

Linguistic Expression of Category Levels

10 The study of compounding reported in chapter 9 describes one process in American Sign Language for creating new lexical items. A study of the linguistic expression of conceptual category levels illustrates that ASL grammar provides not only the possibility of inventing new lexical items but also rules for inventing (or deriving) entire sets of terms for which discrete signs do not exist.¹

Linguistic expression of category levels is presumed to be based on conceptual categorizations. On the basis of several insightful studies of categorization, Eleanor Rosch (1976) has hypothesized that certain ways of categorizing concrete objects are cognitively efficient. Rosch, Mervis, Gray, Johnson, and Boyes-Braem (1976) have examined the structure of nine taxonomies² of concrete objects. They have provided evidence that we categorize objects at three levels—basic (chair, for instance), superordinate (furniture), and subordinate (kitchen chair)—and that the internal organization of each of these levels is distinct. At the basic level of categorization (chair), perceptual and functional attributes are shared by all or most members of the category but are distinct from the attributes of other basic level concepts within that hierarchy (table). At the superordinate level of categorization (furniture), few attributes are common to all members of the category (tables share few attributes with lamps). Instead, superordinate categories are internally organized around a few prototypical members (chair, table), which alone share significant numbers of attributes with other category members. At the subordinate level (kitchen chair), attributes are

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shared not only by all or most members of the category but also by members of contrast categories (living-room chair).

Because the basic level is the level at which attributes common to members within a category (attributes of chairs, for example) most fully delineate the concept and most clearly distinguish that concept from others at the same level of the hierarchy (tables, for example), the basic level is claimed to be the most natural and useful level of categorization. The superordinate level lacks sufficient shared attributes within each category for attributes to be delineating; the subordinate level lacks sufficient nonshared attributes in each category for attributes to be distinguishing.

These organizational facts are presumed to depend only on the structure of objects in the world and the knowledge people have of them; thus, although specific categories may differ across cultures with different objects and activities, the primacy of the basic level should not be dependent on language.

Category Levels in ASL

Because ASL has developed side by side with spoken American English and is used in the same geographic communities with common cultural settings, it affords a unique basis for comparing the way categories of objects are coded in two languages, uncontaminated by vast differences in artifacts, social values, and the like. At least with respect to simple basic objects such as those in the categories of furniture, tools, fruit, and vehicles, the culture of America is the same for hearing and deaf people; it is only their languages that differ.

An experiment by Rosch and Boyes-Braem (Rosch et al. 1976) first sparked our interest in investigating the linguistic means in ASL for expressing various levels of taxonomies for concrete objects. Their informants were three deaf individuals whose native language was ASL and one hearing linguist fluent in ASL. As stimuli, they used exemplars from the nine taxonomies that have been studied extensively (see table 10.1). Informants were asked about the existence of signs for items at each of the three levels of abstraction—superordinates (for example, vehicle), basic level objects (car, bus, truck), and subordinates (sports car, four-door sedan). Rosch and Boyes-Braem hypothesized that basic level categories are the most necessary in a language. Further, they claimed that ASL has fewer fixed signs at all levels for concrete objects than English has. In such situations, where the lexicon is limited, it should be basic level categories that will be coded; names for superordinate and subordinate categories may be lacking. As they had predicted, basic level terms in ASL were almost

Table 10.1 The six nonbiological taxonomies.

Superordinate	Basic level	Subordinates
musical instrument	guitar piano drum	folk guitar, classical guitar grand piano, upright piano kettledrum, bass drum
fruit	apple peach grapes	Delicious apple, Mackintosh apple freestone peach, cling peach Concord grapes, green seedless grapes
tool	hammer saw screwdriver	ball peen hammer, claw hammer hacksaw, crosscut handsaw Phillips screwdriver, regular screwdriver
clothing	pants socks shirt	Levi's, double-knit pants knee socks, ankle socks dress shirt, knit shirt
furniture	table lamp chair	kitchen table, dining room table floor lamp, desk lamp kitchen chair, living room chair
vehicle	car bus truck	sports car, four-door sedan city bus, cross-country bus pickup truck, tractor-trailer truck

Source: Adapted from Rosch et al. 1976.

as numerous as in English, though there were significantly fewer superordinate and subordinate terms.

Rosch and Boyes-Braem claimed that English has designations for superordinate and subordinate levels that ASL does not have. We have reexamined the taxonomic hierarchies studied by Rosch and her colleagues, concentrating on the nonbiological taxonomies (musical instrument, fruit, tool, clothing, furniture, vehicle). As we will show, ASL does have regular designations for superordinate and subordinate as well as for basic level categories. In fact, in accord with Rosch's notions of categorization, the forms for signs at these three levels are consistent and linguistically distinct across taxonomies.³ Our results confirm Rosch and Boyes-Braem's finding that simple lexical items tend to cohere at the basic level of categorization. This finding does not, however, mean that superordinate and subordinate terms are absent from the language. As in other natural languages (including English), where simple lexical items are lacking, ASL supplies syntactic means for expressing some of these concepts: rule-governed arrangements of signs. While terms at the basic level are generally elemental

single-unit forms, terms at the superordinate level are primarily coordinate compounds of basic level signs, and terms at the subordinate level are primarily conjuncts of single signs and visual descriptive devices. These formal properties of the terms for the three category levels suggest that superordinate and subordinate signs are usually derived from signs at the basic level: they contain basic level signs as their components. In short, Rosch's basic level is formally basic in American Sign Language.

