

signs². Whereas free root morphemes in Auslan, such as LOOK, may alter their sequences of movement and location to produce forms, such as LOOK-AT-ME, invariant verb signs such as LOVE and KNOW do not do this. These signs must instead occur with the other independent signs ME or YOU to produce the signed sequences ASK ME or KNOW YOU.

Bound non-roots are also known as *affixes*. These are morphemes which cannot stand alone, but must always be attached to a root morpheme. Affixes differ from bound roots because they add to or modify the meaning of the root to which they are attached, but do may not have any "...clearly definable lexical meaning of their own" (Crowley et al., 1995, p. 6). Examples of English affixes which we have already mentioned include '-ed' and '-ing'. Affixes fall into two categories: *prefixes* which come before the root (such as 're-do', 'un-happy', 'dis-believe', 'non-smoking', 'pre-history', 'in-sincere') and *suffixes* which are added after a root ('school-s', 'teach-er', 'laugh-ed', 'gentle-ness', 'drink-ing', 'fair-ly'). Affixation, however, appears to be rare in Auslan and other sign languages (Johnston, 1989b; Brennan, 1992). Johnston (1989b) mentioned only two examples, the negative suffix which occurs in a small set of signs such as DISAGREE and DISBELIEVE, and the reflexive suffix which follows signs such as YOU and ME to produce the signs YOURSELF and MYSELF. As we shall see in section 4.4 below, this lack of affixation appears to be a major difference between English and sign languages such as Auslan. Perhaps because the tendency towards monosyllabic signs which we observed in the last chapter, many Auslan signs appear to result from the simultaneous rather than sequential combinations of morphemes. This often makes the analysis of complex signs into root and non-root morphemes a difficult task (something which researchers have also observed in other sign languages, see Engberg-Pedersen, 1993).

3.2 Morphological diversity in the Auslan lexicon

3.2.1 The established lexicon

The *lexicon* of a language is a list of words or signs, along with their meanings and other important types of linguistic information (Spencer, 1991). Linguists believe that users of a particular language have a *mental lexicon* (i.e., a dictionary in the mind) which contains the words and morphemes of that language. Together with the mental grammar (which contains the rules for combining the words and morphemes into complex lexical items, phrases and sentences), the mental lexicon enables users of a language to produce and comprehend utterances in that language.

The lexicon, however, could not possibly contain *all* the words of a language, as the list is potentially infinite in length. This can be demonstrated by considering the following example from the numeral system in Auslan. Consider the numbers shown below. If we say that each of



² Signs such as KNOW and LOVE, however, may co-occur with particular non-manual morphemes (such as "ee" and "th", see 4.3.6) and may also be produced with stressed or repeated movements for emphasis.

the signs for numbers such as 21, 22, 23, etc., form “words” in the language, then we must also say that combinations such as the following also form “words”:

- (a) 1,003,459,671
- (b) 1,003,459,672
- (c) 1,003,459,673
- (d) 1,003,459,674
- (e) 1,003,459,675

Auslan, like English, has a set of sign formation rules which enables signers to produce new numeral signs by combining and recombining signs from a basic set. In principle, the potential for such combinations seems enormous, since the many possible combinations seems limited only by the set of possible numbers (which, of course, is infinite). We can see that there appears to be no limit to the number of new “numeral words” in the language that can be formed in this way.

This aspect of the language means we need to draw a distinction between *potential* signs in Auslan and *actual* signs. Actual signs are those signs which have occurred and with which most of the signing community is familiar, as opposed to the limitless number of potential signs which are possible. Linguists have suggested that the lexicon can be divided into two: a *permanent lexicon* which lists the actual signs used in the language, and a *potential lexicon* which contains the morphemes which may be used to produce the limitless number of potential signs (Spencer, 1991). In the sign linguistics literature, the permanent lexicon is widely known as the *frozen* or *established* lexicon. It is the established lexicon which includes all the permanent items of Auslan vocabulary, signs that are highly stable and standardised in form and meaning, and which are used frequently in the language. These signs are known as *lexicalised* signs. We can think of lexicalised signs “...as ‘ready-made’, ‘off the shelf’ lexical items. They are already in existence: the signer simply has to pluck them from her/his mental lexicon and place them in the appropriate lexical contexts” (Brennan, 1992, p. 45-46).

Many lexicalised signs in Auslan appear to be composed of a single morpheme. They cannot be broken down into smaller units of meaning. These monomorphemic signs account for a great number of signs in the established lexicon. Borrowing terminology from work by Johnson and Liddell (1984), we can refer to such monomorphemic signs as *completely specified* lexicalised signs. These are listed in the signer’s mental lexicon as single meaningful units. Their parts are completely specified: any change in the handshape, orientation, location or movement may alter the meaning of the sign, or result in a completely different sign. In Table 3.2 over the page, there is an example of completely specified morpheme (the sign SISTER) as it might be represented in a signer’s mental lexicon. Each cell of the table contains specific information about the sign’s production.

Table 3.2 A specification of the parameters for the Auslan sign SISTER

Parameter	Specification
Handshape	Hook handshape
Orientation	
Fingers	Fingers up (when straightened out)
Palm	Palm left
Location	The bridge of the nose
Movement	Contact twice

The established lexicon, however, also consists of signs which are derived from a combination of more than one morpheme. One group of such signs are completely specified morphemes, but actually result from the combination of two or more individual signs. These are known as sequential compounds (sequential compounds are discussed in more detail in section 4.5). Many Auslan compound signs are clearly derived from two morphemes, such as DEAF-CLUB or GIRL-FRIEND. Other signs, which historically seem to have evolved from a combination of two Auslan signs (e.g., EXPERIENCE and DOESN'T-MATTER³), are now produced as a single unitary sign and are more appropriately considered monomorphemic signs. Generally, signs that are a compound of more than two signs are often literal translations from English, such as DEAF + AWARE + TRAINING 'deafness awareness training', SIGN + LANGUAGE + LINGUISTICS 'sign language linguistics' or NATIONAL + DEAF + CONFERENCE 'national deaf conference'. As can be seen from these examples, normally the number of morphemes in these compounds corresponds to the number of signs from which they are composed (Wallin, 1994). This latter type of compounding, a highly productive process in Auslan and ASL, has only recently begun to be explored in any detail (Permuter, 1996).

Brennan (1992) also discussed a type of sign which she called *simultaneous compounds*. These signs may contain two or more morphemes which are combined simultaneously. This is possible because the signer has two hands, and rather than having to produce the two morphemes sequentially, the signer can simply use represent one meaningful element with one hand and the second element with the other hand. Examples of simultaneous compounds might include the signs for UP-TO-NOW, FROM-NOW-ON, GO-TO-BED, and TOSS-AND-TURN. In each case, we can see that the sign is constructed from two or more elements. If we take the sign TOSS-AND-TURN, for example, we can see that the handshape on the active hand represents a person, while the passive handshape seems to represent the flat surface of the



DOESN'T-MATTER



TOSS-AND-TURN

³ The first part of the compound EXPERIENCE clearly derives from the sign KNOW, while the second component does not resemble any lexicalised sign in current usage. Similarly, the second part of DOESN'T-MATTER seems to be derived from the sign FINISH, while the origin of the first part of the compound can only be guessed at.




bed. The handshapes in this sign are known as classifier handshapes, and we shall see in later sections that these forms play a major role in the formation of signs in Auslan.

Another group of signs we can call *incompletely specified* lexicalised signs. Only some of the features of these signs are specified in the mental lexicon, forming a root morpheme. The rest of the sign's features contain empty specifications which must be filled by other morphemes to produce a polymorphemic sign. Many of these morphemes may operate as *inflectional* morphemes. These units have a grammatical functional in the language, expressing grammatical notions such as verb agreement and aspect (for a fuller discussion of inflection in Auslan, see Johnston, 1989b, 1991b). There are a variety of such incompletely specified signs in the lexicon, ranging from those with only one or two features which are not specified to those that contain many empty cells for numerous kinds of morphemes.

Table 3.3, for example, shows three forms of the verb sign GIVE. In these forms, as in the sign LOOK discussed above, changes in the subject and object of the verb are realised as changes in the orientation, location and movement features of the sign.

Thus we can see that the signs in the established lexicon can be grouped into two types: completely specified lexicalised signs which may be formed from one or more morphemes, and incompletely specified lexicalised signs consisting of root morphemes which may be combined with other morphemes to produce modified or inflected lexicalised signs.

Table 3.3 Specifications of the parameters for three inflected forms of the Auslan sign GIVE.

Parameter	Specification		
			
	I-GIVE-YOU	YOU-GIVE-ME	HE/SHE/IT-GIVES-HIM/HER/IT
Handshape	Flat handshape	Flat handshape	Flat handshape
Orientation			
Fingers	Fingers left	Fingers left	Fingers away from signer
Palm	Palm up	Palm up	Palm up
Location	Neutral space	Neutral space	Neutral space
Movement	Moves from location near signer to location near addressee	Moves from location near addressee to location near signer	Moves from location on the right to location on the left (or vice versa)

3.2.1.1 Relationships between form and meaning in the established lexicon

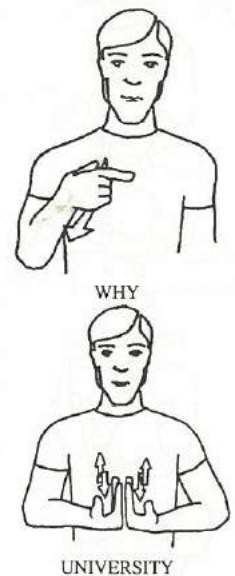
In the previous chapter, the role of iconicity in the formational structure of signs was discussed in some detail. It was noted that one of the most important differences between sign languages and spoken languages is the prevalence of signs which exhibit some visual relationship between their form and meaning. Many different kinds of evidence were used to demonstrate that, despite this difference, signs nevertheless appear to be acquired by children and processed by the brain in terms of their formational components, and not simply on the basis of any visual link between their form and meaning.

This dual nature of signs has been recognised by many sign language researchers (Klima & Bellugi, 1979; Johnston, 1989b; Brennan, 1992). These writers, and others, have emphasised that our understanding of natural sign languages must acknowledge that these languages exhibit both iconic and arbitrary properties, and that these two characteristics of sign languages "...are ever present and ever provocative" (Klima & Bellugi, 1979, p. 34). Elsewhere in the linguistics literature, however, this aspect of sign languages has been misunderstood. As noted by Miles (1988), whereas at one time it was widely believed that sign languages were simply "mere random gestures, imitative and transparent in meaning" (p.46), it seems that, in some circles, a completely inverse misunderstanding has arisen:

"...in sign languages the mimetic abilities of the hands are put aside and their configurations are treated as arbitrary symbols. Residues of resemblance between a sign and its referent can occasionally be discerned, but like onomatopoeia, they are so much in the eye or ear of the beholder that they are of little use in learning...in ASL, the pointing handshape is like a meaningless consonant or vowel, found as a component of many other signs, like CANDY and UGLY" (Pinker, 1994, p. 152-3).

This quote reflects the author's belief that most signs in sign languages are arbitrary. He explains that any iconicity that may exist in sign languages is "residual" and "of little use in learning". As we saw in the last chapter, part of this claim rests on the well-established observation that the prevalence of iconicity does not appear to greatly affect the acquisition of sign languages or the processing of signs stored in the mental lexicon. And as we have seen, Pinker's description of arbitrariness in sign languages seems most true of monomorphemic lexicalised signs. The Auslan signs WHY, BLUE and UNIVERSITY, for example, are made from a particular combination of handshape, hand orientation, location and movement, but each of these parts have no morphemic status of their own in these signs. We can see that, to be fair to Pinker, the configurations of the hands in these lexicalised signs are very much like arbitrary symbols.

Such completely arbitrary signs, however, appear to make up only a relatively small proportion of sign language vocabulary. Brennan (1990), as a result of her detailed study of the signs and sign formation processes at work in BSL, concluded that arbitrariness is in fact "atypical" of the BSL lexicon (p. 35). The precise nature of the link between linguistic form



and meaning varies, but "...when we look at the majority of BSL signs, we can see some underlying motivation for the way they are made" (p. 41). Other writers have shown that there is no sense in which iconicity is "residual" in sign language lexicons, as the following quote from Klima and Bellugi (1979) suggests:

"...iconicity in ASL is not a buried etymological legacy. Newly coined signs are frequently based on mimetic representation of shape, action or movement. Moreover, iconic properties of established lexical signs are always potentially available and are exploited by signers to add dimension and color to their expressions" (p. 34)



In fact, as Kendon (1988) recognised, arbitrariness and iconicity are both integral parts of the grammar of sign languages. Signs may start out as iconic gestural representations, perhaps similar in some ways to the kinds of spontaneous iconic or mimetic gesture used by hearing people. The gestures in a sign language, however, form part of a linguistic system, and their production may over time become constrained by the various phonological restrictions at work in the language (as described in the last chapter). Kendon described the complex interplay between sign iconicity and formational structure in the following way:

"...signs are not created by combining features from an arbitrary repertoire within each of the three aspects (i.e., handshape, location and movement). They are created as dynamic expressive forms which serve to present a concrete image of some pattern of action, form of movement, or physical shape. The activity required to create such a concrete image then becomes simplified and reorganised, so that it retains just those features which are required to maintain it as a distinctive form within the system of signs that the sign language makes use of, regardless of whether it also retains features that can be interpreted as representational" (1988, p. 162).



Kendon (1988) perceived two processes at work in sign languages, which he refers to as *image representation* and *sign formation* respectively. For Kendon, image representation refers to "the creation of a gestural representation of some concrete image that has been selected as symbolic of the concept to be referred to" (p. 162). Sign formation, however, is:

"...the process by which such gestural representations then become transformed into expressions which are stable, shared by others, and which are structured in terms of both general formational constraints and the repertoire of contrastive locations, handshapes and movement patterns specific to the particular sign language" (pp. 162-3)

Although no doubt in general agreement with the work of these other researchers, Brennan (1990) suggested that our understanding of the many kinds of links between sign form and meaning has been too limited by the idea that iconicity refers only to notions of "mimetic representation" or "concrete imagery". Many of the discussions in the literature "...seem to imply that iconicity in sign languages usually involves some kind of pictorial relationship: the sign is

somehow an icon or picture of the meaning" (Brennan, 1992, p. 41). Certainly it is true that many signs in sign language lexicons are not iconic in this sense. If non-signers look at Auslan signs such as CONGRATULATE, FRUSTRATED or UNDERSTAND, they may perceive a link between the form of these signs and their meanings, but will probably disagree about the exact nature of the "image" or "picture" the signs represent. This is because there are several different ways in which the form of signs may relate to their meanings, of which "iconicity" is only one. As a result, Brennan proposed that clearer terminology may be necessary:

"Because of this association with 'pictorial', it may be better to use the term *iconic* for one specific type of principled link between form and meaning...and to use the term *motivated*...to refer to all form-meaning relationships which are non-arbitrary" (p. 41)

Brennan (1992) described three main kinds of motivated relationships between sign form and meaning in sign language lexicons. The first type of relationship is what she called *resemblance*. As the name suggests, this category of signs resemble or look like what they mean. These signs all show an iconic relationship to their referents, but this iconicity can be realised in several different ways. Firstly, the sign may imitate the physical features of the object which it represents. The sign may resemble the shape of the object, as in the signs TREE or AEROPLANE. It may trace an outline of the object, as in the sign TICKET and PLATE, or it may select some salient feature to represent the whole object, as in the signs HOUSE (the roof and walls), ELEPHANT (the trunk) or BIRD (the beak). The form of the sign may also resemble its meaning by imitating the action referred to in the sign. Brennan provided three BSL examples which can also be found in Auslan: the hands imitate the rotating action of the legs in the sign BICYCLE, the twisting and interlocking movement of the needles in KNIT and the fluttering movement of the wings in BUTTERFLY. Also, signs may represent not the shape or the action of the object itself, but the way in which humans handle the object. We can see that the curved handshape in the sign DRINK represents holding a cup near the mouth; the fist handshape in the sign BAG indicates how we would carry a suitcase or shopping bag; the handshape in the sign WRITE reflects the tight grip around a pen or pencil. Many of the signs in the established lexicon involve the use of handshapes which represent the whole or part of the object, or trace an outline of its shape, or imitate a handling action. This is similar to the use of representational gestures by non-signers, but the patterns of resemblance in sign language are organised into a linguistic system. As many researchers have pointed out (Valli & Lucas, 1995; Brennan, 1992), these lexicalised signs seem to be derived from the use of similar handshape morphemes in productive classifier constructions.

The second major type of motivated relationship Brennan (1992) suggested is what she called as *conventional association*. Here particular kinds of meaning are conventionally associated with certain features of a sign's formational structure. Unlike the patterns of iconicity described above, these associations may be "specific to the language and are not necessarily found in other languages" (p. 43). In Auslan and BSL, we find a number of examples which



PLATE



GOOD



BAG



BICYCLE

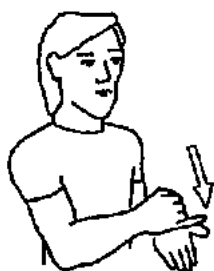


BIRD

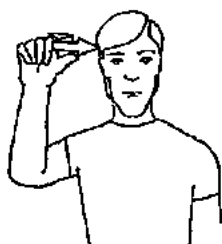


RIGHT

the two languages share, some of which are not found in unrelated sign languages such as ASL. Perhaps the most important of these are the so-called Good and Bad handshapes, and the use of the head and chest locations. These features consistently show the same conventional links to particular kinds of meaning across a large number of signs. One of these conventional handshapes, the Good handshape, undoubtedly developed from the 'thumbs-up' emblematic gesture widely-used in Western countries (see section 1.6). This handshape occurs in the sign GOOD and is associated with a range of meanings related to "goodness" in BSL. The Good handshape is also used in a similar range of signs in Auslan, and other sign languages historically related to BSL, such as New Zealand Sign Language (Collins-Ahlgren, 1989) and a number of the South African Sign Language regional varieties (Penn, 1992). In Auslan, we find it in signs directly derived from GOOD such as BETTER and BEST, but also in range of other signs for "pleasing or positive actions, attitudes, and attributes" (Brennan, 1992, p. 43), such as RIGHT, ALL-RIGHT, CONGRATULATE, SUCCEED, AGREE, WELL, ENJOY, CLEVER, GLORY and LUCKY. Unlike the Good handshape, the Bad handshape (a fist with the little finger extended) does not appear to be related to any conventional gesture used by hearing people. As the name suggests, it is conventionally associated with meanings related to "badness" in the BSL family of sign languages (BSL, Auslan, NZSL, etc.) and it appears in a number of signs with negative meanings: BAD, WORSE, WORST, CRITICISE, FAULT, SIN, GUILTY, FIGHT, SWEAR, BAD-LUCK and so on.



