Sign Language

Signed languages are visual-spatial languages used as the primary means of communication by communities of deaf people in various parts of the world. The Ethnologue index currently lists 114 Deaf Sign Languages throughout the world.

Like any other language, a sign language requires a language community to develop and to be maintained. In many traditional societies, where deaf people live out their lives in the small communities in which they are born, there is not the "critical mass" of signers needed to create a true sign language. Instead, each deaf person develops an ad hoc sort of pidgin sign language to use with his or her relatives and neighbors.

In Nicaragua, this was the situation until about fifteen years ago, when a residential school for the deaf was established in Managua. Within a few years of the establishment of this school, a full-fledged Nicaraguan sign language came into existence. Pinker discusses this briefly in chapter 2.

A crucial indication that sign language is not just functionally equivalent to spoken language, but in some sense the same thing as far as the brain is concerned, comes from aphasia. Since the modality of input and output is so different in spoken and signed forms of language, we might expect them to be handled by very different parts of the brain, the former perhaps associated with control of the mouth and the processing of auditory signals, the latter with control of the hands and the processing of visual signals. But this is not the case. The correlations of neural damage location and aphasic symptoms in speaking and signing patients seem to be exactly the same. Deaf-from-birth signers suffer from sign-language versions of Broca's and Wernicke's aphasia, as well as other sorts of aphasia, just as hearing people do.

We'll look at American Sign Language as an example of how the basic human drive for language can be realized in a way quite different from a spoken language such as English, and yet very similar in its fundamental principles -- since it arises from the same "language instinct."

American Sign Language

The sign language used in the United States and in anglophone Canada is called American Sign Language, or simply ASL.

ASL is completely different from British Sign Language, for historical reasons: ASL developed out of a system brought to the U.S. in the 19th century by a French teacher of the deaf. The signs used in the French system, combined with signs that had been invented in America, combined to make ASL.

As a result, ASL has more lexical affinities (i.e. similar signs) with the sign language used in France (and francophone Canada) than it does with the sign language of Britain. This helps to drive home the fact that ASL has nothing to do with the spoken English language. Indeed, full-fledged sign languages generally have no affinity with the local spoken language or for that matter with any other spoken language.
Signed English

There are various systems for producing a more-or-less exact signed version of a spoken language like English. None of these are much like true sign language, except that they may share vocabulary, and none of them are in very widespread use.

Perhaps the most important basic fact you should learn about sign language is that ASL is not Signed English -- it's a separate language.

Given, however, that many deaf people in the U.S. have been taught English (in written or spoken form), and some may have had limited exposure to ASL (through oralist education), there exists a continuum of signed language ranging from pure ASL to a signed version of English.

Various sorts of signed English (or "manually coded English") are listed here are:

- SEE 1: Seeing Essential English
- SEE 2: Signing Exact English
- LOVE: Linguistics of Visual English
- Signed English: a particular variety
- Rochester Method: fingerspelling every word (!) while speaking

Pidgin Signed English is said to be "what happens when (English-speaking) adults try to learn ASL." It has variable influences from English syntax, and lacks many of the grammatical and morphological features of ASL, as well as retaining many of the features of English.

However, young children exposed to Pidgin Signed English are said to acquire ASL, or something very much like it. This is similar to the way that hearing children exposed to native and non-native speakers of some language are able to develop native abilities, largely ignoring the imperfections in the non-native speech. You'll recall that Pinker has some discussion of this fact, and what it tells us about the human language instinct.
As an illustration, in signed English, the sign for "run" would be used in all of its English meanings, including:

"to go fast by foot"

Pat ran home.

"for liquid to flow"

The water is running.

"a tear in a stocking"

There's a run in your hose.

"to compete in an election"

Chris wants to run for president.

Because signed English is based on the spoken language, it preserves these homonyms (words with different meanings that all have the same form).

In many spoken languages, different words might be used for these meanings, most or all of them unrelated to one another.

<table>
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<tr>
<th>French</th>
<th>German</th>
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<tbody>
<tr>
<td>courir</td>
<td>laufen</td>
<td>(go fast by foot)</td>
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<tr>
<td>couler</td>
<td>fliessen</td>
<td>(liquid flow)</td>
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<tr>
<td>échelle</td>
<td>Laufmasche</td>
<td>(tear in stocking)</td>
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<tr>
<td>poser sa candidature</td>
<td>kandidieren</td>
<td>(compete)</td>
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Since ASL is a different language from English, it also has different signs for all these meanings.
While the vocabulary of ASL has been influenced by that of English -- just as any two languages in contact show influence -- its lexicon exists independent of English.

Naturally, the various kinds of signed English are intended not as methods of communication in themselves, but rather as ways of teaching deaf people to use English in spoken or written form. This is the oralist tradition of education, which has a checkered past and is controversial today in the Deaf community.

For a hundred years or more, there has been a debate about deaf education between "oralists" and "manualists." As recently as 20 years ago, there were many oralist schools for the deaf where signing was prohibited (on the grounds that it lessened the motivation for deaf children to learn to speak and to lip-read).
Nevertheless, children in these schools would communicate privately in signed languages, which often were largely invented by the children at each school.