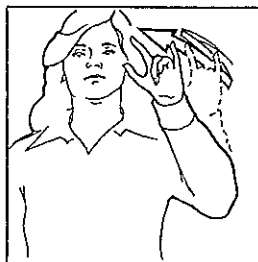
Signs for Basic Level Categories

The basic level is the level of categorization at which perceptual and functional attributes are said to be held in common by members of the category but not by members of other categories at the same level of the hierarchy. In fact, the basic level is the level at which simple lexicalization occurs in ASL. There are common single-lexeme signs for most of the items in the list of basic level objects in table 10.1: GUITAR, PIANO, DRUM, APPLE, PEACH, GRAPES, HAMMER, SAW, SCREWDRIVER, PANTS, SOCKS, SHIRT, TABLE, LAMP, CHAIR, CAR, and TRUCK.⁴ (See figure 10.1 for examples of basic level signs.)

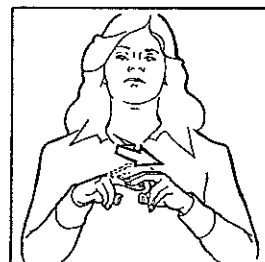
Figure 10.1 Examples of basic level signs in ASL.



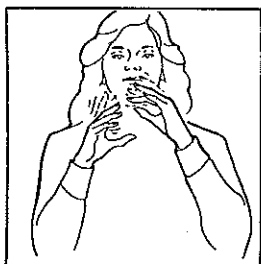
CAR



PLANE



TRAIN



CLARINET



PIANO



GUITAR

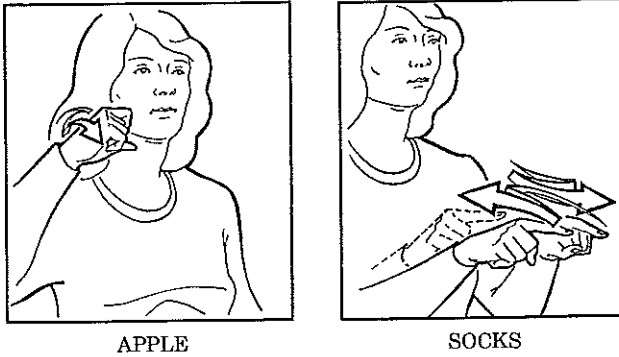


Figure 10.2
Basic level signs
that are not trans-
parently iconic.

What are the properties of these signs and of single-unit signs in general? We have already indicated the basic organization of signs in terms of three major parameters: a unique hand configuration at a unique place of articulation, and with a unique movement. Changing any one of these parameters can produce a different sign: the signs HOME and YESTERDAY differ only in HC, HOME and FLOWER only in PA, and HOME and PEACH only in MOV. For some signs, even signs for concrete objects, these sublexical formational parameters may be the only organization; the forms of such signs as APPLE and SOCKS, for instance, seem related arbitrarily to their meanings (see figure 10.2).

But for many signs for concrete objects, global characteristics of form are visually related to meaning. Often it is a distinguishing attribute of an object at the basic level which is represented iconically in the sign. For example, the sign PIANO represents the motions made by hands and fingers in playing a piano; GUITAR represents those made on a guitar. One could presumably not represent 'piano' by showing that it makes sounds (say, by pointing to the ear) because such a sign would not distinctively represent a piano in contrast to a guitar. When asked to invent a new sign for 'piano,' our informants considered a point to the ear a bad sign. Likewise, a sign that represents sitting in a bouncy, moving seat is a bad sign for 'airplane'; it does not distinguish an airplane from a train or a car.

Other basic level signs in table 10.1 that are considered iconic include DRUM (tapping with drum sticks), GRAPES (a cluster of grapes), HAMMER (motion of hammering a nail), SAW (sawing motion), SCREWDRIVER (motion of driving a screw), PANTS (indication of pant legs), SHIRT (outlining part of body covered), TABLE (horizontal surface), LAMP (radiation of light). In sum, signs at the basic level of categorization are, appropriately, single-unit signs, which often

iconically represent characteristic perceptual or functional attributes of their category members.

Signs for Superordinate Categories

At the superordinate level of categorization, category members are claimed not to share significant numbers of attributes. What, then, is the form of signs for superordinate categories?

There are few commonly accepted single signs in ASL for the superordinate categories of table 10.1.⁵ For example, though some signers have a simplex sign FURNITURE, its use is not widespread. There is a sign DRESS, which can be used as a superordinate term for clothing. For the other superordinate categories in table 10.1 there are no single lexical terms in common use. Our informants indicated that they can, if necessary, borrow from English to fingerspell these terms, but there seems to be a kind of lexical gap in ASL at the level of the particular nonbiological superordinate categories represented here.

There are, however, productive syntactic means by which superordinates can be created in ASL: superordinates can be formed by compounding basic level signs.