FAULT



KNOW



FEEL



POSTPONE

Brennan (1992) also provided examples of two locations on the body which are conventionally associated with particular meanings. The head, and more specifically the forehead, is linked to a range of signs in Auslan and BSL "with meanings related to thought and cognitive processes generally" (p. 43). Examples include the signs KNOW, REMEMBER, FORGET, REMIND, THINK, CONSIDER, STUPID, SILLY, DREAM, MIND, CONCEPT, SUSPICIOUS, IMAGINE, LEARN-THROUGH-EXPERIENCE, and IDEA. The area around the chest, in contrast, appears to be associated with the emotions. Many signs located on the trunk refer to feelings or emotions. Examples include FEEL, FRUSTRATED, ANGRY, DEPRESSED, RELIEVED, SATISFIED, EXPRESS-ONESELF, LOVE, LIKE, TIRED, UPSET, SCARED, and SURPRISED. Just as many iconic signs appear to be derived from productive classifier forms, Brennan recognised that we can expect new signs in BSL and Auslan to also reflect the use of these conventional links between certain kinds of meaning and particular handshapes and locations.

The third type of relationship between form and meaning Brennan (1992) described is that of *transference*. Signs in this category show a metaphorical link between aspects of their formational structure and particular meanings. In a sense, this is mixture of the notions of resemblance and conventional association, since metaphor often involves the realisation of abstract concepts through certain conventionalised, concrete images. In her discussion of this notion of transference, Brennan also drew on research into metaphor in spoken languages, since sign and

speech appear to share many of the same conventional metaphors. These studies have shown that “...metaphor is pervasive in everyday life, not just in language but in thought and action. Our ordinary conceptual system...is fundamentally metaphorical in nature” (Lakoff & Johnson, 1980, p. 3). For example, we frequently use spatial metaphors in English to express our understanding of time. As we “approach” the end of a year, for example, we may “look forward” to things in the future, or “look back” to events in the past. These examples illustrate Lakoff and Johnson’s view that the “...essence of metaphor is understanding and experiencing one kind of thing in terms of another” (1980, p. 5). In these English expressions, time is understood as a physical substance in space through which we are moving. This same “time is space” metaphor can be found in BSL and Auslan, where the spatial metaphor can be realised by gestural activity which actually occurs in space. Thus, the signs FUTURE, TOMORROW, POSTPONE, FROM-NOW-ON and NEXT-WEEK all move forwards, while the signs for PAST, LAST-WEEK, BEFORE-THAT, LOOK-BACK-IN-TIME, LONG-AGO move backwards⁴.

Another example in BSL which Brennan (1992) explored relates to the earlier discussion of the use of metaphor in gesticulation (see 1.3.1). The degree to which particular metaphors permeate our everyday thinking is revealed in the use of particular metaphorical movements in both gesticulation and sign. In her work, Brennan (1993) pointed out that, in both gesture and sign, the concept of “doubt” or “uncertainty” is frequently presented in terms of wavering movements: “...the mental uncertainty or fluctuation is represented in spatial terms as a physical fluctuation” (1992, p. 44). She showed that signs such as DOUBT, which involves an alternating up and down movement of the hands, and MAYBE, which is produced as a twisting or wavering movement, appear to be very similar to gestures which are used by hearing people to signal uncertainty, and similar metaphors appear in a range of different sign languages. Furthermore, we also find fluttering and wavering movements appearing in a range of question signs in Auslan, such as WHAT, WHERE, WHEN, HOW-MUCH, and WHEN. If the form of these signs expressing doubt and uncertainty were purely arbitrary, “...then we might just as well expect symmetrical, firm, direct movements to express this type of meaning” (p. 44). Not only is this not the case in Auslan and BSL, but it is also appears not to be true of the other sign languages discussed by Brennan (1993) and of the use of gesture by non-signers in Western countries (Calbris, 1990 cited in Brennan, 1993; McNeill, 1992).

For Brennan (1992), metaphor operates as a kind of “as if” relationship between sign form and meaning. Once we know that, in Auslan, a whole range of abstract concepts are understood as if they were physical entities which can be handled, then we understand the grasping metaphor at work in signs like REMEMBER, LEARN-THROUGH-EXPERIENCE and BELIEVE, where ideas are treated as if they can be held in the mind. This same metaphor ex-



⁴ There are a small number of interesting exceptions to this tendency, such as the sign YESTERDAY (and the related signs LAST-YEAR and LAST-WEEK) traditionally used in the southern dialect of Auslan where the handshape actually moves forward off the cheek.



WHERE



REMEMBER



CATCH-UP



GIVE-UP

tends out to signs such as CATCH-UP (on work or studies), CATCH (signs), CATCH-SIGHT-OF or ACHIEVE-GOAL. The opposite movement occurs in the signs FORGET, GIVE-UP, and WORN-OUT, where a range of abstract concepts are treated as if they could be released from one's grip. Fluent signers use the language's enormous potential for visual metaphor to modify and extend the meaning of existing signs, as well as to create new lexical items. Although the use of spatial metaphor is something both Auslan and English share, the potential for visual relationships between sign form and meaning is, as we have seen, of the major differences between the lexicons of the two languages.

3.2.2 Productivity in Auslan

One of the defining characteristics of human language is *productivity*. As we saw in 3.2.1 above, humans use the grammatical resources of language systems to produce and understand an infinite range of words and sentences and to signal an endless variety of meanings. Productivity distinguishes language from non-linguistic forms of communication, such as the various types of "non-verbal" communication (i.e., gesticulation, mime, etc.), as well as most forms of animal communication. In most systems of communication used by animals, for example, the total number of possible signals is limited. This is not true of human language, whether spoken or signed. Indeed, there seems to be no limit to the number of messages we can communicate using language.

The concept of productivity is an important one in the study of the morphological structure of a language. In section 3.1 above, the notion of the smallest meaningful unit or morpheme was introduced. In order for a particular item or feature to be considered a morpheme, there must be "...some evidence of separability and productive function" (Wilbur, 1987, p. 111). If we look at the English word 'unfair', for example, we can clearly distinguish two separate morphemes, 'un-' and 'fair', and we can recombine these with other morphemes to produce different lexical items, such as 'un-true' and 'un-happy', or 'fair-ly' and 'fair-ness'. Similarly, the nose location in the sign THREE-YEARS-OLD and the Point handshape in PERSON-PASS-BY can combine with many other morphemes to create a large number of possible forms: EIGHTEEN-YEARS-OLD, THIRTY-FOUR-YEARS-OLD, PERSON-APPROACH, PERSON-MOVE-AWAY, etc. A morpheme can be said to be productive if it can be used to produce new forms, and if it has the same meaning in every lexical item with which it is used (Crowley et al., 1995).

Separability and productivity, however, are not all-or-nothing notions. As Wilbur (1987) observed, it is possible for morphemes to lose their separability and productive function over time, entering a linguistic "twilight zone" where the meaning of the form no longer clearly adds to the meaning of the word. The morpheme may still be present, but with diminished productivity.

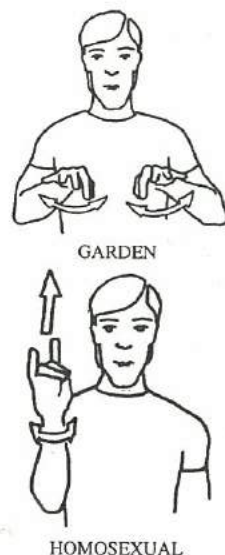
"Consider the words 'consult', 'confer', 'confraternity', 'congratulate', 'convocation', 'cooperate', and 'correlate'. What does 'co(n)-' mean and how is its pronunciation affected by the forms that it combines with? The person who has studied Latin or the history of English knows that 'co(n)-' means 'with'...but do people really know that 'co(n)-' means 'with' while they are using 'correlate' or 'confer'? What does '-sult' or '-fer' mean? They are present in other forms, such as 'result', 'insult', 'refer', 'infer' and 'transfer'...These forms are part of the history of English; at one time, they freely combined to make new words, but now are much more restricted" (p. 111).

Many linguists see morphological productivity as existing on a cline, with morphemes in a language ranging from relatively unproductive to highly productive (Bauer, 1988; Crowley et al., 1995). Bauer (1988) provided examples from English of morphemes at opposite ends of this cline. If we look at words such as 'truth', 'health', 'growth', 'depth', 'strength', 'warmth' and so on, we can see that we have a suffix '-th' which appears to create abstract nouns from verbs or adjectives. It is possible to provide a complete list of all the lexical items of English which appear to contain this suffix. This is because the suffix is now unproductive. It cannot be added to other verbs or adjectives to produce new nouns: forms such as 'blackth', 'coolth', 'walkth' are not possible.

Morphemes which appear to be at the unproductive end of the scale also can be found in Auslan. A small number of signs in Auslan, for example, are derived from the one-handed Irish manual alphabet, formerly used in Catholic schools for the deaf in Australia. Although the American one-handed alphabet has a considerable influence on the formation of signs in Auslan, this is less true of the one-handed Irish alphabet. Only a handful of initialised signs based on Irish fingerspelling continue to be used. The signs ST-GABRIEL'S-SCHOOL (a Catholic school for deaf boys in Sydney) and GARDEN appear to be derived from the Irish fingerspelt G, while the signs HOMOSEXUAL and HONEYMOON seem to be based on the Irish H. As with the *-th* suffix in English, it is possible to list all those signs in the language which appear to use these two handshapes because the system of initialisation using these Irish fingerspelling morphemes is now relatively unproductive.

At the other end of the scale, we can find many examples of highly productive morphemes in English. The suffix '-able' (or sometimes '-ible') can be added to any transitive verb in the language (transitive verbs are those that take objects). Unlike those words which end in '-th', it would not be possible to make an exhaustive list of all those words that can take '-able', because every time a new transitive verb is coined, it is immediately possible to add this suffix to it: "You may not know what it means to *Koreanise* the US economy (because I have just this moment invented the word), but given that it exists, you know that it is possible to discuss the degree to which the US economy is *Koreanisable*" (Bauer, 1988, p. 60). Thus, we can see that '-able' is an extremely productive suffix.

Auslan, too, has a number of morphemes which are highly productive, including the classifier handshape which occurs in signs such as PERSON-PASS-BY and PERSON-MOVE-



TOWARDS. As shown in Figure 3.1, the orientation, location and movement of this form may be modified in a great variety of ways to represent the motion, manner of motion, orientation and location of human beings. Such classifier morphemes are able to generate a enormous range of possible verbs of motion and location, as we shall see in our discussion of the productive lexicon below.

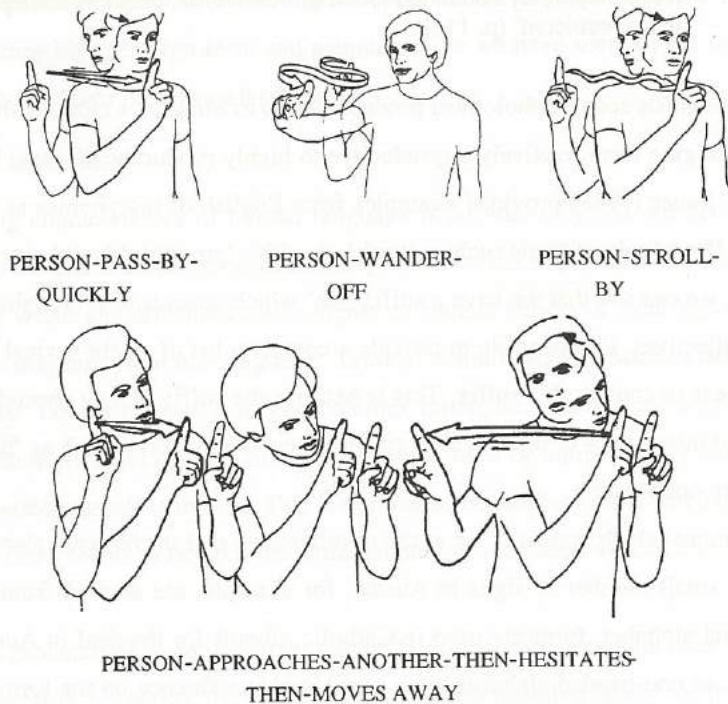


Figure 3.1 Various examples of the person classifier in use

3.2.3 The productive lexicon

The distinction between the established or frozen lexicon and the productive lexicon in sign languages has been explored in the work of several sign linguists, including McDonald (1982), Supalla (1978, 1982), and Johnson and Liddell (1984). The distinction is particularly emphasised and exemplified in a series of publications by Brennan (1990, 1992, 1994). The difference between these two aspects of sign language vocabulary can be summarised in the following way: the established lexicon consists of those forms which are frequently used and highly standardised in the language, while the productive lexicon is made up all those lexical items that are actively created by signers from a set of productive morphemes.

As was explained above, productive morphemes are those morphemes in a sign language that can be employed in the creation of new lexical items. Auslan, like other sign languages, has an enormous range of productive morphemes of handshape, orientation, location, and movement, as well as a variety of non-manual morphemes. These productive morphemes can be used by the signer to extend or modify the meaning of lexicalised signs. These morphemes may also be combined in novel ways to produce entirely new signs (Brennan, 1992). The skilled signer is able to produce new forms by assembling the different parts in different ways

as the need arises. This may result in combinations of morphemes "...which have never actually been used before, but which are fully understandable and meaningful in context" (p. 46). This does not mean, however, "...that the signer simply creates signs in a totally idiosyncratic way. Rather the signer exploits the potential of the lexical resources available in a systematic way" (p. 46).

This productive aspect of the language is very much a part of everyday interactions between signers, such that in any given sample of sign usage, "...there is likely to be a significant percentage of signs which have been created or re-created, on the spot, as required" (Brennan, 1992, p. 46). Some of these signs may remain nonce or "one-off" lexical items. Others form part of a class of signs, such as verbs of movement and location, that must be re-created anew each time they are needed (Supalla, 1982). Other productive forms may move into the established lexicon of the language, coming to be used by the wider community of signers in a standardised way.

In the following sections, we shall investigate the productive resources that are available to the Auslan signer. We shall explore in turn each of the major morphemes of handshape, location and movement, as well as non-manual morphemes, which are used by signers to modify existing signs and to create new forms.

3.3 Classifier predicates in Auslan

3.3.1 The concept of classifiers

The first category of productive morphemes to be examined here are the classifier handshapes. Brennan (1992) pointed out that the notion of "classifier" is not likely to be familiar to users of English, partly because it is not a grammatical notion which is particularly relevant to the language. Many other languages, however, are referred to as *classifier languages* because of the importance of classifiers in their grammatical organisation. Some of the most well-known examples of classifier languages include Mandarin, Cantonese, Thai, Indonesian, and Native American languages such as Navaho. Classifiers, however, appear to play a grammatical role in these languages that is quite different from what is seen in sign languages.

Brennan (1992) provided the following definition of the term classifier⁵

"Classifiers are linguistic units which indicate what kind of group or category a particular referent belongs to. They mark out what is referred to as belonging, for example, to the class of animate entities, the class of humans, the class of round things, the class of flat things, the class of vehicles and so on" (p. 46).

⁵ Within sign linguistics, different researchers appear to use the term *classifier* to mean very different things. As Engberg-Pedersen (1993) observed, the term is widely-used "probably because of the pervasiveness of the elements that it used to describe" (p.243), but there is little agreement amongst sign language researchers about how the handshape morphemes for which the term is used and the predicate constructions in which they occur should be analysed. The discussion which follows is based on the work of Schick (1990a) and Brennan (1992). Work by other Australian researchers, such as Johnston (1989b, 1991b) and Branson, Bernal, Toms, Adam & Miller (1995), draws on different analyses.

There are a number of features of the referent which languages may use as a basis for classification. In a survey of fifty classifier languages, Allan (1977) found that nouns may be grouped into various categories, such as animate versus inanimate, abstract versus concrete, large versus small, flexible versus rigid, or edible versus inedible. Classes may also be formed on the basis of shape or location, so that real-world objects may be organised into groups of flat, curved, rectangular, square or spherical objects, or into categories that reflected whether they were found in the village, field, canoe, up-river, down-river, etc.

Allan (1977) also observed that there are several types of classifier languages, depending on the role of the classifier form in the grammar. The most common type are what is known as the "nominal classifier languages". Here the classifier occurs as a compulsory part of a noun phrase. In English, noun phrases may include a demonstrative (e.g., 'this', 'that', 'these', 'those') and/or a quantifier (e.g., 'one', 'four', 'some', 'any', 'few') which can be combined in the following ways:

those three children	these forty-seven cars
many students	several questions
these few dollars	this one room

In nominal classifier languages, however, there is an additional item which must also be used in combination with the demonstrative and quantifier, the classifier. In most languages, different classifiers will be used for different classes of noun. Some examples from Thai and Indonesian are shown below:

(1) Thai	(2) Indonesian
(a) dèk saam khon boy three CL "three boys"	(a) dua orang mahaguru two CL lecturer "two lecturers"
(b) sàmùt saam lem notebook three CL "three notebooks"	(b) dua biji bola two CL ball "two balls"
(c) dèk loo saam khon nii boy handsome three CL these "these three handsome boys"	(c) dua batang potlot two CL pencil "two pencils"

In Thai, if the noun is 'boy', then the appropriate classifier is 'khon' meaning "human". If it is a book, then the classifier 'lem' meaning "flat-object" is used. In the Indonesian examples, there are three examples of classifiers: 'orang' for "human", 'biji' for "small thing" and 'batang' for "long cylindrical thing".

Navaho and a number of other Native American languages are described by Allan (1977) as *predicate classifier languages*. Before moving on to explore how classifiers work in these language, it is necessary to clarify the notion of predicate classifier. The term *predicate* comes from the traditional analysis of sentences into two parts: the subject and the predicate. In the

sentence 'The boy is sick', for example, 'the boy' is the subject noun phrase and 'is sick' is the predicate. As we have seen, in nominal classifier languages, classifiers form part of the noun phrase. Noun phrases are one of the ways users of a language can refer to a thing or activity (Valli & Lucas, 1995). Languages also have ways of providing information about that thing or activity, of saying something about those nouns or noun phrases. One way to do this is through the use of predicates, as this quote from Valli and Lucas (1995) explains below:

"In the English sentence *The boy is home*, *the boy* is a noun phrase, and *is home* says something about the boy. In this sentence, *is home* is a predication about the boy; it can also be called a predicate. Predicates can have different forms, they are not limited to verbs. In fact, in the English sentence *The boy is home*, the predicate is a verb (is) with a noun (home). In the English sentence *The boy is sick*, the predicate is a verb (is) with an adjective (sick)" (p. 76).

Sign languages like Auslan and ASL (and many spoken languages, such as Russian and Arabic) do not use a verb 'to be'. Thus predicates in these languages can consist simply of a verb, a noun, or an adjective sign. In Auslan phrases such as GIRL DRINK, GIRL HOME and GIRL TIRED, we can see that the signs DRINK (verb), HOME (noun) and TIRED (adjective)⁶ function as predicates, because they tell us something about the girl.