Today, the debate in the U.S. has swung so far back in the other direction that some Deaf activists oppose lip reading, hearing aids, and other medical intervention, arguing that the culture of the Deaf community has progressed to the point where attempts to cure or even ameliorate the condition of deafness are a kind of cultural genocide. This lengthy New York Times article on the subject is well worth the time to read.

An orthographic note: for many authors, the capitalized form Deaf is used to reflect cultural affiliation with the Deaf community; the simple form deaf is to describe a physical condition, independent of the cultural situation.

ASL and other sign languages have only been studied carefully by linguists for about 30 years. In the beginning, one of the key issues was to overcome "oralist" prejudices against sign, and to demonstrate its status as a "real" language, as opposed to a form of mime or charades. As a result, much of the work focused on issues of phonology-like aspects of ASL (such as its use of a fixed repertory of hand shapes and motion types), and on fairly direct ASL analogues to morphology and syntax. More recently, linguists have begun to explore some of the fascinating ways in which the visual-spatial medium of sign is used to express linguistic structure in ways not available in the auditory-acoustic medium of speech.

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**Fingerspelling**

One way in which English plays an active role in ASL is through fingerspelling: the use of manual signs to spell out words according to English orthography.

The signs partly resemble written letters, but in many cases seem (in their current form) arbitrary. Most are just static handshapes, but two (J and Z) incorporate movement.
Notice how different British Sign Language is, based just on the manual alphabet. One major difference is that nearly all the BSL signs require two hands, whereas all the ASL letter signs use just one hand.

For nice animated photos of these alphabets, see web pages for the ASL letter signs and the BSL letter signs.

Iconicity

There are two important kinds of iconicity in spoken language -- whereby the form of some word reflects its meaning, however tenuously.

Sound symbolism is one type of iconicity. For example, vowels with a small opening in the vocal tract have a slight tendency to be associated with small things or meanings (little), while vowels with large openings are more associated with big things or meanings (large). Most words do not reflect this tendency: cf. big and small!

Onomatopoeia is another type, since here the name sounds like the thing it refers to. Many birds take names that evoke their call (cuckoo, chickadee, whooping crane), and the names of sounds often are onomatopoeic (boom, splat, snort, tick-tock). There is still a significant arbitrariness -- not all languages use the same words for these birds and sounds! -- but there's an influence on the sound of the word.

There are, of course, degrees of iconicity in visual symbols.
It's crucial to realize that sign language is not just gestures that resemble the thing they refer to. While iconicity played a role -- sometimes a central one -- in the origin of many signs, there is also a great deal of arbitrariness, just as in spoken language.

Consider the sign in Chinese Sign Language for TREE.

And in Danish Sign Language.
And finally in *American Sign Language.*
In all of these we can see the physical shape of a tree (=iconic), but it is evoked in quite different ways (=arbitrary). Indeed, if we did not know that these signs meant tree and were asked to guess their meaning, there are many other words we might come up with just as easily as "tree".

The particular sign is fixed for each sign language, so that the iconic origin is essentially irrelevant for the normal use of the sign.

There is also a tendency for the iconic origin of a sign to be obscured over time, such as when a sign consisting of two parts is merged into one unit.

The same tendency is found in spoken language, whereby the components of a word take on a different history from their independent relatives due especially to sound change. Example: lord was, in Old English, a compound noun hlafweard, made up of hlaf "bread" (= modern loaf) plus weard "guardian" (= modern ward), meaning something like "protector of the food supply". But subsequent changes in the sound and meaning of the word have completely obscured its origin, such that only a linguist would know that it was once a compound, let alone what the constituent elements were.

Entirely analogous is the earlier compound sign in ASL for HOME, which consists of EAT and BED in succession.

This is iconic because it partly encodes the meaning of the main word -- the place where eating and sleeping take place.

Today, the sign is more often used in a reduced form, which combines the handshape for "eat" with the location for "bed."
The new sign *obscures its origin*, just as the reduced pronunciation of *lord* obscures its origin. It's important to understand that ASL, like other sign languages, is not vague mimicry but rather a complex language that uses gesture rather than sound.

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**Handshapes**

An important fact about sign languages, which further demonstrates their status as full human languages, is that each one has a finite inventory of basic handshapes out of which signs are made. This is entirely analogous to the way that spoken languages have finite inventories of phonemes out of which their morphemes are made.

Here are the *unmarked handshapes* in ASL. That means they are used more frequently, are especially common for the non-dominant hand, and tend to be preferred as the end-point of change over time. Deaf children also learn to make these signs first.
These additional shapes are marked. They are generally restricted to the dominant hand, and occur less often overall.
While some other handshapes occur as well, the great majority of signs consist of this quite restricted set of shapes.

Again, these are rather like the individual sounds of spoken language. Just as the human mouth can make far more sounds than are exploited in English, so the human hand can make far more shapes than are exploited in ASL.

Here are two handshapes in Taiwan Sign Language, in the signs for BROTHER and SISTER. They do not occur as standard handshapes in ASL, though you can imagine creative uses of the first one based on the more general use of that sign in American culture.