In chapter 9 we described the process of forming compound signs with particular reference to compounds that are well-established lexicalized units. The study on which that chapter is based demonstrates that these lexicalized compounds conform to the general linguistic characterizations of compounds: the components are independent lexical items within the language;⁶ the compounds function as single lexical units in sentences of ASL; and the compounds have specialized meaning. The lexicalized compounds are characterized by fixed signs in a fixed order. The distinguishing characteristics that differentiate these compounds from the same signs in a syntactic phrase are rhythmic: a reduction of the first element of a compound and a temporal compression of the compound as a whole. However, we did not discuss syntactically based productive processes of compounding. Our research has uncovered several such processes in ASL.

One process—a special kind of coordinate compounding—is the syntactic means by which terms are created for superordinate categories. An indefinitely large class of superordinate category names can be formed by compounding lower level signs. To express a superordinate concept, three or four basic level signs are strung together and followed optionally by a sign glossed as ETC. The sequence APPLE~ORANGE~BANANA ETC. means 'fruit.' The sequence BEANS~CARROTS~CORN ETC. means 'vegetable.' RING~BRACELET~NECKLACE ETC. means 'jewelry.' Table 10.2 lists additional examples.

Unlike lexicalized coordinate compounds these superordinate com-

Table 10.2 Examples of ASL compounds expressing superordinate concepts.^a

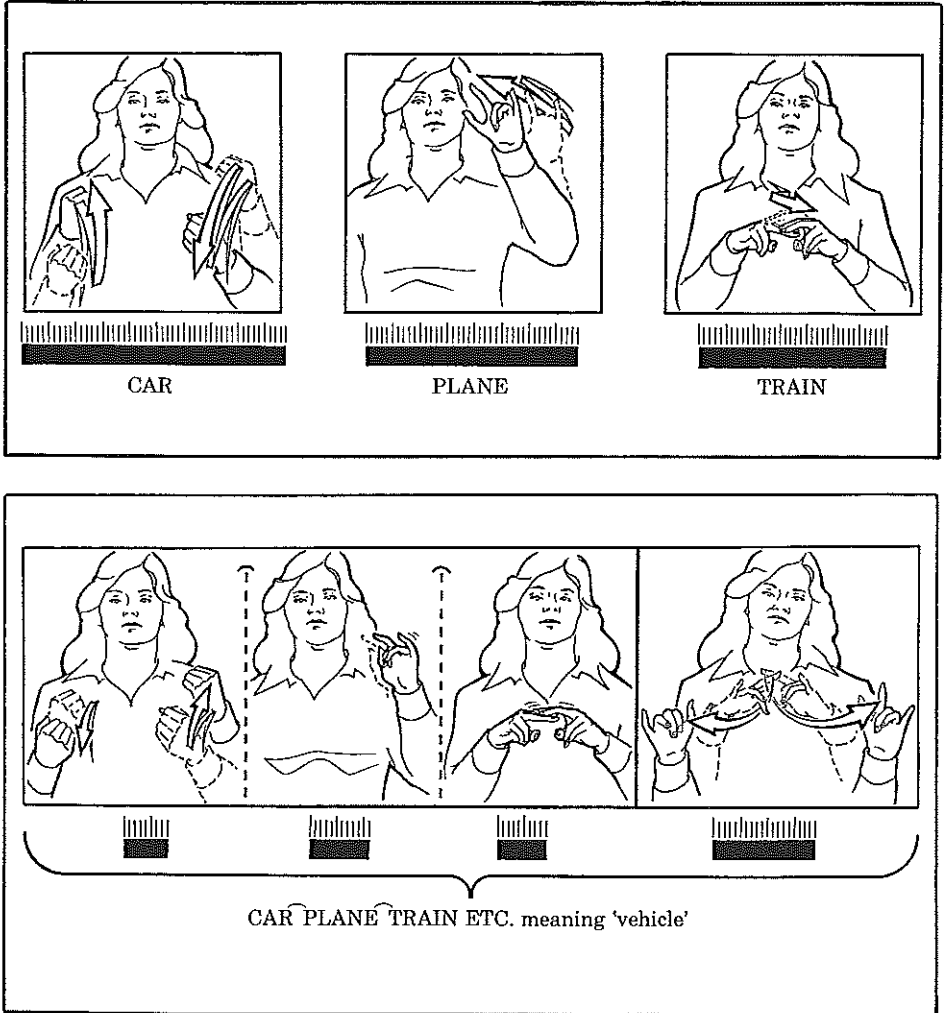
Component signs	Meaning in English
Superordinates from Table 1	
CLARINET PIANO GUITAR ETC.	musical instrument
APPLE ORANGE BANANA ETC.	fruit
HAMMER SAW SCREWDRIVER ETC.	tool
DRESS BLOUSE PANTS ETC.	clothing*
CHAIR TABLE LAMP ETC.	furniture*
CAR PLANE TRAIN ETC.	transportation vehicle
Other superordinates created by compounding	
KILL STAB RAPE ETC.	crime
BEANS CARROTS PEAS ETC.	vegetable
CAT DOG BIRD ETC.	pet*
BEATER CAN-OPENER BOTTLE-OPENER ETC.	kitchen utensil
RING BRACELET NECKLACE ETC.	jewelry
LAWNMOWER RAKE SHOVEL ETC.	garden tool
PANTIES BRA SLIP ETC.	lingerie
CHICKEN DUCK TURKEY ETC.	fowl
GUN KNIFE BOMB ETC.	weapon
MOTHER FATHER BROTHER SISTER ETC.	family*
COW CHICKEN PIG ETC.	farm animal
SWEATER COAT VEST ETC.	outer clothing
FOOTBALL BASKETBALL TRACK ETC.	sports*
CANDY ICE-CREAM CHOCOLATE ETC.	sweets*
ARMY NAVY AIRFORCE ETC.	military service
CAR MOTORCYCLE BICYCLE ETC.	vehicle

a. There are single-unit signs as well as coordinate compounds for the starred categories.