In Auslan and ASL, there is another type of sign which can act as a predicate. These are the classifier predicates. One of the most frequently discussed classifier predicates are those which are sometimes called verbs of motion and location (Supalla, 1982). As we saw earlier in the chapter, a number of such classifier predicates may be used in Auslan. In the Auslan phrase, GIRL APPROACH ME, the lexicalised sign GIRL would first be signed, followed by a classifier sign with the Point handshape, finger oriented upwards, palm facing the signer, moving from a location away from the signer to one close to the signer. The movement, orientation and location of the sign may be changed to represent different patterns of motion or location. The same handshape would be used, however, if the classifier sign was preceded by MAN, BOY, WOMAN, or TEACHER, rather than GIRL. We can thus think of this handshape as representing a group, or class, of referents. In this context, the handshape is a classifier which stands for the class of "human beings". The Point handshape is used here to represent a single member of this class (the Two handshape would be used for two human beings, the Three handshape for three, the Four handshape for four and the Five handshape may be used to represent five or more human beings).

The handshape in this sign PERSON-APPROACH represents a person, so, as a result, the classifier construction in the Auslan phrase CAR APPROACH or CAR DRIVE-BY is usually different. In the phrase CAR DRIVE-BY, the lexical item CAR is signed first, followed by a

⁶ The sign TIRED in this context may be analysed either as an adjective or a verb. Johnston (1989b) suggests that there may be little formal distinction between adjectival or verbal signs in Auslan.






sign with the Flat handshape, palm down, moving from one side of the signing space to the other. The same sign might be used to talk about the movement of a truck or boat. The handshape here can be described as a classifier which represents the class of “vehicles”. As with the person classifier, the orientation, movement and location of this handshape can be modified to show the vehicle’s many different types of movement.

Auslan has many classifier handshapes of this kind which can be used to produce classifier predicates. Unlike nominal classifier languages, we can see that the classifier in sign languages like Auslan does not occur as a free morpheme, but is a bound morpheme. It can only occur as part of a classifier predicate construction. This is also true of other classifier predicate languages. A number of researchers, such as McDonald (1982), have compared ASL classifier predicate constructions with those found in Native American languages such as Navaho. The following examples from Allan (1977) illustrate the role of the classifier morpheme in the construction of predicates in Navaho:

- a) beeso **si-?a**
money lie-CL: round object
 ‘A coin is lying there’
- b) beeso **si-ltsooz**
money lie-CL: flat flexible object
 ‘A note is lying there’
- c) beeso **si-nil**
money lie-CL: collection
 ‘A pile of change is lying there’

In these examples, we can see that the predicate construction meaning “something is lying there” is different in each example, and these differences reflect some aspect of the referent, whether it is part of the class of round objects, flat flexible objects or objects in a pile. Here, as in Auslan, the classifier morphemes *-?a*, *-nil*, and *-ltsooz* are bound morphemes, forming part of the predicate construction. Unlike Auslan, however, the form of the classifier morphemes in Navaho is quite arbitrary. This is also true of the nominal classifier morphemes in Thai and Indonesian discussed above. There is nothing about the sound of the Navaho classifier morpheme *-a* which suggests roundness, or the morpheme *-ltsooz* (or the Thai classifier *lem*) which indicates flatness or flexibility (Brennan, 1990). Classifier forms in sign languages are frequently motivated in some way. In the vast majority of cases, there is a strong link between the form of the classifier handshape and its meaning. The handshape morpheme used in classifier predicates often reflects the overall shape of the referent, traces its outline or represents the actions involved in handling the referent. If we take round or spherical objects, for example, we can see these can be expressed in both BSL and Auslan by a number of different classifier forms. The most frequent classifier handshapes are shown in Table 3.4 below.

Table 3.4 Common classifier handshapes which represent circular, spherical or cylindrical objects. (Adapted from Brennan, 1990, p. 47.)

	The Fist handshape is used to represent the movement and/or location of solid, compact roundish objects, such as the head of a person or animal, or balls or other spherical objects. Typical usages would include NOD, or ROUND-OBJECT-HIT-HEAD.
	The Hooked Five handshape is used to represent the handling of a medium-sized roundish object, or the movement and/or location of round objects. Typical usages would include HOLD-BALL, TURN-TAP, or IRREGULAR-SHAPED-OBJECT-LOCATED-THERE.
	The Hooked Eight handshape is used to represent the handling of a relatively small roundish object, such as a dial, or the movement and/or location of small round objects. Typical usages would include TURN-DIAL, or EYES-POP-OUT.
	The Round handshape is used to represent the handling of medium-sized cylindrical objects, or the size and shape of cylindrical objects. Typical usages would include HANDLE-TELESCOPE, or MEDIUM-SIZED-POLE.
	The Okay handshape is used to represent the movement and/or location of small flat round objects, or the size and shape of thin cylindrical objects. Typical usages would include COIN-LOCATED-ON-SURFACE, or THIN-POLE.

These examples show that the class of round or cylindrical objects can be represented by a range of different classifier handshapes in the language, each of them reflecting some particular characteristic of the referent. The choice of classifier handshapes may depend on the type of object involved, and whether or not the signer wishes to focus on the object's movement and location, its size and shape, or the way it is handled. It is this link between form and meaning that provides the language with enormous creative potential, and which makes classifier morphemes amongst the most productive elements in the language.

3.3.2 Types of classifier handshape morphemes in Auslan

The various classifier handshapes that can be used to express notions of roundness should begin to give some idea of the richness of the classifier system in Auslan. This section will provide a brief overview of the different types of handshape classifiers which have been suggested by sign language researchers, drawing on work by Schick (1990a), Brennan (1992), Engberg-Pedersen (1993), and Liddell and Johnson (forthcoming, cited in Valli & Lucas, 1995). As proposed by Schick (1990a), the various types are organised into three general categories: *object*, *handling* and *SASS* classifiers⁷. These three categories are based both on the patterns of

⁷ Note that Johnston (1989b, 1991b) used different terminology. In his work, the class of object

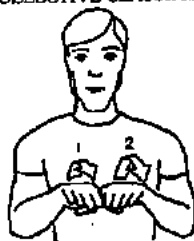
resemblance each classifier handshape has to its meaning, the manner in which each combines with morphemes of movement and location, as well as the specific morphological and syntactic role each has in the grammar of Auslan. As we shall see, object classifiers represent the location and movement of objects in space, handling classifiers indicate the movement of objects by an agent, and SASS forms provide descriptive information about the visual and geometric features of an object (Schick, 1990a).

3.3.2.1 Object classifiers

In object classifiers, the referent is represented by a handshape which refers to a category of objects.⁸ We have already seen two major object categories in section 3.3.1 above: the object classifier which represents a human being and another which stands for vehicles. The handshapes used as object classifiers almost always resemble the shape of the object, or some part of the object, which they represent. These handshapes are used in classifier predicate constructions to show the free movement and/or the location in space of objects, a mass of objects, or a specific number of objects, and can indicate their direction of movement, manner of movement and spatial relationships. A signer can also use two classifier handshapes to describe the relative locations and movements in space of two (or more) separate objects.



COLLECTIVE CLASSIFIER



BODYPART CLASSIFIER



EXTENT CLASSIFIER

Researchers have suggested four main subcategories of object classifier morphemes (Valli & Lucas, 1995; Engberg-Pedersen, 1993). Firstly, there are the *whole entity* morphemes which, as the name suggests, stand for an object as a whole. The person and vehicle classifiers are examples of whole entity object classifiers. Other whole entity handshapes which represent objects would include the use of the horizontal Point handshape or Hooked Two for small animals, the Which handshape for aeroplanes or telephones, the Fist for spherical objects (such as heads, balls, etc.), the Okay handshape for small flat round objects (such as buttons, coins, etc.), and the Flat handshape for flat-objects (such as pieces of paper, leaves, books, etc.). The second group are known as *collective* morphemes. The main handshapes in this group are used to represent large groups of objects or the movement of liquids, such as the wriggling Five handshape classifier which can be used to show the movement and location of a crowd of people, a herd of animals or swarm of insects. Thirdly, there are the *bodypart* morphemes which indicate the motion of people or animals by representing the motion or actions of their limbs or other parts of the body. The most common would include the leg and feet morphemes, where the Point and Flat handshapes are used to mimetically represent the actions of the legs and feet respectively. Lastly, there are the *extent* morphemes. Handshapes in this group represent amounts or volumes, such as the amount of a water in a glass or pool, or a pile of books or

classifier handshapes described here are called "proforms", while the handling and SASS classifiers are grouped together as "manipulators". This reflects a two-way distinction between the use of the hand "to represent 'other' objects and entities...and those in which the hands represent themselves as they...interact with real or imaginary objects" (1991: 46).

⁸ Note that Schick's (1990a) "CLASS" and Brennan's (1992) "semantic" classifiers would form a subset of the object classifier category discussed here.

papers. Changes in the amount or volume, such as rising or falling water, can be signalled using a Flat or Five handshape.

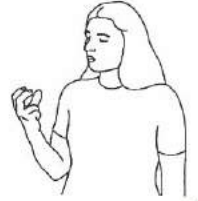
In grammatical terms, object classifiers are used as verbs of motion or location. Combined with a movement morpheme, the handshape produces an intransitive verb of motion which acts as a combination of subject-verb (e.g., PERSON-MOVES-AWAY). Combined with the use of space, an object classifier operates as an intransitive verb of location (e.g., PERSON-LOCATED-HERE). The use of two object handshape can signal the locations of two objects relative to each other (e.g., PERSON-LOCATED-NEXT-TO-VEHICLE), or be used to represent transitive verbs in which one hand is the subject, the other the object (e.g., VEHICLE-HIT-PERSON).

3.3.2.2 Handling classifiers

Handling classifiers use handshapes which imitate the hands handling an object. As a result, handling morphemes are not used to represent objects in movement, but instead form part of classifier predicate constructions which focus on how a human or animal handles an object, and what happens to the object as a result of this handling.

There are three main kinds of handling classifiers discussed in the literature (Brennan, 1992; Lucas & Valli, 1995). Firstly, there is a group of *holding* morphemes. These occur in classifier predicate constructions which describe the movement of objects by a human or animal, such as those used to describe picking up a box or a bag, holding a cup, turning a key or door handle, holding a piece of paper, or using a needle and thread. As a result, the handshape used varies according to the size and shape of the object being handled. If a signer is describing the handling of a round object, for example, the classifier predicate will vary its formation: a Hooked Eight handshape for a small round object (such as a small stone or a marble), a Hooked Five for a medium-sized round object (such as a piece of fruit or tennis ball), and two Five handshapes for a large round object (such as a basketball or a melon), held far apart and combined with non-manual signals which imply a large size or great weight.

Secondly, handling classifiers include a class of *touch* morphemes. Here the handshape used is based on the way in which the object is touched. The handshape does not reflect the shape of the object being handled, but the shape of the hands themselves when they touch different kinds of objects and when they touch the same kinds of objects in different ways. Thus the Five handshape may be used to represent touching a keyboard or using a calculator, the Good handshape for pressing a doorbell, the Flat handshape for patting a pet or the Hooked Five for scratching a surface. Thirdly, this category includes a group of *instrumental* morphemes. Iconically, instrumental morphemes often represent the shape of an instrument or tool, as in the HANDLE-SCISSORS, HANDLE-VIDEO-CAMERA or HANDLE-GUN handshapes, but generally they are used in predicates which describe the way someone handles this object, or uses this object to act on another object. Thus, in the Auslan translation of the Eng-



HANDLE-SMALL-
ROUND-OBJECT



HANDLE-MEDIUM-
SIZED-ROUND-OBJECT



HANDLE-LARGE-
ROUND-OBJECT



TOUCH CLASSIFIER
"PLAY-PIANO"



INSTRUMENTAL
"USE SCISSORS"

lish sentence 'I cut the paper in half with scissors', the signer may use the handshape shown as a handling handshape to show how the paper was cut.

Grammatically, handling classifiers are transitive constructions which represent the movement of a referent object by an agent. They may act as a combination of verb and object, and many of these signs (known as "agreement" verbs) may also include information about the subject and the indirect object (see Johnston 1989b, 1991b, for a discussion of agreement verbs in Auslan).

3.3.2.3 Size and shape specifiers

Size and shape specifiers (SASSes) refer to those classifier handshape morphemes which are used to describe the referent object by outlining its shape and size⁹. Unlike object and handling constructions, which represent information about the free movement and location in space of objects or the way objects are moved or handled, SASS classifier constructions represent adjectival information about a referent, describing aspects of its appearance and its dimensions. Like handling classifiers, the handshape used varies according to the characteristics of the object being described, so that a One handshape, for example, may be used to trace the shape of a relatively thin rectangular object (as in a credit card or photograph), while a Flat hand would be used to represent a relatively wide rectangular object (such as a box or television).

Three main categories have been suggested in the literature (Valli & Lucas, 1995). Firstly, there is the group known as *surface* morphemes. These can be used to describe the surface of objects, representing them as narrow or wide, flat or undulating, etc. The Flat hand, for example, can be used to depict the flat expanse of a desert, or a sloping hill. Secondly, there are the *depth and width* morphemes. These handshapes show the relative depth and width of objects, such as pipes, poles or tree trunks. The third group are known as the *perimeter-shape* morphemes. The handshapes in this group can trace an outline of the external shape of an object. If the object is a large symmetrical shape, such as a rectangular picture on a wall, the two hands may be used, as in PICTURE-FRAME. If the object is asymmetrical, such as the irregular shape of a grand piano, then one hand may remain stationary as the other hand traces out the shape.

Thus, from a grammatical perspective, SASS classifier handshapes produce predicates which most typically have an adjectival function, typically being used show to the physical appearance of an object. The grammatical structure of a single predicate sign based on each classifier handshape category can be summarised as in the table below (as in Schick, 1990b, p. 362, the brackets represent optional morphemes. Note that this is a summary of the predicative roles of classifier signs. Classifier constructions may be also act as nouns, as is shown in the next chapter).



SURFACE
"DESERT"



DEPTH-AND-WIDTH
"PIPE"



DEPTH-AND-WIDTH
"POLE"



PERIMETER-SHAPE
"PICTURE-FRAME"



DEPTH-AND-WIDTH
"TREE TRUNK"



PERIMETER-SHAPE
"GRAND-PIANO"

⁹ Note that the term "SASS classifier" is used here mainly to refer to "tracing" classifier signs. Other researchers, such as Schick (1990a) and Brennan (1992), use the term SASS to refer to both tracing classifiers and some types of object classifiers.

Table 3.5 Grammatical roles of three major classifier predicate types (based on Schick, 1990b).

Predicate classifier type	Grammatical roles expressed
OBJECT CLASSIFIER PREDICATE	(Location-) Subject-Verb (-Location)
HANDLING CLASSIFIER PREDICATE	(Subject-) Verb-Object (-Indirect Object)
SASS CLASSIFIER PREDICATE	Verb/Adjective (-Location)

3.3.2.4 Orientation and classifier handshapes

Some classifier handshapes have “default” or unmarked orientations. This is particularly true of frequently-used object classifier handshapes, such as the use of Point and Two handshapes for person, the Flat handshape for vehicles, and the Fist for the head. The Point and Two hand classifiers each have their own respective orientations when used to represent a person or legged-entity: the Point hand is oriented with the finger upwards, and the palm side of the hand often represents the front of the body, while the Two hand is oriented with the fingers down (representing the legs), and the palm side of the hand generally is interpreted as representing the back of the person. When used to refer to large vehicles, the Flat hand classifier is generally produced palm down, with the fingertips representing the front of the vehicle. When used to represent a bicycle or motorcycle, it is often oriented on its side, with the little finger edge of the hand down. In order to produce a classifier predicate meaning ‘the car was lying upside down’, signers will often first produce the Flat handshape in its unmarked orientation (palm down), and then rotate it to the orientation palm up. This literally means ‘the car was lying upside down as a result of turning over’ and is used to clarify that the car is being described as having an unexpected orientation. This explicit signalling of a change in orientation demonstrates that some classifier handshapes have become partially lexicalised (or *institutionalised*, see Bauer, 1988), having developed quite specialised associations with particular referents (Engberg-Pedersen, 1993).

3.3.3 Movement and location morphemes in Auslan

Like all signs, classifier predicates do not consist of a handshape alone. But unlike lexicalised signs where the parameters of handshape, movement and location may combine to form a single morpheme, classifier predicate constructions are complex, polymorphemic signs where each of the units of handshape, location and movement also act as morphemes. Drawing on the work of a number of researchers (Supalla, 1982; Schick, 1990a; Brennan, 1992; Engberg-Pedersen, 1993; Valli & Lucas, 1995), a preliminary analysis suggests that classifier handshape morphemes in Auslan combine with six main kinds of movement morphemes: *existential* morphemes, *locational* morphemes, *distribution* morphemes, *path* morphemes, *manner* morphemes and *tracing* morphemes. In addition to this, the space in front of the signer’s body can



be used to represent information about the referent's location and its spatial relationship with other referents. Because many points in space can serve as points of reference, the locational information represented by classifier predicates can be quite complex.

3.3.3.1 Existential movement

Although the existential movement morpheme is classed as a type of movement, it is typically realised as a lack of specific movement: the classifier handshape is simply held at a point in space (Brennan, 1992). There may be a transitional movement as the classifier handshape moves to a location in the signing space, but this does not necessarily mean that the object is moving or that it is located in this particular place, simply that it exists. This morpheme may be combined with each of the three major types of classifier morpheme. An example of an object classifier can be seen in the sign PERSON-APPROACHES-ANOTHER-THEN-HESTITATES-THEN-MOVES AWAY (see Figure 3.1 above). In this sign, the stationary Point hand person classifier is simply held in space, while the other classifier moves. This simply shows that a person exists: the location may or may not have any significance. Similarly, a signer's hand may assume the HOLD-CYLINDRICAL-OBJECT Cup handshape, while the other hand signs SMOKE-CIGARETTE. Once again, this merely represents the fact that a cup or glass was being held at the time, and provides little other specific information about the object's location.



3.3.3.2 Locational movement

Brennan (1992) distinguished existential movement from locational movement. Locational movement involves the hand making a short sharp downward movement which ends with an abrupt stop at a specific location in the signing space. This stamping movement does not mean that the object is moving in this way, but is used to signal that it is located in a particular place. Unlike existential movement, locational movement usually only combines with two of the classifier handshape types: object classifiers and handling classifiers. If the Point hand person classifier is produced with a locational movement, then this means something like 'a person is located in this position'. A handling classifier combined with a locational movement morpheme may, however, have quite a different meaning. The Cup handshape stamped at a particular location would mean 'a cylindrical object is placed in this position (by someone)'. A handling classifier handshape implies a handler, and thus the locational movement suggests that the object is being put at a particular location by someone, rather than simply being located there.

3.3.3.3 Distributional movement

Engberg-Pedersen (1993) suggested a class of distribution morphemes. Here the hands move through space to represent the location and spatial arrangement of a number of objects or the motion of objects to a number of locations in a particular spatial arrangement. Distributional movement may combine with object, handling and SASS classifiers. This type of movement can also combine with other types of movement morphemes, such as locational, path and

tracing movement. A particular arrangement of vehicles, for example, can be realised by combining a specific distributional movement (such as 'in-a-line' or 'in-a-circle') with the Flat classifier handshape and a repeated locational ("stamping") movement. In a sense, the distributional morpheme in this example may resemble a locational movement produced several times in different locations, but the spatial arrangement of the repeated stamping movements can be modified to reflect the particular configuration of cars on a road.