In both spoken and signed language, the natural tendency toward abstract categorization -- reduction of infinite physical possibility to a small number of distinctive categories -- is strongly evident. It's just that the modality is different here: handshape rather than vocal articulation.

Contact

Another basic property of signs is what part of the handshape makes contact. The rules of contact differ among sign languages, just as handshapes do.

The following examples from Chinese Sign Language make use of the same F handshape found in ASL.
But in ASL, contact is not normally made with the extended fingers in this handshape. Rather, contact is with the thumb and index finger, as in the sign for cat. Such restrictions are analogous to syllable structure in spoken languages -- how elements can be combined.

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**Morphology**

Recall that morphology refers to the internal structure of words, such as *dogs* which consists of *dog + s*. It turns out that sign language has morphology as well, in the sense of modifications made to signs in order to fit the syntactic context, express things like tense and agreement, and derive words of one syntactic class from words of another. A simple example in ASL is the way nouns and verbs are often related.

In many cases, the verb is a single movement, while a related noun consists of two shorter versions of the same movement.

Many other verb-noun pairs are formed in a similar way, such as:

**TO-NAME** and a **NAME**

**PUT-ON-DRESS** and a **DRESS**

Other semantic features can be reflected in various kinds of patterns. Signs for male and female paired terms (such as **MOTHER** and **FATHER**) are often distinguished (at least in part) by the location of the same handshape:

at the **chin** for female

at the **forehead** for male
For examples, see mother and father in the on-line ASL dictionary. (You'll need to download the free QuickTime viewer to view the dictionary properly if you don't already have it installed. The dictionary site has instructions for how to do so.)

Recall that inflectional morphology does such things as marking the person and number in the verb. An English example is the addition of -s to a verb, as in talk-s. This is added to present-tense verbs when the subject is third-person singular (he, she, it).

In ASL, the subject and object of a verb are generally marked by use of the signing space. It's quite natural that ASL makes finer distinctions among participants in some situations than English, since the use of physical space is a powerful tool.

Of course, we've noted that some spoken languages (such as Mohawk) make this inclusive vs. exclusive distinction as well, but English does it only covertly in sentences like May we come in? versus May we go in?

For participants who are not present, the signer sets up an arbitrary location in space to use in referring to that person.

It's possible to specify one, two, three, four, and even five participants by using the symbol for that number as the pointing hand (though with five and sometimes four, many signers don't bother with the specific number -- just as most spoken languages don't).

Here are some examples of the ASL dual, i.e. exactly 2.
Many spoken languages have a dual number (for example Old English had *wit* "we two" versus *we* "we" and *yit* "you two" versus *ye* "you guys/y'all/youse"; more rarely one finds a "trial" that means exactly 3.

Many ASL verbs, called "directional," permit the person reference to be incorporated, so that movement of the basic handshape for the verb determines the participants. A common example is **GIVE**.
The same is true for **LOOK-AT**.
More specifically, this translates as s/he look at you? The "q" notation is used to indicate a question (as part of a careful transcription). In the absence of voice pitch to express intonation, sign languages like ASL use facial expression, in this case raised eyebrows.

Notice the use of two hands to express reciprocal action.

Each hand serves to describe one half of the action.

This is only a taste of the extremely rich morphology of ASL. Here is a paper that explains how head tilt and eye gaze are used to mark additional agreement-like phenomena. Along the way, the paper indicates
some of the ways in which true ASL syntax differs from English. For instance, if the WH-word in an ASL question is displaced, it must be to the end of the clause rather than to the beginning: "John see yesterday who?"

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**Classifiers**

Another aspect of ASL that takes advantage of the visual medium is the set of handshape modifications known as classifiers, which evoke the size and shape of an object.

Note that the possible handshapes are still restricted to a defined set (because these shapes are part of the grammar, even though they originate in visually iconic gestures).

Also, it's worth noting that many spoken languages make fine distinctions regarding the size or shape of some item affected by a verb, often by adding a particular prefix. The meaning is similar to what's found in ASL, but in spoken language it's much less iconic.

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**Social variation**

Spoken language varies according to various aspects of society, including geography, gender, and race. The same is true of signed languages like ASL.

While the signs of ASL are largely shared throughout the country (as are the words of English), there are some instances of regional signs. Here are several for **BIRTHDAY**. (Another strategy is to sign BIRTH plus DAY.)
And for HALLOWEEN: note that all these signs clearly refer to a mask, but in distinct ways that are part of the grammatical structure of the language.
Similarly, there are differences in sign use based on race. This is particularly to be expected given that schools for the deaf were for some time segregated in the South.
And finally, there are differences in sign use based on gender. For example, one study found that men were more likely to use several newer signs, while women tended to use the older form of the same sign. (The older ASL form of HELP, by the way, is nearly identical to the sign still used in French Sign Language.)
As in spoken language, emotive vocabulary (such as *lovely*) is especially likely to show gender differences. These two forms of **TERRIFIC** are used especially when talking about sports events, and males and females at Gallaudet University tend to use different signs.
Gallaudet University, located in Washington, DC, is the world's most prestigious center of learning for Deaf students, and is a very important unifying factor in ASL.