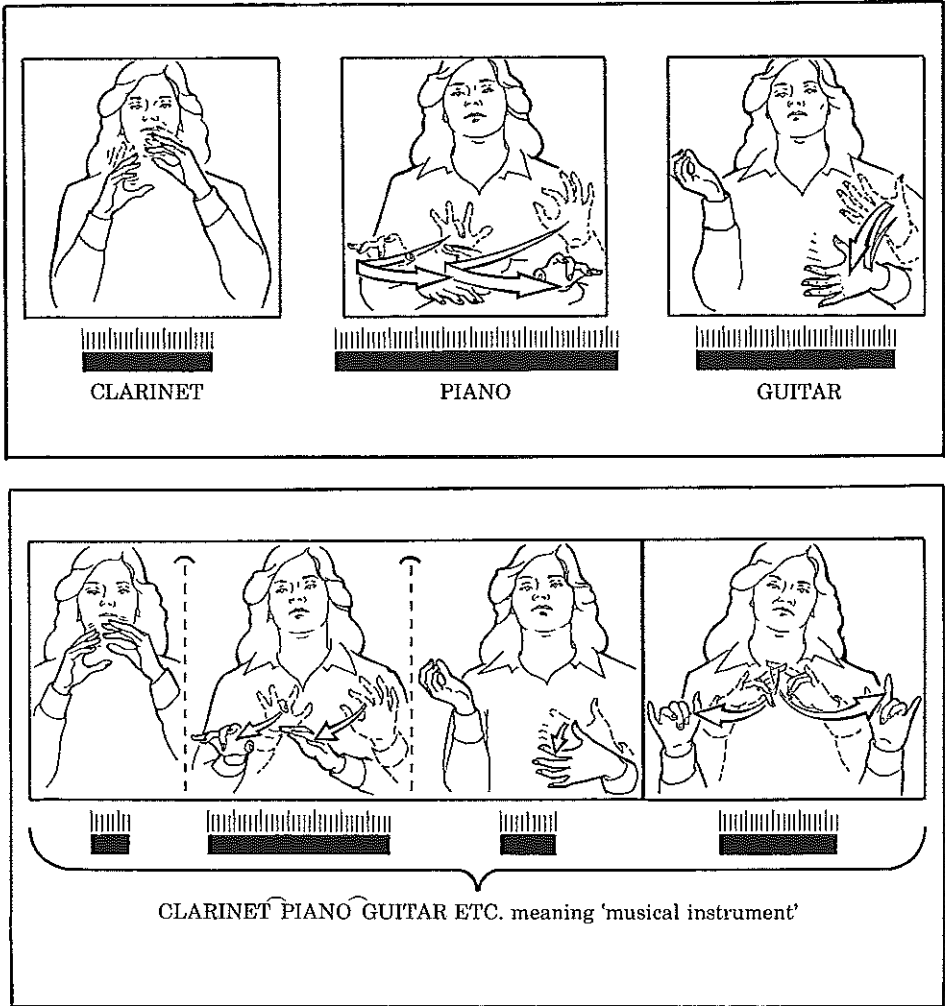
pounds do not have fixed sign order, nor are the particular signs chosen for coordination necessarily the same each time the superordinate meaning is expressed. However, ASL superordinates are not merely ad hoc listings of basic level terms. Their formation is regular and limited in a number of ways: they have special rhythmic properties; they have a special class meaning, not the composite meaning of the list members; their components are selected best examples, or prototypes, for a superordinate category; and they are subject to preferences concerning length limits and ordering of elements.

Rhythmic properties of coordinate compounds. Each sign in a su-

Figure 10.3 Superordinate terms in ASL: coordinate compounds of basic level signs. (Top rows depict individual signs as they would appear in citation form or in a list. Bottom rows depict the same signs as they would appear in a coordinate compound, showing compression of the signs' movements. Time lines indicate temporal reduction in compounds.)



(a)



(b)

perordinate compound is rendered in a physically reduced form: the MOV of each sign is reduced, pauses between signs are minimal or eliminated, and the transitions between signs are minimal. The temporal compression in superordinate compounds differs from the compression in ordinary compounds, where typically the first sign is the one that is temporally reduced. In signing superordinate compounds, there is an equal and dramatic reduction in the MOV of each of the component signs.

Two such superordinate compounds are represented in the drawings in figure 10.3: CAR PLANE TRAIN ETC. (10.3a) and CLARI-

NET PIANO GUITAR ETC. (10.3b). We first show the full citation form of the component signs as they would be made in a list (for instance, the signs CAR, PLANE, and TRAIN). Below each group is a representation of the temporally compressed superordinate term made up of these signs (in this case, 'vehicle,' or more specifically 'transportation vehicle'). Note that in the superordinate term the HCS, PAS, and types of MOV for each component remain the same, but the MOV of each is reduced in two ways: in extent and in number of repetitions. For example, the full form of the sign CAR is made with the hands alternating up and down several times; when CAR is a member of a superordinate term, the direction and alternation are retained but the motion is much smaller and the number of repetitions greatly reduced. The temporal compression is shown by the time line beneath each picture.⁷ For example, CAR signed as part of a list took 49 fields; as part of a superordinate term it took only 8 fields. (An additional reduction, in the transitions between signs, is not represented here.) It is as though the sequence is being squeezed temporally into a single-lexical-item duration, just as it is conceptually a single (superordinate) term, a claim to which we now turn.