3.3.3.4 Path movement

Here the hands are used to represent the *general* movement of an object from one location in space to another. When the hand is moving, the movement means that the object being described is moving (regardless of the manner in which it actually did so), or that it appears to be moving. This movement may be a straight path between two points in space, or it may be an arcing, circling, or back-and-forth movement. If the Point hand classifier is produced with a path movement, as in the sign PERSON-PASS-BY, then this means something like 'a person moves from this place to another'. As is also true of locational movement, combining a handling Cup handshape with a path movement would tend to imply that 'a cylindrical thing is moved from one place to another (by someone).'

3.3.3.5 Manner movement

In contrast to the use of path movement, manner movement involves the use of the hands to represent the *specific* movement of an object. The particular way that the hand is moving means that the object being described is moving in this particular way or that it appears to be moving in this particular way. It thus can provide "a stylised imitation of real-world action" (Schick, 1990a, p. 17). The Two hand person classifier can be moved in a variety of ways to represent the specific actions of a referent. It can be used to describe the movements of an athlete or acrobat jumping off platforms, bouncing on trampolines, flipping in the air, falling on the ground and tumbling over, diving into the water and swimming, etc. Similarly, handling classifiers may combine with imitative actions to mimetically represent an enormous range of actions such as unscrewing a jar lid, playing a guitar, climbing a rope, combing hair, brushing teeth, etc. Many researchers have stressed, however, that manner movement is "...a prototypical idealisation or distillation of real-world activity, but not an imitation or complete analogue image of it" (Schick, 1990a, p. 18). The movements are generally conventionalised and are restricted by the same constraints placed on other types of movement in sign language (only the upper body is used, the sign occurs within the signing space, movement number and complexity tends to be reduced, etc.).

3.3.3.6 Tracing movement

Tracing movement is distinct from path and manner movement because, although the hand moves, this does not mean that the referent is moving. Rather the movement of the hand represents an iconic description of some aspect of the referent by tracing an outline of its size and shape. Thus, tracing movement combines only with SASS handshapes. The surface, perimeter-



MOVE-CYLINDRICAL-
OBJECT



JUMP-UP-AND-
DOWN



PLAY-GUITAR

shape and depth and width morphemes as described above all illustrate examples of tracing movement.

3.3.3.7 The use of space

Every classifier sign is signed in a particular location in space around the signer's body. This *model* space can be used linguistically to describe the location and spatial relationships of people and objects in *real* space (Schick, 1990a). Model space can work as a kind of stage or map where the signer represents information in a schematic or analogue fashion, imitating the spatial relationships of objects in the real world. Thus, the place a classifier sign occurs in model space can be used to refer to a point or place in the real space. A signer may use the vehicle classifier, for example, to describe the movement of a car from one location to another, and may signal that the car stopped its journey by stopping the handshape at a point in between the two locations in the signing space (Valli & Lucas, 1995). Similarly, the relative locations of two referents may be represented by the relative positioning of two classifier handshapes in model space. English generally uses prepositions to describe spatial relationships, as in the sentences 'the bird was *on* the car' or 'the man was *beside* the car'. Auslan, however, may represent these relationships by using an object classifier for each referent and positioning them in the appropriate ways. A signer may place the vehicle classifier handshape in front of the person classifier. This means, of course, that the car the signer is talking about was in front of the person. Classifier handshapes can thus be used to provide quite specific spatial information. Depending on where the person classifier is placed in relation to the vehicle classifier, Auslan can represent the person as standing next to the front bumper bar on the passenger's side, or next to the middle of the car on the driver's side of the car, or several other specific locations, as shown below.

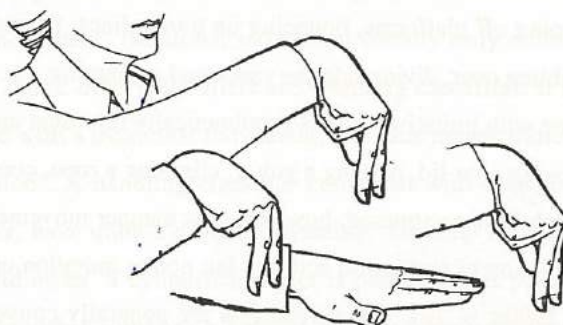


Figure 3.2 The use of classifier handshapes to represent location of a person relative to a vehicle. (Illustrations adapted and reproduced with permission from Baker & Cokely, 1980, p.334).

With handling classifiers, signers can make use of *surrogate* space (Liddell, 1994). The signer can act "...as if a specific object was actually present and locate the hand(s) with reference to that object" (Brennan, 1992, p. 78). When explaining how to use a TTY (teletypewriter), for example, the signer may use a handling classifier to indicate turning on a machine on the top right, and indicate dialling or pressing the numbers on the telephone on the

far right. A handling classifier handshape may then be used to indicate typing on the keyboard. The signer will use another classifier handshape located appropriately above the surrogate TTY to represent tearing off the print-out at the end of the call, and another to indicate the handset being removed from the TTY and placed back on the telephone on the right. Similarly, if a signer uses the Cup classifier handshape to indicate moving a cup from one location to another, surrogate space may be used to signal that this location "...is relatively high or low in relation to the signer, for example, if the object is moved from a high shelf to a low shelf" (Brennan, 1992, p. 78).

SASS handshape classifiers, such as those that describe perimeter-shapes and depth and width, can be used in model or surrogate space to represent "an object of this description at this location" (Schick, 1990a, p. 26). Alternatively, the location of an object may have been established in space by a previous sign, and the SASS classifiers may be used to describe its physical characteristics. A signer describing a room, for example, may sign WINDOW on the left and DOOR on the right. Once the referents are established in these locations, perimeter-shape classifiers produced in these locations may represent the size and shape of the window and door. Signers may also use locations on the body in combination with SASS classifier handshapes. A Four handshape may be used to trace stripes on a shirt, a Point to outline a bump on the nose, or a hooked Five to show the presence of measles or pimples on the face. In addition, SASS handshapes can be combined with object classifier handshapes. The subordinate hand, for example, may represent an object with a flat surface using a Flat or Five handshape (Schick, 1990a). SASSes may then be used to describe features of the referent. A subordinate Flat handshape may represent a piece of paper, for example, and a Point handshape may trace the lines of writing on the page, or a Four may sketch the criss-crossing lines on graph paper.

3.3.4 Classifier predicates and the real world

As pointed out by Schick (1990a), classifier predicates are not simply an imitation of real world actions and objects, but a kind of idealisation or distillation of those particular features which are selected by the language as salient. There are a number of ways in which Auslan does this. Firstly, the choice of particular classifier handshapes reflects this abstraction away from the real world. Handling classifiers clearly seem to mimic the way we actually handle objects, but the variety of handshapes is restricted both by the "...physical limitations of their anatomy and the constraints of the linguistic system of handshape contrasts" (Brennan, 1992, p. 50). As a result, objects which may be quite different from each other in appearance or function are treated by the language as members of the same handshape category because they are essentially handled in the same kind of way. The handshape which means HANDLE-EXTENDED-NARROW-CYLINDRICAL-OBJECT, for example, occurs in classifier-based signs such as DRIVE-CAR (handling a steering wheel), USE-SKIS (holding skis), RIDE-MOTORCYCLE (holding handlebars), PUSH-LAWN MOWER (holding the bar) and OPEN-

UMBRELLA (holding the handle) (Schick, 1990a, p. 28). SASS classifiers provide other examples: the Cup handshape may be used to outline the size and shape of objects as various as "...a train carriage, pillars in a cathedral, cables, an elephant's trunk, a can of beer, a giraffe's neck, railway carriages and a squirrel's tail" (Brennan, 1992, p. 50). The same process of categorisation can be seen in the use of object classifiers. The Point handshape may be used to refer not only to the movement and location of people, but also (with appropriate changes in orientation) to the actions of small animals, caterpillars, rockets, missiles, pens, cigarettes and trees. There are considerable differences in the actual appearance of these objects, yet the language selects a particular subset of physical features (all are relatively long and narrow objects) as the motivation for the classifier.



CYLINDRICAL-OBJECT-
FALL



GIVE-CYLINDRICAL-
OBJECT



LONG-CYLINDRICAL-
OBJECT

Secondly, the same classifier handshape may be used for a variety of functions. The Flat handshape, for example, can function as a vehicle classifier, or it can represent the movement and location of flat objects, such as pieces of paper, books, tiles, or walls. It can operate as a surface classifier, tracing out the shape and dimensions of objects with flat surfaces. It can function as a handling classifier, representing the handling of flat objects, such as boxes or plates, or an instrument used in cutting or slicing an object. Often the precise function of the classifier predicate is determined, not by handshape alone, but by the combination of a particular handshape morpheme with a particular kind of movement in a particular context. Thus the Cup handshape can be used as an object classifier, as in CYLINDRICAL-OBJECT-FALL (when describing a cup falling off a table), a handling classifier, as in GIVE-CYLINDRICAL-OBJECT (giving someone a cup), or as a SASS classifier, as in LONG-CYLINDRICAL-OBJECT (describing the size and shape of a cable).

Thirdly, classifier predicates are used to produce what Supalla (1990) has called *serial verbs* of motion and location. Here, one motion event may be represented by two classifier predicates with different handshapes. This reflects the physical constraints on particular classifier handshapes, so that the path of movement and the manner of movement must be represented by different classifier forms, even though the two forms refer to the same real-world event. Describing a person limping in a circle, for example, requires firstly that a classifier construction using the Point person classifier is signed, showing the circular path movement of the person. This would be followed by the use of the legs limb classifier to represent the limping movement. Similarly, to represent a person tiptoeing past and away from the signer, a combination of the whole entity person classifier and limb classifier would be used. These constructions reflect the fact that not all types of movement morpheme can combine with all types of classifier handshape. As a result, two classifier predicates of motion and location must often be used to represent the one motion event.

The use of two or more different classifier constructions to describe a single process reflect the fact that signers often may switch between two different frames of reference while describing the same event (Schick, 1990a; Brennan, 1992). This shift of scale is also known as

close and *distant focus* (Brennan & Colville, 1984). It enables signer to move from one frame of reference to another, "...sometimes zooming in to provide a close up view, at other times pulling back to provide a 'long shot' on the action" (Brennan, 1992, p. 51). Although often compared to the sequencing of different shots in a film, we can see that this use of close and distant focus is often not motivated simply by the desire for a lively, visual presentation, but also by structural constraints on morpheme combinations in the language which require that different classifier predicates must represent different aspects of the same motion event.

3.3.5 Metaphorical use of classifier predicates

In the discussion of form-meaning relationships in Auslan, we have already made reference to the observation by Brennan (1990, 1992) that many signs seem to have a metaphorical relationship to their meanings. It appears that many of these signs may have been derived from the metaphorical use of classifier predicates (Wilbur, 1987; Schick, 1990a). Many abstract concepts of emotion, perception and cognition are treated as if they were concrete processes by the language. Thus LOVE appears to be derived from a handling classifier showing something being held against the body, while HATE seems to emerge from another classifier representing an object being twisted and broken. The sign SEE represents vision as if the gaze was a line that could be traced from the eye (the handshape seems to be derived from a tracing classifier), while LOOK represents the gaze as two moving objects (the hand appears to be used as an object classifier). The sign REMEMBER represents memories as something that can be held in the mind, while FORGET is indicated by the hand flicking open as the grip on these mental objects is lost.

Brennan (1990, 1992) claimed that such metaphorical use of classifier predicates are organised into sets of metaphorical handshape and movement combinations. She believes these sets are derived from a range of morphemes which express different underlying metaphors in the language. The same *metaphorical morpheme* will reappear in signs which are based on the same underlying metaphor "...even though they may express what seem to be very different meanings" (Brennan, 1992, p. 68). In a sense, we have a phenomenon here that is not unlike the use of similar classifier handshape morphemes for a variety of meanings, grouping together different referents which share some common physical feature such as flatness or roundness. Whether these metaphorical sets should be regarded as morphemes in the strictest sense is disputed by other sign linguists (van der Hulst, 1993), but Brennan's classification scheme does seem to provide a useful framework for the description of processes that appear to be highly productive in sign languages.

3.3.5.1 Metaphorical use of handshapes

One of the most common metaphor morphemes that Brennan (1990) identified is called the *emanate* or *emit* metaphor. In both BSL and Auslan, this is realised as a handshape change from the circular Round handshape or closed Fist to a Five handshape. It is seen in some forms of the signs SHOWER or BLOOD. Here we can see the opening action of the hand, as if re-



HATE



SEE



LOVE



TRAFFIC LIGHTS



STAR



EARN



PHOTO

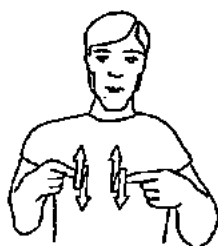


STUDENT

leasing its grip on an object, represents a metaphor for the emission of liquid from a source. This action also appears to be used metaphorically in a range of signs to represent the movement of light. This seems to be true of signs such as SUN, BRIGHT, TAXI, HEADLIGHTS, PROJECTOR and TRAFFIC LIGHTS. Both liquids and light seem to be conceived of here as lines emanating from some source. Other types of energy can also be represented in this way, as the signs SPEAKERS, BOMB, and MICROWAVE-OVEN demonstrate. Like the classifier on which it is based, the formation of this morpheme can vary according to the characteristics of the referent. Thus smaller amounts of liquid can be represented by a change from the Baby O handshape to the L handshape, as in forms of the signs DRIP, SPIT, RUNNY-NOSE and SWEAT. This is also true of smaller sources of light, as in the sign STAR.

The *grasp* morpheme is realised through the opposite action: the hand closes from a Five to a Fist. Here the metaphor seems to be based on the notion that the hand is actually grasping or grabbing hold of something. In both BSL and Auslan, the language operates as if both real-world objects and abstract concepts can be handled (Brennan, 1992). This morpheme occurs in signs such as HAVE, GET, ARREST and FIND. As noted in section 3.2.1.1 above, it also appears in more abstract signs such as EARN, BELIEVE, WIN, REMEMBER, SUBTRACT, SAVE, BOOK (a table), CATCH-SIGHT-OF, CATCH-UP (on work or studies), CATCH (signs), RESTRAIN-ONESELF and ACHIEVE-GOAL.

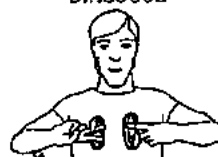
A related metaphor seems to be at work in those signs which use the *copy* or *absorb* morpheme. In Auslan and BSL, this is realised as a closing handshape, almost always accompanied by a directional movement (Brennan, 1992). This is the form found in the sign PICK-UP, and is used metaphorically in signs such as ACCEPT, COPY and PHOTOGRAPH. In each of these signs, the hand seems to move away from the source as it closes, representing something being copied or absorbed. The abstract use of this handshape seems also to be the basis of the sign STUDENT and LEARN-THROUGH-EXPERIENCE where ideas appear to be “absorbed” into the head. A signer may also use this to represent “picking up” sounds in the environment, as in one sign for LISTEN (‘take in through the ears’). We can see other abstract uses of this handshape in signs such as DROWN, GO-BLANK and DRY, where objects are “absorbed” into water or into the air.



ARGUE



DIALOGUE



SWITCH-OVER

Brennan (1990, 1992) described many other metaphorical morphemes, such as the *elicit* morpheme in signs such as BECKON and ATTRACT, the *shimmer* morpheme in the signs MIRROR and SHINE, the *impact* morpheme in IMPACT and ABUSE and so on.

3.3.5.2 Metaphorical use of movement and location

Movement and location morphemes can also be used metaphorically. As we have seen, spatial information in sign language can be represented by the use of model and surrogate space. Sign languages can metaphorically extend this use of space, so that movement and position in space can be used to express non-spatial concepts. The metaphorical use of space is in fact one of the most basic metaphor systems in all languages (Lakoff & Johnson, 1980). English is replete

with spatial metaphors, particularly the use of 'up' versus 'down' for a wide range of metaphorical oppositions, such as health versus sickness (to *fall* ill, to be in *top* condition), happiness versus sadness (*high* spirits, feeling *down*) having control versus being subject to control (*climbing* the corporate ladder, to work *under* a person) and a range of other notions (Wilbur, 1987). Auslan also uses spatial metaphors, but can express these by the direct use of movement and location in space. Spatial metaphor "...can be built into the form of an individual sign by using appropriate choices from the movement, orientation and hand arrangement parameters" (Brennan, 1992, p. 71). As with the use of handshape metaphors, it is not possible to provide an in-depth account of the many different types of spatial metaphor in the language, but a few of the major examples will be presented here (for a fuller description, see Brennan, 1990).

The *opposition* metaphor can be used to express notions of opposition by arranging the hands on opposite sides of the signing space, and moving them up and down in an alternating fashion, as in the sign ARGUE. Alternatively, the hands may come together to express the concept of conflict, as in the signs CONFLICT, FIGHT, ENEMY, and WAR. The concept of *interaction* is realised by an alternating movement between the hands, suggesting the "give and take" of communication. This movement occurs in the signs DIALOGUE, COMMUNICATE, INTERVIEW. The signs TALK and FIX can be modified in this way to create signs meaning DISCUSS and NEGOTIATE.

The *change* metaphor involves a large number of signs where the modification of the location or orientation of the hands represent various kinds of change. Thus the signs CHANGE, TRANSLATE, SWITCH, REVERSE-INTERPRETING and CHANGE-ONE'S-MIND all involve a change of orientation. The notion of *substitution* is realised by a crossing-over and interchange of the hands, as in the signs SWAP, EXCHANGE and SUBSTITUTE.

Other classes of signs which realise a range of abstract metaphors include the *oppression* set of signs as in OPPRESS and DEPRESSED, and the *status* metaphors where upwards/downwards or forwards/backwards oppositions indicate relative status as in PROMOTE, DISADVANTAGE, and ADVANCED.

3.3.6 Non-manual morphemes in Auslan

As is true of so many areas in the language, very little detailed research has been carried out into the use of non-manual components in Auslan. It seems clear, however, that a variety of non-manual morphemes are used extensively in the language. These non-manual components act as bound morphemes. There appear to be very few non-manual morphemes that act as independent lexical items in Auslan. Instead, as pointed out by Johnston (1989b), most non-manual morphemes tend to be produced in combination with signs, especially ones that have verbal or adjectival meanings, such as THIN or DRIVE. They do not usually co-occur with nominal signs, such as TABLE or HOUSE. For this reason, these morphemes are sometimes referred to as non-manual adverbs (Baker & Cokely, 1980). Nevertheless, they play a highly



ADVANCED



SWAP



DEPRESSED



DRIVE-CARELESSLY

productive role in the language, being used to modify the meanings of both lexicalised signs and signs created through productive processes.

In this section, we shall examine a small number of non-manual morphemes that have been identified in both ASL and BSL and which appear to have a similar role in Auslan. These include the lip patterns known as “ee” and “th”, the facial expressions “puffed cheeks” and “pursed lips” and the movement of the head and body known as “cs” (“cheek-shoulder”). Despite the fact that some of these non-manual morphemes make use of particular movements of the mouth, these forms do not appear to be related to the mouth patterns used in the spoken language of the surrounding community. In fact, these non-manual morphemes appear to be completely independent of English, and the use of labels such as “ee” and “th” is adopted by sign linguists merely as a convenient way to represent them in writing (Brennan, 1992).

