one sign parameter, hand configuration. The analysis leads us to propose a tentative set of underlying features that may constitute the hand configurations of ASL.

The experiments and studies presented here explore the behavioral validity of the internal organization of ASL signs posited on the basis of linguistic analyses. One further characteristic of signs bears on the question of their internal structure. Compared with spoken words, signs are produced with much larger articulations and, unit for unit, are produced at a much lower rate. As chapter 8 shows, however, this difference appears to have virtually no consequences for the rate at which an underlying proposition (sentential information) is produced in the two modes. This intriguing fact leads us to consider the special ways information might be compacted into single sign units, and to consider the effects of simultaneous organization in a visual-manual language.

These studies represent the first steps in an attempt to assess (1) the degree to which the linguistic function puts its distinctive stamp on the form of the lexical items in a primary natural language, regardless of the channel in which the communication develops, and (2) the effects that a radical difference in language mode have on the basic linguistic unit.