Meaning of the coordinate compound. How do we know that compounds refer to a superordinate category, and not just to a list of items? The first line of evidence comes from the intuitions of deaf signers about their use and their appropriate translations into English:

- (1) DOCTOR SAY-NO[x: 'me'] EAT CARROTS BEANS PEAS ETC., THAT[+].

The doctor forbade me to eat vegetables.

- (2) (MY) WEAKNESS[+] RING BRACELET NECKLACE ETC., FOR SURE BUY[+].

I have a weakness for jewelry; I buy it all the time.

- (3) KEN EXPERT ANY FOOTBALL BASKETBALL TRACK ETC., REGULAR[+] BORN.

Ken is expert at any sport; he's a born athlete.

As further evidence, consider how odd the following (sensible) ASL sentence would be if the compound were interpreted as a mere list:

- (4) (ME) BUY NEW HAMMER SCREWDRIVER WRENCH ETC., BUT NO SCREWDRIVER.

I bought a new set of tools, but no screwdriver.

Here, HAMMER SCREWDRIVER WRENCH ETC. clearly refers to tools and not to the individual items listed. On a list interpretation, the sentence would be bizarre. Further examples we have elicited include

- (5) HOUSE FIRE[+] LOSE ALL CHAIR TABLE BED ETC., BUT ONE LEFT, BED.

I lost all my furniture in the house fire, but one thing was left: the bed.

- (6) (MY) WEAKNESS[+] RING BRACELET NECKLACE ETC.,
BUT DISLIKE BRACELET.

I have a weakness for jewelry, but I dislike bracelets.

- (7) TODAY (ME) NEED CAR PLANE TRAIN ETC. LOS-AN-
GELES; BUT AFRAID, DON'T-WANT PLANE.

I need transportation to Los Angeles today, but I'm afraid of riding in planes.

- (8) SUPPOSE CAN BUY ANY[+] DRUM FLUTE VIOLIN ETC.,
BEST[+] PIANO.

If you could buy any musical instrument, the best would be a piano.

Such examples provide supporting evidence that the coordinate compounds are superordinate terms.

Restriction to best instances of a category. Not just any member of a superordinate category can form part of a compound. It seems that there are best instances of basic level items that are judged appropriate in creating superordinate terms. For example, the category clothing includes the following primary signs in ASL: DRESS, SKIRT, PANTS, BLOUSE, SWEATER, COAT, JACKET, HAT, CAP, BRA, PANTIES, SHORTS, SLIP, SOCKS, SCARF, RIBBON, SHOES, EARMUFFS, PURSE, GLOVES, PAJAMAS, SLIPPERS, UMBRELLA, HANDKERCHIEF, STOCKINGS, BATHING-SUIT. Yet deaf informants will not accept most of these as components of a superordinate term meaning 'clothing.' In fact, our informant would allow only DRESS, SKIRT, PANTS, and BLOUSE. The informant's intuition was that only a limited number of best instances should function as components of the superordinate 'clothing.' The signs acceptable for the superordinate 'fruit' were APPLE, ORANGE, BANANA, GRAPE, PEACH, PEAR. For 'tool' they were HAMMER, SAW, DRILL, SCREWDRIIVER, PLIERS, WRENCH; for 'musical instrument,' PIANO, FLUTE, GUITAR, VIOLIN, DRUM; for 'furniture,' CHAIR, TABLE, BED, LAMP, DRESSER; and for 'vehicle,' CAR, TRAIN, PLANE, MOTORCYCLE, BICYCLE, TRUCK, BUS.

Most importantly, for each of these superordinate categories many signs would definitely not be used to form a superordinate compound, evidently because they were not considered as among the best examples of that category. For instance, for the category 'fruit,' the signs LEMON, PINEAPPLE, or MELON would not be included; for 'musical instruments,' HARP, ACCORDION, or HARMONICA would not be included.

Ordering of items. Although the order of elements within coordinate compounds is not fixed, there are preferred orders. It seems that the preference primarily has to do with how easily the signs join to each other. Since the elements of a compound are so compressed in time that

the resultant compound is signed almost as fast as a single-unit sign, the preferred order for the compound is the one that allows maximum compression at the sign junctures—that is, the one that requires minimal transitional movements.

Consider, as an example, the signs that make up the superordinate 'jewelry.' Rendering this as RING NECKLACE BRACELET EARRINGS ETC. would require the hand to move from finger to throat to wrist to ears; this ordering is unacceptable to our informants. Either of the two orders RING BRACELET NECKLACE EARRINGS ETC. or EARRINGS NECKLACE BRACELET RING ETC. is acceptable, for both minimize the transitions (one moves up the body from hand to ear, the other moves downward from ear to hand). Thus the requirement of rapid, compressed movement leads to order preferences. The same requirement for speed leads also to item length preferences in superordinate terms. Our informants preferred a limit of three signs, but occasionally—with highly practiced coordinate compounds—allowed four.