The “ee” morpheme, as the name suggests, involves the lips being pulled tight in an “ee” shape with the teeth showing (Miles, 1988). This morpheme is used with signs such as NEXT-TO, SOON or THERE to produce forms meaning RIGHT-NEXT-TO, VERY-SOON or RIGHT-THERE. Thus “ee” seems to have an intensifying function, signalling that something is very close in time or space. It often co-occurs with the use of “cheek-shoulder” or “cs” movement, where the shoulder and cheek are brought together by raising the shoulder and tilting the head. This form is also used to intensify the meaning of temporal and spatial signs. Using “ee” and/or “cs” with RECENTLY, for example, produces a sign meaning JUST-RECENTLY. These two morphemes can also be used in combination with a range of other signs to intensify their meaning. Combining “ee” with the sign HOPE, for example, can mean ‘to really hope something will happen’.

Two other non-manual morphemes seem to have an intensification function in Auslan. These both primarily involve the cheeks. The “puffed cheeks” morpheme involves a puffing out of the cheeks, sometimes with an exhalation of air. It has a number of functions, including indicating that something is extremely large, as in the sign VERY-FAT, or was done with great effort, as in the sign WORK-HARD. It also co-occurs with signs to show that something occurred in a very distant location, as in VERY-FAR, or at a time in the distant past, as in LONG-AGO. It is often combined with aspectual modifications of signs, as in WAIT-FOR-LONG-TIME (Brennan, 1992). The “pursed lips” morpheme is realised as a sucking in of the cheeks and an inhalation of air through the lips. It has a range of functions, including indicating that something has unpleasant or negative associations, often co-occurring with the signs TERRIBLE and RISKY. It is also used to emphasise that something is particularly small in size or width, as in the sign VERY-THIN. SASS classifier constructions thus often occur with either the “pursed lips” or “puffed cheeks” morpheme, depending on whether the signer wishes to draw attention to the relatively small or large dimensions of an object.

The use of mouth pattern known as “th” seems to be remarkably similar in ASL, BSL and Auslan. The “th” morpheme is realised as a protruding of the tongue, with or without other



VERY-FAT



RECENTLY



JUST-RECENTLY

features such as a puckered nose. This non-manual is used to signal that something is done carelessly or without paying attention. It can be combined with established signs, such as DRIVE or WRITE to mean DRIVE-CARELESSLY or WRITE-SLOPPILY. It also regularly occurs with signs, such as EMPTY-HEADED or STUPID.

A range of other non-manual elements appear to act as meaningful units in the language, such as the “puckered nose” or “furrowed brow” which may be used to indicate a signer’s disapproval, the “wide eyes” morpheme which expresses astonishment or surprise, the “mm” or “pout” which have connotations that something is done with ease, or the “tongue-in-cheek” which has a range of meanings, such as suggesting an intention to deceive. Brennan (1994) commented that it is not always clear, however, which of these non-manual components, and others, form a single morpheme. Often movements of the shoulders, trunk, and head accompany particular facial expressions, and groups of facial expressions frequently, although not consistently, co-occur. Is “th” really a separate morpheme, for example, given that it often appears with “puckered nose”? Given that the “pursed lips” signal is sometimes produced with a “squint”, should we consider one as an intensifier of the other? If so, which is which? Brennan (1994) concluded that there are no clear answers to these questions at this stage, and explained that more empirical evidence is needed before firm conclusions can be reached.

3.4 Overview of the productive lexical resources in Auslan





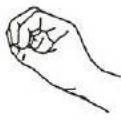

It can be concluded that the Auslan signer, like signers of other signed languages, has “...a powerful set of lexical resources available: powerful because the signer can generate exactly what is required in a particular context by appropriate manipulation of the creative potential of the lexicon” (Brennan, 1992, p. 79). These lexical resources include classifier handshape morphemes, morphemes of movement and location, metaphor morphemes and non-manual morphemes. The classifier table at the end of this chapter, based on the work of Brennan (1990, 1992), is not intended as a comprehensive account of the classifier handshape system but is included as a means of providing the reader with some understanding of the richness of the resources available. Many examples of lexicalised and semi-productive signs have been included in the table because, as we shall see in the next chapter, there is some evidence that these forms derive from the productive use of classifier forms.







In the sections above, I have given some indication of the possible combinations of movement, location, and non-manual morphemes that may be produced, as well as the potential for metaphorical use of some of these morpheme combinations. I can do no better than Brennan (1992) who provided the following summary:







“...the signer can combine items from these morpheme categories to produce an incalculable number of words within the productive lexicon. The resources can be exploited in different ways in different contexts. Thus the signer has a remarkable degree of flexibility: the signer may simply choose words from the established lexicon; he/she can add units of meaning to these established words to create new lexical items; and the signer may








combine items from the different sets of morphemes listed above, again to create new forms. In all these cases, the signer may then choose, or be required by the grammar, to add specific inflectional morphemes to these lexical forms" (p. 79).






This chapter has aimed to give the reader an overview of the rich morphological system in Auslan and the resources available in the productive lexicon of the language. The following chapter provides an examination at a number of those processes of sign formation in Auslan which produce new lexical items in the established lexicon.








	Object classifiers	Handling classifiers	Size and shape specifiers
Fist hand 	round or spherical objects, e.g., SOCCER, NOD, REFUSE (referring to head) compact or solid objects, e.g., LARGE-ANIMAL-WALKING	handling long narrow and/or cylindrical objects, e.g., BAG, PLAY-POOL, JUG instruments with a round, spherical or solid base, e.g., GRIND	
Soon hand 		handling narrow long cylindrical objects, narrow flat objects and other small objects, particularly those requiring fine control, e.g., TURN-KEY, HAMMER, TENNIS, HOLD-MAGNIFYING-GLASS	
Good Hand 	small, compact objects with short upright extension, e.g., SAUCE (referring to bottle) tools with a blade, e.g., OPERATE, MURDER, CARVE	handling tools with a blade, e.g., PEEL touching small items or areas with the thumb, e.g., PRESS-DOORBELL, PLACE-STAMP, (with bending action) LIGHTER	tracing the outline of shapes, e.g., BROAD-SHOULDERS, BIG, BISCUIT, OWL.
Cup hand 	curved or cylindrical objects, e.g., DRINK, CUP chunks of material, e.g., PARAGRAPH	handling curved or cylindrical objects, POUR-SAUCE, APPLY-TALCUM-POWDER handling chunks of material, e.g., HOLD-WAD-OF-MONEY	tracing or showing the size and shape of cylindrical objects or objects with a curved exterior, e.g., TAIL, VAN, CABLE
Round hand 	round, spherical or cylindrical objects, e.g., TELESCOPE, BINOCULARS, SUNRISE	handling narrow cylindrical objects or spherical objects, e.g., SCIENCE, PICK-UP-PIPE, THROW-SPEAR	tracing or showing the size and shape of cylindrical objects, e.g., POLE
Wedge hand 	triangular or wedge-shaped objects, e.g., BEAK, BILL used with an opening and closing action for wedge-shaped objects which open and close, e.g., CRANE, SPEAK (referring to mouth)	handling flat objects, e.g., HOLD-PIECE-OF-PAPER, FUNDING handling powdery substances, e.g., (with crumbling action) FLOUR, SPRINKLE	used with initial opening action to trace the shape of objects, e.g., BEARD, FOX




	Object classifiers	Handling classifiers	Size and shape specifiers
Open Wedge hand 	objects with two parallel flat surfaces, e.g., CLIP, BEAK, CLAMP	handling shallow, usually flat objects, e.g., HOLD-THIN-BOOK, HOLD-PIECE-OF-MELON	tracing or showing the size and shape of narrow or shallow flat objects, e.g., LAYER, BORDER
Flat hand 	objects with flat surfaces, e.g., WINDOW, DOOR, SHELVES-OF-BOOKS vehicles, feet, fish, e.g., CAR-PASS-BY, WALK-ON-TIP-TOES, FISH-SWIM flat tools, e.g., SPADE	handling flat or flat-sided objects, or piles of such objects, e.g., CARRY-PILE-OF-BOOKS, CARRY-BOX handling flat tools, e.g., SLICE, PAINT	tracing or showing the size and shape of objects with flat or smooth surfaces, e.g., FLOOR, WALL, TABLE, HILL
Bent Flat hand 	objects with bent smooth surfaces, e.g., YACHT, WINGS	handling objects with corners, e.g., HOLD-BOX	tracing or showing the size and shape of bent flat surfaces, or flat surfaces above shoulder height, e.g., SHELF
Curved Flat hand 	objects with curved smooth surfaces, e.g., BOWL	handling curved items or objects of indeterminate shape, e.g., FOOTBALL handling small, soft, delicate objects or liquids, e.g., HOLD-SMALL-ANIMAL	tracing or showing the size and shape of objects with curved surfaces, e.g., BASIN
Five hand 	objects with many extensions, e.g., FAN, HELICOPTER (with wriggling movement) many people or objects, liquids, fire, e.g., PEOPLE-MOVING, SWARM-OF-INSECTS, FLOW, SWEAT, CANDLE	handling large flat-sided or bulky items, e.g., CARRY-LARGE-BOX (with wriggling movement) touching objects with the fingers, e.g., PLAY-PIANO, AUTOMATIC-TELLER-MACHINE	tracing the size and shape of stripes, lines and undulating surfaces, e.g., MOUNTAINS
Flat Five hand 			tracing the size and shape of curved, cone-shaped or cylindrical objects, e.g., FOX, SNOUT, NOZZLE

	Object classifiers	Handling classifiers	Size and shape specifiers
Hooked Five hand 	<p>objects with many long narrow bent extensions, e.g., SPIDER, CLAWS, CROWN, COMB</p> <p>circular objects or objects of indeterminate shape, e.g., HEADPHONES, CAKE, BRAIN, CLOUD</p> <p>indicating the location of spots or small marks, e.g., MEASLES</p>	<p>handling relatively large, round or spherical things, e.g., BALL</p> <p>using lids, knobs or handles, e.g., TURN-ON-TAP, UNSCREW-LID</p> <p>touching objects with the fingertips, e.g., SCRATCH, (with wriggling movement) TYPE</p>	<p>tracing the size and shape of several lines, stripes, or dots, e.g., LINES-ON-PAPER</p> <p>tracing or showing the size and shape of large round or spherical objects, or objects of indeterminate shape, e.g., FLORAL-PATTERN, TREE</p>
Okay hand 	<p>small round objects, e.g., BUTTON, COIN, DOTS, CHAIN</p>	<p>handling small, narrow or delicate objects, e.g., TEA-BAG, THREAD, CHEWING-GUM, DARTS</p>	<p>tracing or showing the size and shape of cylindrical objects, e.g., POLE, DEGREE</p>
Open Okay hand 		<p>handling thin flat objects or small, narrow delicate objects, e.g., MARRY, PUT-ON-EARRINGS</p>	<p>tracing or showing the size and shape of a thin flat objects, e.g., VERY-THIN-LAYER</p>
Middle hand 		<p>handling small or delicate objects, e.g., CONTACT-LENSES, DAB-ON-PERFUME</p>	
Irish K hand 	<p>small objects, e.g., INSECT</p>	<p>handling small or delicate objects, e.g., EARRINGS</p>	
Point hand 	<p>objects which are relatively long and thin, often cylindrical, e.g., LEG, ERECTION, COMPASS (referring to magnetic needle)</p> <p>persons (vertical), small animals (horizontal), e.g., PERSON-PASS-BY, DOG-FOLLOW-PERSON</p>	<p>touching objects with tip of finger, e.g., PRESS-BUTTONS, DIAL-PHONE</p> <p>handling tools or instruments with a long narrow, often cylindrical part, e.g., KNIT, BRUSH-TEETH</p>	<p>tracing or showing the size, shape or outline of shapes and objects, e.g., PICTURE, TRIANGLE, CIRCLE, PLATE, LINE-OF-TEXT</p>

	Object classifiers	Handling classifiers	Size and shape specifiers
Gun hand 	objects with one long and one short extension at right angles, e.g., GUN, VIDEO-CAMERA, HYPODERMIC-NEEDLE	handling objects with long narrow extensions, e.g., SHOOT-GUN, USE-VIDEO-CAMERA, WELD	tracing or showing the size, shape and depth of items, e.g., BRA, BIKINI
Hooked Gun hand 	curved or bent objects, e.g., JAW-DROPS-OPEN, DETECTIVE (referring to badge)	handling objects with one long and one short extension at right angles, e.g., USE-SHOTGUN, USE-VIDEO-CAMERA	tracing or showing the size and shape of narrow flat objects, e.g., BELT, TIE, MARGIN
British C hand 	curved or bent objects, e.g., GLASSES, PARROT (referring to curved beak)	handling small curved objects, e.g., PUT-ON-GLASSES	tracing or showing the size and shape of cylindrical objects, e.g., POLE
Hook hand 	<p>bent or curved objects, e.g., RAISE-EYEBROWS, SITTING-WITH-LEGS-APART, HEARING-AID</p> <p>used with a bending action for objects which have a characteristic bending motion, e.g., WORM, SNAIL (referring to eyestalks)</p>	<p>handling stretchable item, e.g., ELASTIC</p> <p>holding by hook-like extension, e.g., RING-PULL</p> <p>using tool or instrument with blade or hook, e.g., SHAVE-FACE</p>	tracing the shape of lines, e.g., COMMA, BRACKETS
Write hand 		handling of tiny objects, especially writing implements, e.g., PEN, WRITE, APPLY-LIPSTICK	
Eleven hand 	<p>triangular or wedge-shaped objects, e.g., BIRD</p> <p>used with an opening and closing action for small wedge-shaped objects which open and close, e.g., SLEEP, WINK (referring to movement of eyelids)</p>	handling small, tiny or delicate objects or relatively flat items, e.g., PILL, EAT-GRAPES, LIGHT-MATCH	used with opening and closing action to trace the shape of objects, e.g., BANANA, MOON, CAT (referring to whiskers)
Open Eleven hand 	objects with two parallel flat surfaces, e.g., CLIP, CLOTHES-PEG	handling very shallow, flat or small round objects, e.g., HOLD-VERY-SMALL-OBJECT	tracing or showing the size and shape of very narrow or shallow flat objects, e.g., LAYER, VERY-SHORT-HAIR

	Object classifiers	Handling classifiers	Size and shape specifiers
Spoon hand 	straight narrow objects, e.g., RABBIT (referring to ears), SPOON, MEDAL, BUNK	handling tools or instruments with a narrow part, e.g., SCREWDRIVER, CHISEL, DRAW, BUTTER (referring to knife)	tracing size and shape of narrow objects, e.g., RIBBON, PRESENT (referring to ribbon) tracing the size and shape of objects with flat or smooth surfaces, e.g., TENT, HOUSE
Hooked Spoon hand 	bent straight narrow objects, e.g., BENT-LEGS, RIDE (referring to legs)		
Twelve hand 	triangular or wedge-shaped objects, e.g., DUCK (referring to bill) used with an opening and closing action for objects which open and close, e.g., SLEEP (referring to eyes), SPEAK (referring to mouth)	handling relatively small amounts of powdery substances, e.g., SALT, SPRINKLE	used with initial opening action to trace the shape of objects, e.g., CAT (referring to whiskers)
Open Twelve hand 	objects with two parallel surfaces, e.g., DUCK (referring to bill), PEG	holding shallow, flat items, e.g., HOLD-FLOPPY-DISK	tracing or showing the size and shape of narrow objects and sections, e.g., MOUSTACHE, LAYER, (with a closing action) BRIDGE
Two hand 	objects with two fixed but moveable long narrow extensions, e.g., (with palm down and wriggling action) PERSON-WALK-BY tools or instruments with two fixed but moveable extensions, e.g., COMPASS, FORK, SPANNER, (with opening and closing action) SCISSORS (fingers vertical) two people, e.g., TWO-PEOPLE-PASS-BY	handling tools or instruments with two fixed but moveable extensions, e.g., (with opening and closing action) CUT-WITH-SCISSORS handling objects held between the two fingers, e.g., SMOKE-CIGARETTE	tracing the size, shape and outline of narrow objects, e.g., STRIPES, MASK

	Object classifiers	Handling classifiers	Size and shape specifiers
Hooked Two hand 	objects with two fixed but moveable bent extensions, e.g., DRUNK, SIT, CHAIRS-LOCATED-IN-CIRCLE, INVERTED-COMMAS (two hands) animals with four legs, e.g., HORSE-GALLOP	handle a tool with two extensions, e.g., DENTIST	tracing the size, shape and outline of stripes or lines, especially two parallel lines, e.g., EQUALS
Eight hand 	a handshape borrowed from American Sign Language which is used by some Auslan signers as a vehicle classifier, e.g., CAR-PARK, CAR-PASS-BY		
Flat Eight hand 	objects with two parallel surfaces, one wider than the other, e.g., HAIR-CLIP	handling narrow objects with an extension, e.g., USE-HYPODERMIC-NEEDLE, (with opening and closing action) ATTACH-JUMPER-LEADS, OIL	
Hooked Eight hand 	round or spherical objects, e.g., EYES-POP-OUT, CLOWN (referring to ball on the nose)	handling round, spherical or uneven objects, e.g., HOLD-A-SMALL-ROCK	tracing, usually by a twisting action, a circular shape, e.g., SMALL-SORE
Wish hand 			through a twisting and untwisting action, tracing the size and shape of long, narrow objects intertwined, e.g., PLAIT, RIBBON
Three hand 	objects with three narrow extensions, e.g., WICKET, FORK, ELECTRIC-PLUG (fingers vertical) three people, e.g., THREE-PEOPLE-PASS-BY	handling an implement with three narrow extensions, e.g., EAT-SPAGHETTI	tracing of three parallel lines or stripes, e.g., SERGEANT (referring to three stripes on the arm)
Bad hand 	small narrow objects, e.g., SMALL-PENIS, CLITORIS	handling a small narrow instrument, e.g., MEDICINE, HONEY, WHISKY	tracing of size and shape of small narrow objects, e.g., LINE, SKINNY

	Object classifiers	Handling classifiers	Size and shape specifiers
Which hand 	solid objects with two extensions at each side or at each end, e.g., AEROPLANE, TELEPHONE-RING, COW (referring to horns)	handling of solid items with extensions at either end, e.g., ANSWER-PHONE, POUR-FROM-TEAPOT, USE-MUG, AWARD	
Animal hand 	objects with two vertical extensions, e.g., ANIMAL, BED-ROCKING		
Four hand 	objects with four or more long narrow extensions, e.g., EYELASHES four or more people, e.g., PANEL, FOUR-PEOPLE-PASS-BY, (with two hands) PEOPLE-IN-A-CIRCLE		tracing of four or more parallel lines or stripes, e.g., SCHEDULE, CHECKED-PATTERN

(Adapted from Brennan, 1992, pp. 53-67)

THE EXPANDING LEXICON: SIGN FORMATION PROCESSES IN AUSLAN

The established lexicon of every language is constantly changing. Users of English need only look at the works of Shakespeare or Chaucer to see how much the vocabulary of the language has changed over the last few centuries (Aitchison, 1992). This is also true of the Auslan lexicon. New signs develop and are added to the established vocabulary, while existing signs change in meaning or fall out of usage. How does this change occur? The following pages provide a brief overview of some of the many processes of sign formation which occur in Auslan. One of the most important ways new signs move into the established lexicon of the language is through the lexicalisation of productive classifier forms. Compounding, reduplication, and lexical extension are other important processes of sign formation. This chapter also includes a brief description of lexical borrowing in Auslan. Borrowing from English through fingerspelling, loan translation, and mouth patterns plays a significant role in the Auslan lexicon. Signers also sometimes borrow signs from other sign languages, such as ASL and BSL.

4.1 Lexicalisation of classifier predicates

Chapter 3 explored the various kinds of form-meaning relationship that can be found in the established lexicon. It was shown that a considerable number of lexicalised signs appear to imitate the physical features or actions of objects in the real world. Many of these signs involve the use of handshapes which represent the whole or part of the object, trace an outline of its shape, or imitate a handling action. These lexicalised signs appear to be derived from the use of particular handshape and movement morphemes in productive classifier constructions. Signs such as AEROPLANE, BIRD, BUTTERFLY and TREE appear to involve object classifiers, the signs TICKET, PLATE, HOUSE, ELEPHANT resemble the use of various SASS classifier forms, while SEW, WRITE, BAG and DRINK seem to have developed from handling classifier predicates.

These signs can thus be considered examples of classifier predicates which have become lexicalised. Lexicalisation refers to the process where signs composed of many separate morphemes come to act as single morphemes. The term lexicalised means “like a word”, that is, like an independent unit in the language (Valli & Lucas, 1995). Valli and Lucas (1995) provided the following examples from English:

“Examples of lexicalisation in English include compounds such as *greenhouse*, *breakfast*, *Christmas*, which are formed by uniting two separate lexical items that function as one word with a unique meaning. Acronyms such as *NASA* (National Air and Space Administration) and *scuba* (self-contained underwater breathing apparatus) are also examples of lexicalisation in English. In these



TREE



TICKET



BAG

cases, a new word is formed by using the first letter of each word in the phrase" (p. 67).

The English words *greenhouse* and *scuba* are formed from the combination of separate morphemes, but in each case, these combinations of morphemes come to act as a single meaningful unit. Although we can see how the word has been derived, we cannot predict the meaning of the word *greenhouse*, for example, from a knowledge of the meaning of the words *green* and *house*. A *greenhouse* is not necessarily either *green* or a *house*. Instead, it is a structure, often made of glass, for the cultivation and protection of tropical plants.

Like these examples from English, classifier predicates are also assembled out of smaller meaningful parts. Signers combine classifier handshape morphemes with location, movement and non-manual morphemes to create polymorphemic classifier constructions. The Auslan lexicon, however, includes many examples of classifier signs which have become lexicalised. Signers no longer use these signs as productive classifier constructions, and the meaning of the separate parts no longer plays a role in the meaning of the sign. If we think of the lexicalised sign *MEETING*, for example, we can see that the handshape appears to be derived from the classifier for person. If we think about the meaning of the word, it is obvious that meetings involve people coming together. The sign *MEETING*, however, uses only two individual classifier handshapes, and yet meetings can include many more than two people. The handshape morpheme is no longer productive. Unlike classifier predicates, the handshape in this sign does not change to reflect the number of people. This classifier-based sign has become lexicalised: the meaning of all the smaller units of handshape, location and movement has become "lost" in the meaning of the sign (Valli & Lucas, 1995).



MEETING

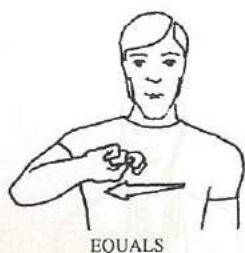
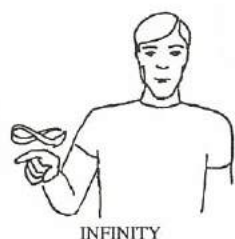
Lexicalised classifier forms are an important source of new signs for new concepts. There are an enormous number of signs in Auslan which appear to be in the process of lexicalisation. In a recent research project on signs for computer terminology, for example, researchers found that many classifier forms being used by deaf computer users for various types of computer technology are becoming incorporated into the established lexicon of the language (Parker & Schembri, 1996). Examples of such signs include those for *COMPUTER-MOUSE*, *TRACKBALL*, and *JOYSTICK*. Each of these partially-lexicalised signs involves the use of particular classifier forms based on the handling of these objects. Handling classifiers are also important in the various signs which exist in the community for other types of new technology, such as *AUTOMATIC-TELLER-MACHINE* and *EFTPOS* ('electronic funds transfer at point of sale'). Object classifiers seem to be the basis of the signs *LAPTOP-COMPUTER* (a similar sign is also used for *COMPACT-TTY*), *VIDEO-CAMERA*, *MODEM*, *FAX* and *SATELLITE*, while *SASS* classifiers play a role in signs for *COMPUTER-SCREEN*, *SPREADSHEET* and *MARGIN*.



MOUSE



SCREEN



SASS classifiers are also an important way in which signs for mathematical concepts have developed amongst deaf students (Spicer & Rogers, 1989). Many SASS constructions trace out the shape of particular mathematical symbols, and these have become lexicalised signs for these concepts (at least in educational contexts). Examples of such signs include INFINITY, EQUALS, MINUS, PARABOLA, RATIO, THEREFORE, and INTEGRAL. In language teaching, various classifier forms which all use the subordinate Flat handshape to represent a page or sheet of paper have come to refer to features of written language. Examples of such constructions would include SENTENCE (the Point handshape traces a line on the Flat hand), PARAGRAPH (the Cup handshape indicates a chunk of text on the page), ARTICLE (a C hand traces a column down a page), HEADING (a C hand moves across the top of the page) and FOOTER (a C hand moves across the bottom of the page).

Examples of other recently lexicalised classifier predicates include the sign DISABILITY (based on a limb classifier sign representing a limping movement), ACQUIRED-HEARING-LOSS (extent morphemes showing the dropping levels of hearing in the ear), and MAINSTREAM (on-surface morphemes representing large numbers of people being brought together).

The process of lexicalisation appears, however, to be a gradual one. For example, there are currently many variants of signs for particular types of new technology. In addition to the handling classifier form, some signers also use the established sign for MOUSE to refer both to the small mammal and the computer device. The sign for MOBILE-PHONE has a large number of variant forms in Auslan, as it does in BSL (Brennan, 1992). In one variant, the signer uses a grasping Hooked Five to represent holding the hand set while a Point handshape indicates pressing the buttons. In another variant, the Five handshape handling classifier is combined with an Okay handshape showing the action of extending the aerial from the hand set. Another sign simply represents the Hooked Five holding the hand set at the ear, while another uses the handshape from the sign TELEPHONE, but places it at the waist (where mobile phones are often carried). Brennan (1992) predicted that the longer and more complex variants will eventually stabilise into simpler, more concise forms over time, and that one of these forms will emerge as a lexicalised sign for this concept.

4.2 Lexical extension

One of the most common ways for a language to develop new words or signs for new ideas is to simply "extend" the meaning of an established word or sign. If we look at examples of computer terminology in English, we see that many words for familiar objects like 'window', 'menu', and 'file', and for actions such as 'close', 'open', and 'save' are used in new ways. These terms have developed additional meanings within the specialised technical vocabulary of computer users, yet the words themselves remain the same. Similarly, Auslan signers use the signs WINDOW, FILE, CLOSE, OPEN and SAVE to refer to the same computer concepts.

This process is called *lexical extension*, since the meaning of a word or sign has simply been broadened or extended in new ways (Brennan, 1992).

In Auslan, there appear to be different ways that lexical extension can work. Sometimes the same sign will be used, as in WINDOW or SAVE, or sometimes a modified form sign might be used, as in the sign INFORMATION. This is based on a double-handed variant of the sign SAY or TELL, produced with a repeated, alternating circular movement (meaning literally ‘to tell all about’). Some signers use a repeated version of the sign PAY (literally ‘to pay regularly’) for RENT, others use a repeated form of EARN (‘to earn regularly’) to mean INCOME, WAGES or PENSION. Similarly, a repeated variant of the sign WRITE-DOWN is used by some signers to mean OFFICE.

There are many other examples of lexical extension to be found in the established lexicon of the language. The sign AIRPORT has many variant forms, but one of these is based on classifier forms meaning literally AEROPLANE-LAND. The sign for BOW-TIE can also be used to mean BALL or FORMAL-DANCE, while the sign MASK is also used for THIEF. Recent lexical extensions include the use of the sign ONE-TO-ONE to mean TUTORIAL, a repeated form of the sign USHER-IN to mean HOSPITALITY, the sign SURROUNDINGS for CONTEXT, and a sign meaning something like CHAT-IN-SIGN for AUSLAN. The sign SEXUAL-HARASSMENT comes from a combination of the sign SEX and a sign meaning TEASE. Some signers use a repeated form of the sign STICK or STICK-LABELS-ONTO-SOMETHING for STEREOTYPE, a modified form of the sign FREEWAY for INTERNET, while a variant of the sign HIT-PERSON is widely used for VIOLENCE or ABUSE.

4.3 Reduplication

Many of the signs mentioned above are closely related semantically, but exploit differing patterns of movement to create variations in meaning. One of the most important of these modifications is reduplication. Reduplication refers to the repetition of the movement in a sign. This may be used to modify some aspect of the sign’s meaning or to create a new lexical item.

Reduplication appears to play an important role in the distinction between nouns and verbs in Auslan. The American researchers Supalla and Newport (1978) were the first to observe that many related noun and verb signs in ASL have slightly different types of movement (Valli & Lucas, 1995). Thus the ASL sign for SIT has a single downward movement, while the sign for CHAIR has a repeated downward movement. The other parameters in these two signs (the handshape, orientation and location) are identical, but the movement appears to be reduplicated in the sign CHAIR.

Linguists have compared this system of deriving nouns from verbs in ASL with a similar pattern in English (Valli & Lucas, 1995). English has a set of nouns which appear to have been derived from verbs. In each of these noun-verb pairs, the distinction between the nouns and the verbs is signalled by a change in the stress pattern. If we compare the words in each of the two columns in the table below, it is clear that the only distinction between the two is that the verbs



WINDOW



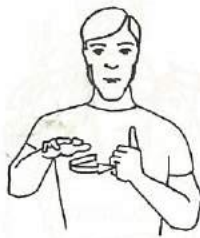
INFORMATION



INCOME



AIRPORT



CONTEXT

tend to be stressed on the second syllable, while the nouns tend to be pronounced with the stress on the first syllable (note that the stressed syllables are underlined).

There is some evidence that Auslan, like ASL, makes use of reduplication to distinguish some noun signs from related verb signs. The signs BUY, SELL and WRITE usually have single movements, for example, while the signs for SHOPPING, SELLING and WRITER have reduplicated movement. As illustrated by the examples in Figure 4.1, the movement in noun signs which refer to concrete objects, such as those for KEY, DOOR, DRAWER, BAG, and BOOK, is often reduplicated. Signs for the related actions, such as TURN-KEY, CLOSE-DOOR, OPEN-DRAWER, PICK-UP-BAG or CLOSE-BOOK, involve a single twisting, closing, pulling or lifting movement.

Table 4.1 Examples of noun-verb pairs in English.

VERBS	NOUNS
<u>convict</u>	<u>convict</u>
<u>present</u>	<u>present</u>
<u>contrast</u>	<u>contrast</u>
<u>insult</u>	<u>insult</u>
<u>convert</u>	<u>convert</u>
<u>rebel</u>	<u>rebel</u>
<u>project</u>	<u>project</u>

Although it is not difficult to find examples of this patterning in the language, many native signers seem to feel that such differences in movement are not compulsory in Auslan. In many cases, there may be no formational differences between noun and verb signs in the language. This does not mean that Auslan signers do not clearly distinguish between nouns and verbs, but that the signers do not rely on a single grammatical feature, such as reduplication, to signal these differences. In some cases, nouns and verbs which are related in meaning may have quite distinct forms. The verb TÈACH, for example, is morphologically unrelated to the noun TEACHER. In other cases, the noun-verb distinction may emerge only once the sign has been modified for plurality, aspect or grammatical role (see Johnston, 1989b). For example, the sign TELEPHONE may be used as a noun or a verb. As a verb, however, its movement may be modified to mean TELEPHONE-ME (the hand moves towards the signer), TELEPHONE-MANY-PEOPLE (the hand moves away from the signer repeatedly in different directions) or ANSWER-TELEPHONE (the hand moves towards the signer from a location low in the signing space). Other signs which co-occur with a particular sign provide information on its grammatical class. The sign TELEPHONE will be interpreted as a noun "...when it co-occurs with a modifier such as NEW, or a possessive pronoun such as MY (e.g., in phrases meaning



TEACH



TEACHER

‘a new telephone’ or ‘my telephone’))” (Pizzuto & Corazza, 1996, p. 174) Thus, many Auslan signs appear to be “...comparable to the form ‘fish’ in English: we only know whether we are dealing with a noun or a verb because of context and/or because of the addition of appropriate inflections such as ‘-ed’ and ‘-ing’” (Brennan, 1992, p. 91)

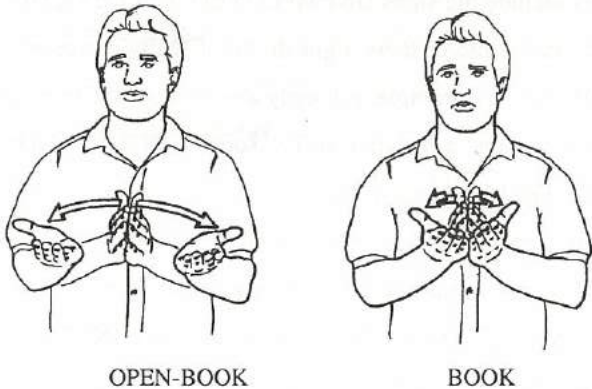
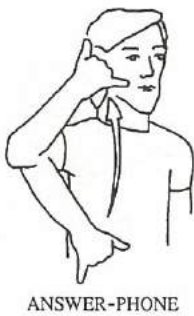
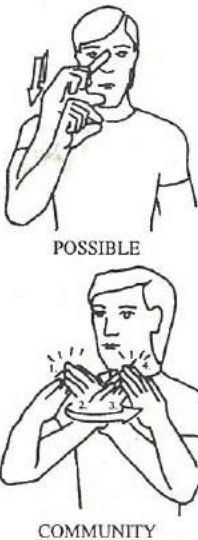


Figure 4.1 Some examples of noun-verb pairs in Auslan.

Reduplication is not only used to signal noun-verb differences. Many other related pairs of signs, such as the signs CAN and POSSIBLE, HOUSE and COMMUNITY, and STAND and WAIT seem to exploit reduplication to create differences in meaning. As we shall see below, many fingerspelt forms also use reduplication, such as ‘D-D’ for daughter, or ‘P-P’ for Parramatta (a Sydney suburb).

4.4 Affixation

Affixation is a process which forms new words by combining bound affixes and free morphemes. As mentioned in Chapter 3, Johnston (1989b) discussed only two examples of affixation in Auslan: the negative suffix and the reflexive suffix. Both examples are affixes that operate on a limited set of signs, and neither appear to be involved in productive word formation processes. In general, Johnston believes that affixation is a strategy “rarely used in the morpho-syntax of Auslan” (p. 247). This also seems true of BSL (Brennan, 1990) and ASL (Liddell & Johnston, 1989).





DISLIKE



UNEMPLOYED



NOT-WANT

A small set of signs appear to make use of the negative suffix. Examples listed by Johnston (1989b) included signs such as AGREE and DISAGREE, WANT and NOT-WANT, TASTE and DISLIKE, BOTHER and CAN'T-BE-BOTHERED, WITH and WITHOUT. In each pair, the second sign ends in a Flat or Five handshape twisted into a palm up or palm away position. Additional examples include the signs UNEMPLOYED, USELESS, DISBELIEVE and NOT-TRUE. It is possible that some of these signs do not actually represent cases of affixation. It may be that NOT-WANT, for example, is simply a reversal of the movement in WANT. Other signs may have once included a negative suffix, such as DON'T-KNOW, but are now made without any change in handshape or orientation.

In BSL, a similar negative marker exists which may be the source of the Auslan negative suffix (Brennan, 1992). As in Auslan, this sign appears to be work as a suffix on a subset of signs, such as the BSL signs NOT-SEE, NOT-SAY, NOT-INTERESTED, etc. This sign, however, does seem to be much more widely used than its Auslan equivalent. Brennan (1990) referred to it as "one of the most widely used markers of negation" in BSL (p. 137). Furthermore, it can occur on its own in particular contexts in BSL, which suggests that it should be considered a free morpheme rather than a bound morpheme. This contrasts with the case in Auslan, where the status of this morpheme as an affix (at least for some signs) seems certain, but its continuing productivity is doubtful.

The second affix in Auslan is an ending equivalent to English '-self' which follows pronominal signs. In this sign, the Point hand flicks open to a Five hand. The citation form has this change of handshape occurring "after the pointing sign has clearly been made and results in a distinct bounce between the two parts of the sign" (Johnston, 1989b, p. 246). Some signers, however, may simply produce SELF without the preceding pronominal sign, and instead may use the sign directionally, simply signing SELF towards the addressee to mean 'yourself'. Although clearly an affix in the citation forms given by some signers, the reflexive only attaches to pronominal signs. It is thus limited to this closed set and plays no part in general processes of word formation.

Auslan appears to have borrowed the so-called *agentive suffix* from ASL (Liddell & Johnson, 1989). A number of ASL signs, such as TEACHER, LAWYER and ACTOR, are produced by combining the verb sign with the sign for PERSON, as in TEACH + PERSON. Although these ASL signs are perhaps best considered examples of compounds, some Auslan signers produce signs borrowed from ASL, such as INTERPRETER and EDUCATOR, in this way. The PERSON part of the compound does not exist as an independent morpheme with this meaning in Auslan, and thus has entered the language only as a bound morpheme. Its usage appears not to be widespread, however, and it remains to be seen whether or not this affix will be widely adopted by Auslan signers.

Some common English affixes may be fingerspelt and combined with an Auslan sign, as in 'P-R-E' + SCHOOL for 'preschool', 'B-I' + LANGUAGE + PROGRAM for 'bilingual program' and 'T-H' as in TWO-HUNDRED + T-H for 'two hundredth'. Although this type of

fingerspelling of prefixes is not unusual in Auslan, it is perhaps best considered an example of lexical borrowing from English (see 4.6 below).

4.5 Compounding

Unlike affixation, compounding appears to be one of the most common ways in which new lexicalised signs develop. Compounding, as already noted in Chapter 3, refers to the process of combining two or more elements which could potentially be used as separate signs to form another sign. Examples of compounds include signs such as BELIEVE and DELICIOUS. The sign BELIEVE is derived from a combination of the signs THINK + HOLD, while the sign DELICIOUS results from a compounding of TASTE + GOOD.