A few coordinate compounds referring to superordinate terms seem to have become a part of the commonly accepted vocabulary of ASL. The compound KNIFE FORK generally refers to silverware; it is a lexicalized form like the compound *silverware* in English. When a coordinate compound like this is commonly accepted and used regularly it takes on the ordinary characteristics of compounds in ASL: two signs are sufficient, and they occur in a fixed order. Other superordinate terms—for which there are no commonly accepted signs or compounds—are created by this special device: select three to four signs that are best instances of a superordinate category, order them in a way that yields maximum temporal compression, and optionally add the sign ETC.

Thus at the superordinate level, as at the basic level, the form of signs in ASL is appropriate for the category structure of concrete objects. Unlike basic level categories, superordinate categories are claimed to lack significant numbers of attributes shared by all members of the category. Instead, superordinate categories are structured around a few prototypical instances. Appropriately, signs at this level can be formed by conjoining basic level signs for three or four prototypical members.

Signs for Subordinate Categories

At the level of subordinate categories, ASL again uses syntactic means rather than primary lexemes for providing category names.

We will describe three ASL devices for forming subordinate level items: conventional noncoordinate compounds (as in English and

many other spoken languages), compounds of a basic level sign with a size-and-shape specifier (similar in function to inflectional processes in a spoken language like Navajo), and conjuncts of a basic level sign with a mimetic shape elaboration (this last is perhaps unique to sign languages). Rosch and her colleagues claim that at the subordinate level category members share most attributes, not only with each other but with members of other contrast categories at the same level in the hierarchy (kitchen chairs share most attributes with dining room chairs). Appropriately, then, in ASL subordinates are often represented by the sign for the relevant basic level category in conjunction with either a relatively detailed specification of the subordinate's distinctive shape or a specification of both size and shape.

Conventional Compounds

A glance at table 10.1 reveals that, in English, subordinates in the taxonomies we are considering do not have simple lexical names (the single exception is *Levi's*). For the most part, subordinate terms are expressed by compounds. The same is true of ASL:

PURPLE $\widehat{\text{GRAPES}}$	Concord grapes
GREEN $\widehat{\text{APPLE}}$	pippin apple
COOK $\widehat{\text{CHAIR}}$	kitchen chair
FOOD $\widehat{\text{CHAIR}}$	dining room chair
COOK $\widehat{\text{TABLE}}$	kitchen table
FOOD $\widehat{\text{TABLE}}$	dining room table
FORMAL $\widehat{\text{PANTS}}$	dress pants
STRETCH $\widehat{\text{PANTS}}$	double-knit pants
SLEEP $\widehat{\text{SHOES}}$	slippers
EVERYDAY $\widehat{\text{CAR}}$	second car
SCHOOL $\widehat{\text{TRUCK}}$	school bus

These compounds have the rhythmic pattern typical of conventional noncoordinate compounds in ASL.

Compounds of Basic Signs with Size-and-Shape Specifiers

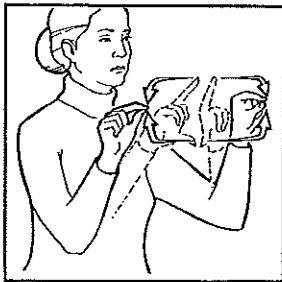
A second class of compounds expressing subordinate terms is linguistically quite different. One element of the compound is a primary ASL sign; the other is a size-and-shape specifier (SASS). SASSes are bound forms that generally appear as members of compounds. A few SASSes are illustrated in figure 10.4. For example, the SASS referring to a relatively flat rectangular shape, which we will gloss as $\widehat{\text{RECTANGULAR}}$ (figure 10.4a), enters into such compounds as the following:

RED $\widehat{\text{RECTANGULAR}}$	brick
GLASS $\widehat{\text{RECTANGULAR}}$	tile
LETTER $\widehat{\text{RECTANGULAR}}$	envelope, or postcard
PICTURE $\widehat{\text{RECTANGULAR}}$	photograph
STAMP $\widehat{\text{RECTANGULAR}}$	book of stamps
SIGNATURE $\widehat{\text{RECTANGULAR}}$	credit card
WIRE $\widehat{\text{RECTANGULAR}}$	telegram
PAPER $\widehat{\text{RECTANGULAR}}$	small pad

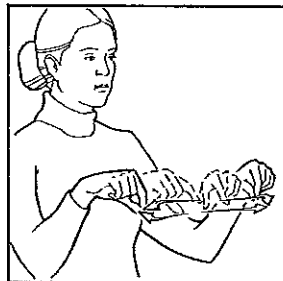
There are size limitations on the use of the SASS $\widehat{\text{RECTANGULAR}}$: if the object is as small as a postage stamp, another specifier sign is used; if the object is as large as a normal sheet of typing paper, still a different specifier sign is used. Note, however, that the actual size and shape of an individual SASS does not itself vary according to the details of the form of the object referred to. Though a brick, a postcard, a telegram, a credit card, and an envelope differ from each other in size and shape, all are rectangular. They are expressed with the same unvarying SASS in construction with different basic level signs.

The SASS $\widehat{\text{DOTS}}$ (figure 10.4f) is used in compounds that refer to small objects, including circles, spheres, cubes, slices, and even little rectangles. It is used, for instance, for small cookies, pennies, water-

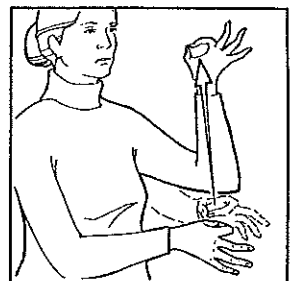
Figure 10.4 Examples of ASL size-and-shape specifiers.



(a) $\widehat{\text{RECTANGULAR}}$



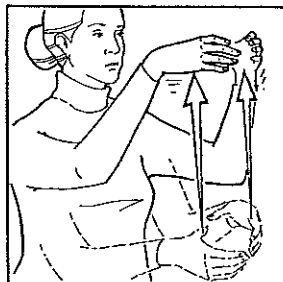
(b) $\widehat{\text{LONG-THIN-RECTANGULAR}}$



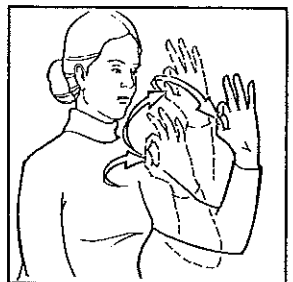
(c) $\widehat{\text{PIPE-SHAPED}}$



(d) $\widehat{\text{RECTANGULAR}}_{\text{[N:plural]}}$

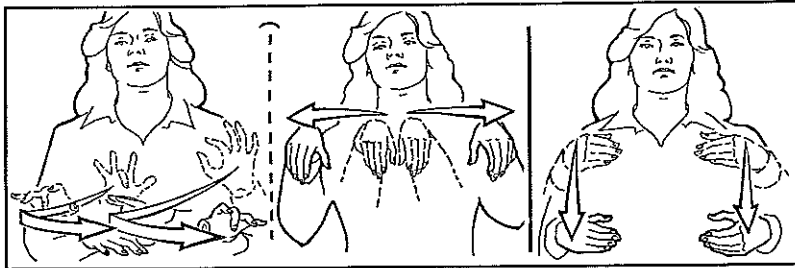


(e) $\widehat{\text{CYLINDRICAL}}$

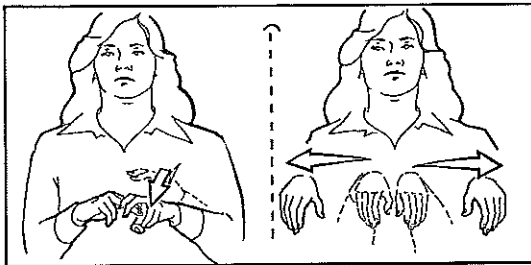


(f) $\widehat{\text{DOTS}}$

Figure 10.5 Subordinate terms in ASL: compounds of basic level signs with size-and-shape specifiers.



(a) PIANO $\widehat{\text{OBLONG}}$ STRAIGHT-THICK for 'upright piano'



(b) CHAIR $\widehat{\text{OBLONG}}$ for 'park bench'

melon seeds, pepperoni slices, chopped nuts, croutons, plums, grapes, peas, meat chunks, cheese twists, and bite-sized shredded wheat. (The original shredded wheat biscuit, a two-by-four inch rectangle, would require the SASS $\widehat{\text{RECTANGULAR}}$.) Although the objects referred to above differ in shape or size, the standard SASS $\widehat{\text{DOTS}}$ refers to any of them.

Individual SASS signs are mutable in form, but not as a consequence of differences in the shapes of objects in the real world: they are deformed when they undergo regular morphological processes like pluralization. For example, to pluralize the sign for brick ('many bricks'), the SASS $\widehat{\text{RECTANGULAR}}$ would be repeated several times in different places in the signing space as in figure 10.4d. Under the pressure of multiple repetitions and their temporal constraints the SASS $\widehat{\text{RECTANGULAR}}$ loses its rectangular appearance; despite the loss of straight lines in the movement of the sign it still refers to rectangular dimensions.

Several SASSes occur as components of the sign sequences used for the subordinate terms in table 10.1; we shall describe only one of these. Consider the sign for 'upright piano' (figure 10.5a). In ASL 'upright piano' is a compound consisting of the basic sign PIANO followed by

two SASSes indicating the shape of the top and sides of the piano. In the first of these the two hands, in a /C/ shape with palms facing downward, begin in contact and move apart. The same SASS follows the sign CHAIR to indicate a long seat, for instance, 'park bench' (see figure 10.5b).

This same SASS occurs with a number of other signs. When it follows the sign TABLE, the compound refers to a table that is long relative to its width, like a coffee table; when it follows BREAD, the compound refers to a long loaf of bread; when it follows SEWING and precedes CARRY, the compound refers to a case for a portable sewing machine, and so forth. Again, the SASS is a conventionalized gesture used as a bound part of compounds to refer to a generally elongated shape. It does not describe the precise dimensions of that shape; rather, it stands for a general class of shapes.