Compounding is a process extensively used in spoken languages. In fact, according to Bauer (1988), it seems that there is no known language that does not have compounds. In many languages, such as Mandarin Chinese, compounding is the main way of producing new lexical items. In 4.1 above, an example of a compound in English, the word 'greenhouse', was introduced. Other examples of English compounds include words such as 'blackboard', 'bathroom', 'homework', 'strawberry', 'railroad', and 'highway'.

When two or more separate words come together to form a compound in English, changes in the pronunciation and meaning of the words result. We already have seen how a new meaning is created in compounds, so that the compound *greenhouse* no longer has the same meaning as the phrase *green house*. In addition to the semantic change, there is also a change in the stress. Unlike the phrases *green house* and *black board*, the compounds *greenhouse* and *blackboard* are pronounced with the primary stress on the first element (i.e. greenhouse, blackboard).

Thus we can see that there are specific changes in the production and meaning of morphemes in English compounds which signal that we are dealing with a single word and not a phrase. In Auslan, as in other sign languages, evidence can be found of distinctive changes in the form and meaning of each compound as a result of the process of lexicalisation. The most detailed description of this compound lexicalisation process in a sign language comes from the work of Klima and Bellugi (1979), Liddell (1984), and Brennan (1990). Looking at a small number of examples, it appears that these analyses of compounding in ASL and BSL provide an excellent framework for the analysis of compounds in Auslan. There appear to be six major types of formational changes in lexicalised compounds.

Firstly, "the movement in the first sign in a compound tends to be shortened or reduced in some way" (Brennan, 1990, p. 140). Examples of such compounds would include the sign CHILDREN (LITTLE + SHORT), BOYFRIEND (BOY + FRIEND), CHECK (SEE + GOOD-OR-BAD), the sign FURIOUS (THINK + BAD). This change in movement is very clear in the sign CHILDREN. This sign combines the signs for LITTLE and SHORT but the production of both signs is reduced in the compound. When used as an individual lexical item, the sign LITTLE is made with repeated or twisting contact. In the compound however, the first



CHILDREN



CHECK

part of the sign is produced with a single contact. Similarly, in BOYFRIEND, the sideways brushing movement of BOY is dropped, and the hand moves straight off the chin to form the second part of the compound.

Brennan (1990) argues that the reduction of the first sign is evident in many compounds that combine the signs SEE or THINK (signs both BSL and Auslan share) with some other sign. She points out that when SEE is produced as a citation form, it is made with a clear movement away from the signer. THINK has “a clearly perceived hold when the contact is made with the head” (Brennan, 1990, p. 141). Yet in the Auslan compounds CHECK or FURIOUS, these formational characteristics of the signs SEE and THINK are reduced, if not lost altogether. In CHECK, for example, the hand simply touches the face below the eye and moves down into neutral space as the handshape changes. The outward movement usually associated with the sign SEE blends into the downward movement towards the location for GOOD-OR-BAD.



TOMATO

Secondly, “the second sign in a compound tends to lose repetition of movement” (Brennan, 1990, p. 140). Examples include the sign PARENTS (MOTHER + FATHER), TOMATO (RED + BALL), and WORKSHOP (WORK + SHOP). The double contact movement is lost in the second half of the sign PARENTS where the FATHER component is made with a single contact, rather than the usual repeated movement. The sign WORKSHOP may or may not include repetition of the movement in the first sign WORK (as in its citation form), but the movement in SHOP appears never to be repeated in the compound. Other signs like TOMATO show a similar pattern. In one form, the twisting motion associated with BALL is lost completely. There appear to be exceptions to this rule, however, such as in the sign EXPENSIVE, where the second component retains its repeated movement, and also in the sign CHECK where the second sign sometimes maintains its twisting movement.



OBLIVIOUS

Thirdly, “if the second sign makes use of the left hand as a base, that hand tends to take up its position at the start of the whole compound rather than simply at the start of the second sign” (Brennan, 1990, p. 141). Examples of this include the signs BELIEVE (THINK + HOLD), SOUVENIR (MIND + STICK) and OBLIVIOUS (THINK + RUN-OUT). Generally, as Brennan explains, if the two signs that make up a compound like BELIEVE or SOUVENIR were produced as separate signs then the base or subordinate hand would not usually assume its position before the start of the second sign. This may be less true in fluent, rapid signing. In citation forms of compounds like BELIEVE, however, the base hand will take up its position right from the beginning of the sign. This anticipation is typical of compounds which employ two hands.

Fourthly, “the transition between the two signs tends to be made more smooth and fluid” (Brennan, 1990, p. 141). Many of the signs we have so far examined illustrate this principle. Brennan discussed the sign CHECK (SEE + GOOD-OR-BAD) in some detail, a sign which has an identical form in Auslan and BSL. She showed how the sign undergoes assimilation of handshape. *Assimilation* means that a particular feature of a sign’s formation, such as its hand-

shape, location or movement, becomes similar to the features of a sign produced before or after it. The citation form of the sign SEE uses a Point handshape. The sign CHECK, however, usually begins with the ILY handshape placed beside the right eye rather than a simple Point handshape as in the citation form of SEE. This sign also shows assimilation of location in the second component. The sign GOOD-OR-BAD is usually made in neutral space, yet in CHECK it is raised from its normal position and often produced at eye level.

Fifthly, "the compound sign tends to have a similar duration to a simple sign, rather than the duration of two signs in a phrase" (Brennan, 1990, p. 141). The sign PARENTS (MOTHER + FATHER) is a very clear example of this. In its citation form, the sign MOTHER is usually produced with a repeated movement, as is the sign FATHER. The compound PARENTS, however, is inevitably produced as one (or perhaps two) movements. According to Liddell and Johnson (1989), signs like MOTHER and FATHER could be analysed as consisting of an approaching movement, a transitional movement followed by another approaching movement and ending with a hold (MMM^H). This means that the dominant hand approaches to make contact with the palm of the subordinate hand, followed by a transitional movement upwards before it moves down again and is held briefly in contact with the palm. The sign PARENTS consists only of an approaching movement, a hold, a movement involving a handshape and location change and another hold (MH^{MM}). It may also be produced simply as a hold-movement-hold combination (HMH). Although each sign is produced as a MMM^H alone, the resulting combination is not MMM^H + MMM^H, but simply MH^{MM} or HMH. This process (and the other four changes in the production of compound signs listed above) reflects the general phonological constraints on monomorphemic forms mentioned in Chapter 2: no sign may have more than two changes in movement (not counting transitional movements), or two changes in handshape, orientation or location. In fact, as first noted by Coulter (1982, cited in Brentari, 1995b), the compounding process appears to illustrate the pressure on signs to be monosyllabic whenever possible, since it often reduces potentially disyllabic signs (such as BELIEVE which is a combination of two monosyllabic signs THINK + HOLD) to forms which have only one syllable.

Finally, as in the English examples examined above, "it may not be possible to predict the meaning of the new sign simply by looking at the two signs that form the compound" (Valli & Lucas, 1995, p. 61). The signs LUCKY and BAD-LUCK, for example, appear to be derived from a combination of the signs NOSE + GOOD and NOSE + BAD. It is possible that this combination may have had a clearer link to its meaning at some earlier stage in the language's history, but the relationship between NOSE + GOOD and the meaning 'luck' or 'lucky' is now quite unpredictable. This shift in meaning is typical of most compound signs in Auslan. Even though it is possible to see connections between the meanings of the component signs and the meaning of the compound as a whole in examples such as YOUR-RESPONSIBILITY (WORK + YOUR), FIND (SEE + HAVE) or WITNESS (SEE + FINISH), it seems clear that these signs have come to act as a single meaningful unit.

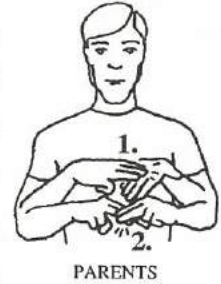




Table 4.2 shows examples of other compounds in Auslan. Some signers may be surprised to see some of the forms listed here as compounds. In many of these signs, the process of assimilation has resulted in forms of these signs that are perhaps more appropriately considered as *blends*. A blend is a new lexical item formed from a combination of other lexical items, but the original forms may be unrecognisable in the blend. The signs EXPERIENCE and DOESN'T-MATTER appear to have developed from compounds, for example, but it is not easy to say what the original signs in the compound were. The first part of EXPERIENCE may be related to the sign KNOW, and the second part of DOESN'T-MATTER resembles the sign FINISH, but the other parts of the sign are no longer recognisable.

Table 4.2 Examples of lexicalised compound signs in Auslan.

Elements of compound	Meaning of compound	Elements of compound	Meaning of compound
FACE + GOOD	handsome	THINK + TRUE	believe, trust
RED + FACE	embarrassed	THINK + RIGHT	decide
RED + FLOW	blood, bleed	SAY + FORGIVE	apologise
LIKE + ONE	please-oneself	WHITE + FACE	pale
HOME + WRITE	homework	THINK + STRONG	determined
YELLOW + HAIR	blonde	SAY + TRUE	promise, honest
THINK + AIM	intend, aim-to-do	SAD + STRONG	grief
KNOW + ALL	famous	BOOK + STAMP	passport
THINK + FINISH	relief, glad-it's-all-over	WRONG + MIND	feel-guilty, mistaken

Compounds are an important way that Auslan continues to create new lexical items, particularly through the process known as loan translation (see section 4.6.1.1 below). Deaf students and sign language interpreters at Griffith University in Brisbane, for example, have developed many new lexicalised signs for academic terminology through compounding. Some examples include BOOK + LIST for BIBLIOGRAPHY, THINK + HOPE for EXPECT, and EXPLAIN + STORY for DEFINE.

4.6 Lexical borrowing

Lexical borrowing is “a process in which words from one language are incorporated into another language” (Wilcox, 1992). This borrowing process is in fact one of the most common ways for all languages to create new signs or words. The vocabulary of English, for example, includes many words borrowed from other spoken languages. A great number of borrowed words are part of the basic vocabulary of the language, and most English speakers use them on an everyday basis without any awareness of their origins (Katamba, 1994).

Auslan borrows both from English (via fingerspelling, loan translations and mouth patterns) and from other sign languages. Brennan (1992) observed that users of particular sign languages are increasingly borrowing from each other because of the greater opportunities for international travel, and greater access to information about sign languages and deaf communities in other countries. Many of the signs for foreign countries and cities have been borrowed from the deaf communities in those places. Some examples of borrowed place names in Auslan include the signs for AMSTERDAM, BERLIN, HONG-KONG, TAIWAN, LONDON, NEW YORK, TOKYO, LOS ANGELES, JAPAN, AMERICA, ITALY, THAILAND, and AUSTRIA. Some of these signs are widely used in the Australian sign community, while others may only be known to those who have travelled extensively.

Two main kinds of changes occur to a lexical item when it is borrowed from one language into another (Wilcox, 1992). Firstly, the form of the lexical item is often restructured to make it more closely resemble the phonological form of words in the native language. In the case of Auslan, borrowed words are most commonly fingerspelt using the two-handed manual alphabet, or are translated into signed form. Fingerspelling and signing may also be accompanied by mouthing. Secondly, the meaning of the borrowed lexical item is often modified. The borrowed item may come to have either a more general or a more specific meaning in Auslan. The fingerspelt D-O, for example, is generally used only as a main verb in Auslan (TOMORROW YOU D-O WHAT? 'what are you doing tomorrow?'), not as an auxiliary verb (YOU WANT WHAT? 'What do you want?'). The ASL sign originally meaning SELL or SHOP is used by some signers to mean MARKET, or MARKETING. It has come to have a more restricted meaning in Auslan than in ASL, probably because signers use native Auslan signs for SELL and SHOP.

4.6.1 Borrowing from English: the role of fingerspelling

Fingerspelling plays an important and complex role in Auslan. Since fewer than one in a thousand Australians (or 0.1% of the general population) is deaf, Auslan signers form a very small signing community surrounded by a much larger English-speaking community. English is the language of literacy for all Auslan signers, as well as the dominant language in the workplace, education system and mass media. The fingerspelling alphabet is one way for signers to represent written English words on the hands, so that the written words of English can be used in and mixed with the sign language of the deaf community.

Many researchers have suggested that fingerspelling is a kind of *code-mixing* or *code-switching* between sign languages and spoken languages (Sutton-Spence & Woll, 1993). Code mixing refers to the mixing of different languages so that a single utterance may contain words and grammatical constructions from two or more languages. Code switching occurs when a person produces part of an utterance in one language and then switches to another language for another part, thus changing from one language to another in the same conversation. Fingerspelling one or two words in a signed utterance might be considered a type of code-mixing,

while producing a complete phrase entirely in fingerspelt English and another in Auslan would clearly be an example of code-switching. This type of language mixing is normal in all bilingual communities and is very common all over the world (Romaine, 1990, cited in Sutton-Spence & Woll, 1993).

Fingerspelling is regularly mixed with signing by all members of the deaf community, although some older signers appear to use fingerspelling far more often in their signing than younger signers. It is used for spelling the names of people and places, or for English words which do not have a lexicalised sign in Auslan (Branson, Toms, Bernal & Miller, 1994). Sutton-Spence and Woll (1993) pointed out that this does not mean that it is not possible to express the concept in sign, but simply that there is not yet any widely accepted sign equivalent. Fingerspelled forms may also often be preferred over a recently-coined sign because "they may refer to domains of knowledge whose centre is outside the Deaf community, or because they refer to a discipline-specific term that may have not undergone broad discussion within the Deaf community" (Brentari, 1995b, p. 42). Sometimes fingerspelling introduces an English word, which is presented in combination with an Auslan sign that is similar in meaning. Fingerspelling is also used to give the English word for an unfamiliar, technical or regional sign. Sometimes signers will fingerspell English words that have a widely-used lexicalised sign in Auslan. This may be perhaps because they do not know the sign, because they prefer the English word in that situation, or because they are trying to emphasise some point in the conversation.

Although fingerspelling is used to represent English words, is important to realise that what are often called the "letters" of fingerspelling may in fact also be considered Auslan signs, each with a handshape, location and movement of its own (Valli & Lucas, 1995). Of course, many of the handshapes of these signs look like the written symbol they represent (such as C or D or P), but each of these is of course a sign and not a letter. It is perhaps more appropriate to regard each of these letter signs as separate morphemes (see Sutton-Spence & Woll, 1993, for an alternative analysis). These morphemes are then combined to produce complex, polymorphemic fingerspelt signs. As in compounding, characteristic changes take place when these letter signs are produced in sequence. In the rapid fingerspelling of native signers, not all the letters of a word are fingerspelt and the parts blend together, so that it is often only the overall sign shape that is recognised, not the shapes of the individual letter signs themselves (Johnston, 1989b). Handshapes for a given letter may also vary, and this seems to depend on the surrounding letters. The fingerspelt letter 'B', for example, may be made with the third, fourth and fifth fingers open, but these fingers are usually closed if the letter occurs at the end of a word (Sutton-Spence & Woll, 1993).

Because fluent signers do not fingerspell all the letters of a word, common fingerspelt words may become so modified over time that only a few letters of the word are usually produced by a signer. Often the first and last, or sometimes only the first letter is used, and the other letters are dropped. Other regularly fingerspelt words may already only have two or three

letters. In such cases, the fingerspelt word may become part of the sign language lexicon. These frequently fingerspelt words may change over time to obey the same phonological constraints as other Auslan signs. There are many examples of signs in Auslan that have developed out of commonly fingerspelt words. These signs are examples of *lexicalised fingerspelling*, because they have become lexicalised signs in the language (Valli & Lucas, 1995).

Sutton-Spence and Woll (1993) have produced a description of the various categories of lexicalised fingerspelling signs in BSL. Since BSL and Auslan are historically related languages, and because many of the examples they discuss also occur in Auslan, Sutton-Spence and Woll's description has been used here as a framework for the discussion of lexicalised fingerspelling in Auslan.

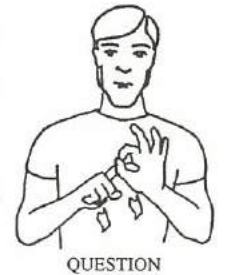
4.6.1.1 Single letter signs

These signs involve the use of the first letter of the English word. In informal signing, signers often fully fingerspell an English word when they first introduce it into the conversation, but then later simply fingerspell the first letter of the word to refer back to it. This often happens with the names of people and places. If the meaning is clear in a particular context, sometimes the single letter is used from the beginning. This is particularly true of signs of measurement, as in YEAR ('Y'), CENT ('C') or WEEK ('W'). Because some of these single letter signs are only clear in context, or because English mouthing is often used to make the meaning clear, some of these items appear only to be weakly lexicalised. An example of this is the use of 'M' to mean MONTH, METRE or sometimes MINUTE.

Other single letter signs appear to work as fully lexicalised signs in Auslan. In many of these fingerspelling signs, the movement is reduplicated. Examples of this include DAUGHTER ('D-D'), FATHER ('F-F'), MOTHER ('M-M'), KITCHEN ('K-K'), ALCOHOL ('A-A'), RATHER ('R-R'), TOILET ('T-T'), VERY ('V-V'), PARRAMATTA ('P-P'), QUEENSLAND ('Q-Q'), BRISBANE ('B-B').

Sutton-Spence and Woll (1993) suggested, that in some cases, the reduplication found in the forms listed above may reflect the syllable structure of the corresponding English word. This may be true, but Woll (1983) has pointed out elsewhere that the addition of movement is a very common way of preventing the development of too many fingerspelt signs with an identical form. Certainly this seems true of many signs where a single letter is combined with a particular movement, as in ENGLAND, FRIDAY, MILLION, BILLION, PROMOTE, GOLD, SILVER, PENRITH. In many of these cases, the movement seems to have no meaning of its own, and may simply have been added as a distinguishing feature. The recently-coined sign for TELSTRA (the major telecommunications company in Australia) seems to be an additional example. Here the fingerspelt T (a Point handshape) flicks open to a Five handshape. This movement bears little relationship to the sign's meaning and simply works to distinguish it from other fingerspelt forms based on the letter T, such as the sign TOILET.

Sometimes, however, the addition of movement to a fingerspelt form may reflect some aspect of Auslan grammar, as in the directional use of the 'Q' and 'A' in QUESTION and



ANSWER. In other cases, greater modifications may take place. The handshapes on both hands may become the same, so that the resulting sign is easier to produce, as in the signs AUNT and UNCLE. Or a sign may be formed from one hand of a two-handed letter, as in the signs NIECE and NEPHEW.



AUNT



CLASS

In a small number of examples, it is clear that the single letter has combined with an Auslan sign with a related meaning, as in the signs CLASS and FAMILY, from the sign GROUP, or the sign CHOCOLATE from LOLLY. This process is called *initialisation*. There are many examples of initialised signs which use one-handed fingerspelling handshapes but, because these are often signs borrowed from other sign languages (such as ASL) or from contrived sign systems (such as Australasian Signed English), we will not consider these here. In other signs, the letter makes a kind of compound with a sign, as in SUNDAY ('S' + PRAY), GOD ('G' + UP), or a recent sign for INTERNET (a double-handed 'I' + NETWORK).