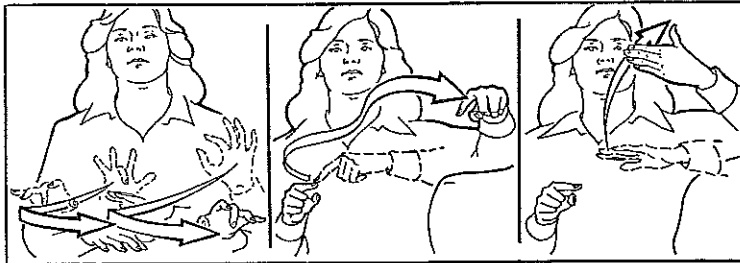
Conjuncts of Basic Signs with Mimetic Description

A third class of subordinate terms in ASL are quite special and may prove to be one of the hallmarks of this language in a different mode. We comment on them rather tentatively here, for our investigation of this class is not yet complete. There are ways of signing subordinate terms even when no conventionalized signs and no appropriate SASSes exist. In such cases, signers will produce expressions consisting of a basic level sign followed by a mimetic depiction that follows fairly carefully the shape of the particular subordinate.⁸ While SASSes are conventional and standardized across signers, the mimetic shape depictions are not. Although the depictions may have some conventional elements (certain handshapes seem to be used for surfaces, others for edges; see Coulter 1975), the depictions as a whole differ considerably from one signer to another, depending on what characteristics of the referent he chooses to represent. Signers often follow mimetic depictions with the sign YOU-KNOW ('You know what I mean'), as though checking to be sure the listener has understood the nonstandardized form.

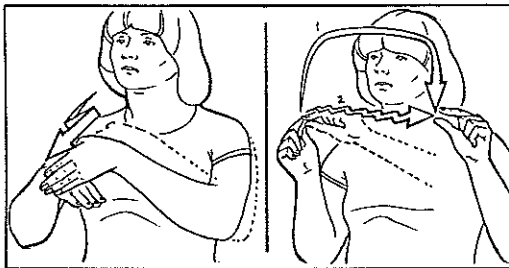
There is no generally accepted sign for 'grand piano,' nor is there an appropriate shape specifier to call into service. Our informants signed PIANO, then invented a kind of pictorial description of the outer perimeter of a grand piano, and finally followed that by a conventionalized sign for 'open upward' (see figure 10.6a). Each signer indicated the shape of a grand piano by using either a flat hand for the side surface or an index finger for the top edge, depicting as well as he could the shape of its top. (Note that there is likewise no single word in English for this shape.)

Figure 10.6b,c illustrates further examples. 'Hacksaw' was made by signing SAW and then depicting the outline of a hacksaw with the index finger. 'Pinking shears' was made by signing SCISSORS and then depicting the saw-tooth edges. Other items from table 10.1 that were produced with at least one part mimetic depiction were 'Phillips screwdriver,' 'floor lamp,' and 'pickup truck.'

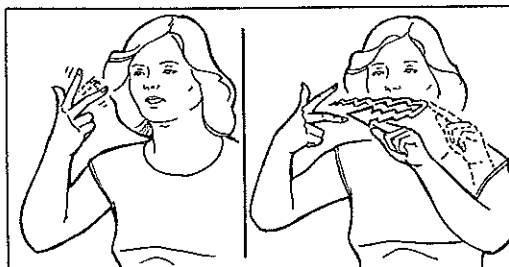
Figure 10.6 Subordinate terms in ASL: conjuncts of basic level signs with mimetic depiction.



(a) PIANO piano-top shaped(mimetic) OPEN-UPWARD
'grand piano'



(b) SAW hacksaw-shaped(mimetic)
'hacksaw'



(c) SCISSORS tooth-edged(mimetic)
'pinking shears'

Although depiction is not standardized within ASL, it is a common way of dealing with lexical gaps. One simply acts out some spatial delineation. While similar gestural depiction may occur during speaking, it seems to us that it plays a special role in sign language. In ASL the novel gestures are more tightly incorporated into the discourse (the sign stream): the mimetic depiction often takes the place of a lexical item in a sentence and thus itself obeys the sign-order constraints of the language. In contrast, a gesture accompanying spoken discourse is external to the sound stream: it has no fixed appearance in terms of word order and does not grammatically replace a word. Instead, in English one uses a noun place-holder, like *whatchamacallit*, while gesturing in the air.

This aspect of ASL is obviously closely related to gestural description or pantomime. It occurs rather freely in ASL as a way of indicating subordinate level items (and other items) for which there are no commonly accepted signs.

We have presented a brief analysis of the linguistic means in ASL for representing three different levels of categorization described by Rosch:

- (1) The level of basic objects—for which there are primary ASL signs.
- (2) The level of superordinate terms—for which basic object signs prototypical of the superordinate category are seriated as coordinate compounds.
- (3) The level of subordinate terms—which employ a variety of linguistic devices: compound signs composed of regular ASL signs, compound signs composed of regular signs in conjunction with size-and-shape specifiers, and conjuncts of signs and depiction of the shape of objects. We suspect that this latter device is unique to a visual-gestural language.

Across the taxonomies examined here, the linguistic devices for expressing the three levels of categorization are consistently distinct from one another, confirming the psychological salience of Rosch's three category levels and suggesting that the levels of conceptual categorization do not depend on language mode. In addition, this sketch supports the notion that the category level of basic objects is linguistically central: first, there are single primary signs for this level; and second, these primary, basic level signs are most often the components from which signs at other levels are constructed. Thus both lexical and syntactic evidence indicate that these notions of a basic conceptual level of categorization for concrete objects is exhibited in this language of signs.