4.6.1.2 Acronyms and abbreviations

Fingerspelt acronyms (using the initial letters, not the full word) are often used by Auslan signers. Some of these acronyms may also be used by the wider English-speaking community, while some may only be known to members of the signing community. Acronyms may be signed while mouthing the individual letters, such as 'ay ess el' for 'A-S-L' (American Sign Language), while others may be accompanied by the lip patterns of the words they represent. Some of the most widely used examples would include: 'A-A-D' for Australian Association of the Deaf, 'D-R-A' for Deafness Resources Australia, 'A-E-C' for Adult Education Centre, 'V-V' for visual vernacular, 'C-W' for Commonwealth, 'A-B-C' and 'S-B-S' for the television channels, 'N-S-W', 'W-A', 'S-A' and 'T-A-S' for the states, 'S-Y' for Sydney, 'Q-V-B' for the Queen Victoria Building, 'C-Q' for Circular Quay, 'T-H' for Town Hall, 'D-H' for Darling Harbour, and 'N-Z' for New Zealand.

Other English words are abbreviated. Once again, this may be similar to familiar abbreviations in English, as in the names of the months of the year or days of the week, or it may be a form that is only used in the signing community. Examples include MONDAY ('M-O-N'), TUESDAY ('T-U-E-S' or simply 'T-T'), SATURDAY ('S-A-T'), JANUARY ('J-A-N'), FEBRUARY ('F-E-B'), DECEMBER ('D-E-C') and ADVERTISEMENT (A-D-V). Other abbreviations are those more commonly seen in print than heard in spoken English, such as E-G which is regularly used by signers to mean 'example' or 'for example'. Others are usually only found in particular combinations, such as E-X ME for 'excuse me'.

Many of these abbreviations are modified in particular ways, so that they are easier to produce. WEDNESDAY is often simply 'W-D', not 'W-E-D', and THURSDAY ('T-H') is regularly signed with the Middle handshape (not the Point) contacting the subordinate palm for the 'T'. For WOLLONGONG, the fingers of the Five hand often do not fully form a 'W', but simply brush past each other before forming the 'G'.

4.6.1.3 Whole English words

Not all fingerspelling in Auslan involves acronyms and abbreviations. A small number of whole English words are regularly used in Auslan and in BSL without the loss of any letters (Sutton-Spence & Woll, 1993). Examples of these include words such as L-A-W, S-O-N, M-A-Y, D-O and J-O-B. Other frequently-used English function words have been borrowed into Auslan and BSL. Examples of these include S-O, I-F, O-R and N-O. Perhaps because of their frequent use, many are often modified in a way that fits better in with the structure of Auslan signs. For some signers, the signs BUT and ABOUT are regularly fingerspelt in this way, with the medial vowels left out. Other signers use signs, such as BUT, FOR and HOW, which seem to have developed out of such modified fingerspelling patterns.

Lexicalised fingerspelling contrasts with other words which are only used by those whose signing is strongly influenced by English, and which reflect the use of English grammatical patterns. Those that are clearly English only and are not lexicalised fingerspellings are examples such as T-H-A-T, T-H-E, A, D-I-D, D-O (in questions), etc. Others seem to be regularly used by fewer signers or only in particular contexts, such as A-T and T-O (as in the commonly used phrase HAVE T-O meaning 'have to' in the sense of 'must').

4.6.1.4 Local lexicalisation of fingerspelt forms

Lexicalised fingerspelling represents another example of the lexicalisation process discussed at the beginning of the chapter. The lexicalisation of classifiers (e.g., MEETING) and of compounds (e.g., DEAF-CLUB) involve combinations of morphemes or of signs beginning to act as a single unit with a specific meaning. Lexicalisation also occurs in fingerspelling: the separate letter morphemes produced in sequence "...stand not for each letter in the English word, but for the concept the word conveys". They come to act like Auslan signs and "...conform closely to the constraints proposed for other well-formed native signs" (Brentari, 1995b). For example, as already noted, the longest monomorphemic signs in Auslan are disyllabic. No monomorphemic signs have more than two movements (excluding transitional movements), or two changes in handshape, orientation, or location. As a result, fingerspelt signs like D-O and S-O tend to retain both elements, since the resulting form produces a well-formed sign. Fingerspelt signs such as ABOUT, DECEMBER, WEDNESDAY and TASMANIA are, however, formed from three or more letter signs. The result is that some of the handshapes are usually dropped, or the number of parts tend to be reduced as they become more like Auslan signs. In fact, as Lucas and Valli (1995) pointed out, the process of lexicalisation actually operates on fingerspelling at all times, so that fully fingerspelt forms are often produced as increasingly reduced variants over the period of a single conversation. Signers will often fully fingerspell someone's name as they introduce them for the first time, but then the fingerspelling pattern quickly changes as the name is used over and over again in the conversation. The changes that occur are examples of the process called *local lexicalisation* (Brentari, 1995b). In this process, a fully fingerspelt form becomes lexicalised for the duration of a single conversation or signed

presentation. When the form appears for the first time, each letter is fully formed. Over successive productions, the form becomes “temporarily” lexicalised for the rest of exchange, achieving a stable form which more closely reflects the phonological constraints of the language.

4.6.2 Borrowing from English: loan translations

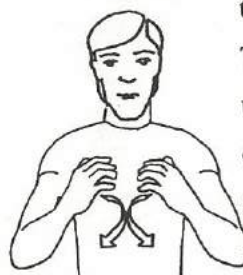
Fingerspelling, as discussed above, is the main way that Auslan borrows from English. Signers also borrow from English through a process called loan translation. Here, English words are translated literally into Auslan. In many cases, this process is a highly productive one, creating signs that pass into the language without notice, such as AUSLAN + TEACHER ‘Auslan teacher’, SUPPORT + GROUP ‘support group’ or SPORT + CAR ‘sports car’. The use of some loan translations, however, has become controversial in the signing community, especially since deaf people have begun to teach and carry out research into their own language. An example of signs which cause contention might be the forms sometimes used for FEEDBACK, BACKGROUND and BREAKDOWN. Some signers translate these directly into Auslan, combining the signs for FEED and GO-BACK, GO-BACK and GROUND, BREAK and DOWN. This combination of the individual signs for BREAKDOWN should be compared with the use of a single sign for BREAKDOWN, based on another sign for COLLAPSE, which is not borrowed from English and which some signers prefer to use. Many consider loan translations to be unacceptable, since they use combinations of signs that reflect the grammatical and semantic patterning of English rather than those more typical of Auslan. There is no doubt, however, that loan translations such as these (and many others) are widely used in the signing community. It is also true that not all loan translations are considered unacceptable in this way. Many such signs, such as FEEDBACK, WORKSHOP (WORK + SHOP) and COPYRIGHT (COPY + RIGHT) are widely used by sign language teachers. Other loan translations, such as the sign LOOK-AFTER (LOOK + AFTER), BOYFRIEND (BOY + FRIEND) or HIGH-SCHOOL (HIGH + SCHOOL) are well-established forms in the language. Many signs for place names are loan translations, such as BLACKTOWN (BLACK + TOWN), and others involve puns based on the sound or lip pattern of the English words, such as LEICHHARDT (LIE + HARD). Many of these signs, even those originally coined as a joke, seem to be accepted by members of the signing community.



BREAK



DOWN



BREAKDOWN

4.6.3 Borrowing from English: mouth patterns

Many signers make use of English or English-related mouth patterns while they are signing. This use of the mouth must be distinguished from the use of particular lip patterns described in Chapter 3 (such as “ee” and “th”) which appear to be unrelated to English words. Although the use of mouthing is widespread, it is clear that there is an enormous amount of variation from signer to signer, and that individual signers in different situations and with different audiences vary the amount and kind of mouth patterns they use. It is difficult to say whether mouth patterns should be considered part of the formational structure of particular signs, or simply a

result of contact between English and Auslan¹ (Brennan, 1992). Like many other areas of the language, research has not as yet been carried out into the use of mouthing by Australian signers, and not much is known about when and why Auslan users make use of English mouth patterns.

Although research on other sign languages suggests that mouthing occurs more often with lexicalised signs than classifier forms (Engberg-Pedersen, 1993), it is not always clear whether mouthing is an important part of some lexicalised signs, or simply an optional extra used in particular situations. For example, most Auslan signers use the same sign for 'husband' and 'wife', a sign we could gloss as SPOUSE. Although the sex of one's spouse is usually quite clear in context, some signers will mouth the English word 'husband' or 'wife' while producing this sign. Sometimes this may involve simply forming some of the consonants on the lips, as in 'h-sb' and 'w-f'. British researchers point out that in mouthing, as in lexicalised fingerspelling, vowels are sometimes reduced and changes to the mouth shapes of the consonants can occur (Brennan, 1992). Many signers do not produce mouthing of whole English words, apparently using this reduced mouthing simply as a means of distinguishing between the various meanings of a particular sign.

Mouthing also co-occurs with some fingerspelt items. It is sometimes used in conjunction with fingerspelt abbreviations (see above), apparently to disambiguate the various meanings that may be associated with the one fingerspelt form. In the Sydney deaf community, the same form, based on a reduplicated form of fingerspelt G is used by some signers to mean 'geography', 'generation', 'garage' and 'Gosford'. A similar form based on the manual alphabet form H is used for 'history', 'Hornsby' and 'Hurstville'. In each case, it appears that the accompanying mouth pattern may be used to ensure there is no misunderstanding, although once this meaning is established in a particular context, the mouthing may be dropped.

4.6.4 Borrowing from other sign languages: ASL and BSL

Auslan also regularly borrows from other sign languages, particularly ASL. As mentioned above, greater opportunities for travel has naturally resulted in sign languages borrowing from each other. As already noted, signs for some American cities, such as NEW-YORK, have become widely known in Australia. In turn, some ASL signers now use the Auslan sign for AUSTRALIA, rather than the older American sign (Valli & Lucas, 1995). Similarly, increasing contact with deaf people in Britain has resulted in some BSL signs being introduced into Auslan. BSL signs for LONDON, WALES, DIAGNOSIS, and BACKGROUND, for example, are used by some signers (Parker & Schembri, 1996). Recently, courses on linguistics at universities have begun to include a deaf students for the first time. Deaf students, lecturers and interpreters have introduced BSL signs for terms such as LINGUISTICS (although the ASL



¹The view that mouth patterns should be considered part of the basic formational structure of at least some signs is persuasively presented in a recent paper on German Sign Language (Ebbinghaus & Hessman, 1996).

sign is still more widely known), PHONOLOGY, MORPHOLOGY and ICONIC (Brien, 1992).

The amount of borrowing from BSL, however, remains very small compared with the number of ASL loan signs. Loan signs from ASL appear to have come from a number of sources. A small number of influential members of the Australian deaf community are themselves of American origin, while others are graduates of Gallaudet University or the National Technical Institute for the Deaf in Rochester, New York. Many other Australian deaf people have worked or lived for periods in the USA. Partly for these reasons, many ASL signs related to education and employment have entered Auslan, such as COLLEGE, PHILOSOPHY, THEORY, RESPONSIBLE, MARKETING and INTERVIEW. This is particularly true of signs in the area of language teaching, such as CURRICULUM, SUBJECT, TEST, COURSE and EVALUATE. Some Australian deaf people are involved in American religious organisations where ASL signs, such as those for CHURCH, EVIL, LORD, and MINISTRY, are used. The Australian Theatre of the Deaf has travelled considerably, participated in summer schools in the United States and established close links with American theatre groups. It is perhaps not surprising that the Auslan signs for STAGE, AMATEUR, PRODUCTION, and DIRECTOR have been borrowed or adapted from ASL.

Although greater contact between Americans and Australians has encouraged sign borrowing, there are other reasons for the large number of ASL loan signs in Auslan. The size and prestige of the American deaf community and the greater availability of materials on or in ASL have also played a role in this process. The signs used in Auslan for INTERPRET², ORGANISATION, LANGUAGE, COMMUNITY, IDENTITY and CULTURE reflect the influence of the highly politicised and powerful American deaf community on its much smaller Australian counterpart. In addition, educators of the deaf have introduced signs from ASL, specifically for use in deaf schools. Interpreters have introduced ASL signs for technical terms where no widely-accepted lexicalised Auslan sign existed.

Contact with ASL signers seems not only to have influenced the vocabulary of Auslan, but has also had some impact on the morphological system of the language. Some Auslan signers (particularly, it seems, from the northern dialect) now regularly use the ASL classifier handshape for vehicle, as shown here, rather than the usual Flat handshape morpheme. Although this a fairly recent phenomenon, its use has been observed amongst signers of different ages in the community. Although a borrowing, there may be additional explanations for the use of this classifier. As we have seen, the Flat handshape plays a variety of roles in the classifier system, and the adoption of the ASL classifier morpheme specifically for vehicles may reduce potential ambiguity.



INTERPRET



COURSE



ASL VEHICLE-PASS-BY

² This sign appears to have replaced an older Auslan sign for INTERPET based on a reduplicated form of the sign for FINGERSPELLING. This change in the language may reflect not only the influence of ASL on Auslan, but also the changing nature of the interpreting profession in Australia.

As Australian deaf people have become more aware of their language, many now strongly reject ASL signs that have been recently introduced into Auslan, especially if a sign for that concept already exists in the language. But as with loan translations, there is no doubt that many signers in the community accept and use borrowed ASL signs. It is important to remember that all languages borrow from each other and that all languages change over time. Many American signs have become part of the language, and many signers use these signs without being aware of their origins. It is interesting to note that the handshape of many ASL signs has been modified by Auslan signers so that the sign more closely resembles a well-formed native sign. This process is known as *nativisation* (Katamba, 1994). As a result, many initialised signs, such as ENVIRONMENT, EVALUATE, and PROGRAM, are regularly produced by Auslan signers using handshapes which differ from those used in the ASL signs. The American manual alphabet E and P handshapes in these signs are not handshapes that frequently occur in Auslan, as we saw in Chapter 2. Many signers produce these signs with the Round and Two handshapes respectively. The sign ORGANISATION, for example, is usually signed by Auslan signers with the Okay handshape, which actually more closely resembles an American F handshape rather than an O. Just as *croissant* (French), *spaghetti* (Italian) and *kindergarten* (German) are pronounced as if they were English words, so many ASL signs are produced by Australian signers as if they were Auslan signs.

4.7 Conclusion

This chapter (and in Chapter 3) has provided a brief exploration of the rich range of devices for creating new signs within the morphological system of Auslan. I have also outlined some of the ways in which Auslan incorporates lexical items from other languages (both spoken and signed) into its vocabulary. Signers may thus choose to use language-internal means for expanding the sign lexicon, or to borrow from external sources. In some cases, this means that there may be a number of different signs, each derived in a different way, for a related concept. For example, Auslan has two ways to express the equivalent of the English phrasal verb “look after”, as in the English phrase “to look after something or someone”. The first sign equivalent is related to the sign CAREFUL, and can also be used to mean “watch over”, “care for”, “take care of”, etc. Some signers may use this sign, for example, when referring to “looking after” or “taking care of” small children. Others may use a second sign. This is a literal translation into Auslan of the English phrasal verb “look after”, formed by compounding the two signs LOOK and AFTER. It may also appear in expressions borrowed from English such as LOOK-AFTER SELF “look after yourself”. These two different signs result from two different sign formation processes and occupy a different semantic space within the language. Although at present there is much heated discussion and debate amongst Auslan signers about which mechanisms are the most appropriate (an issue about which some signers have very strong feelings), it is important to remember that all languages expand their lexicons by both



TAKE-CARE-OF



LOOK



AFTER

external and internal means (Bellugi & Newkirk, 1981), and that examples such as these actually illustrate the rich range of options available to the individual user of Auslan.

...the first of these is the use of the hands to represent objects or actions. This is the most common way of representing objects and actions in Auslan. The hands are used to represent the shape, size, and position of objects, and to represent the movement and direction of actions. For example, the hands can be used to represent a ball, a cup, a book, or a person. The hands can also be used to represent the movement of a ball, a cup, a book, or a person. This is done by moving the hands in a way that suggests the movement of the object or action. For example, the hands can be moved in a circular motion to represent a ball being thrown, or in a straight line to represent a cup being moved. The hands can also be used to represent the direction of an action. For example, the hands can be moved in a way that suggests the direction of a person walking or running.

...the second of these is the use of the face and body to represent objects or actions. This is also a common way of representing objects and actions in Auslan. The face and body are used to represent the expression and posture of a person, and to represent the movement and direction of actions. For example, the face can be used to represent a person's expression of happiness, sadness, or anger. The body can be used to represent a person's posture of standing, sitting, or lying down. The face and body can also be used to represent the movement and direction of actions. For example, the face can be moved in a way that suggests the movement of a person's head, or the body can be moved in a way that suggests the movement of a person's arms or legs.

...the third of these is the use of the mouth to represent objects or actions. This is a less common way of representing objects and actions in Auslan. The mouth is used to represent the sound and meaning of words, and to represent the movement and direction of actions. For example, the mouth can be used to represent the sound of a word, or the meaning of a word. The mouth can also be used to represent the movement and direction of actions. For example, the mouth can be moved in a way that suggests the movement of a person's lips, or the direction of a person's tongue.

...the fourth of these is the use of the eyes to represent objects or actions. This is a very rare way of representing objects and actions in Auslan. The eyes are used to represent the direction of a person's gaze, and to represent the movement and direction of actions. For example, the eyes can be used to represent the direction of a person's gaze, or the movement and direction of a person's head or body.

- Aitchison, J. (1992). *Teach yourself linguistics*. London: Hodder & Stoughton.
- Aitchison, J. (1994). *Words in the mind: An introduction to the mental lexicon*. Oxford: Basil Blackwell.
- Allan, K. (1977). Classifiers. *Language*, 53, 285-311.
- Armstrong, D.F., Stokoe, W.C. & Wilcox, S.E. (1995). *Gesture and the nature of language*. Cambridge: Cambridge University Press.
- Baker, C. & Cokely, D. (1980). *American Sign Language: A teacher's resource text on grammar and culture*. Silver Spring, MD: T.J. Publishers.
- Battison, R. (1978). *Lexical borrowing in American Sign Language*. Silver Spring, MD: Linstok Press.
- Bauer, L. (1988). *Introducing linguistic morphology*. Edinburgh: Edinburgh University Press.
- Bellugi, U., & Newkirk, D. (1981). Formal devices for creating new signs in ASL. *Sign Language Studies*, 30, 1-35.
- Bonvillian, J., Orlansky, M.D., Novack, L.L. & Folven, R.J. (1983). Early sign language acquisition and cognitive development. In D. Rogers & J.A. Sloboda (Eds.), *The acquisition of symbolic skills* (pp. 201-214). New York: Plenum Press.
- Branson, J. & Miller, D. (1991). Language and identity in the Australian deaf community: Australian Sign Language and language policy—An issue of social justice. *Australian Review of Applied Linguistics*, 5-8, 135-176.
- Branson, J., Bernal, B., Toms, J., Adam, R. & Miller, D. (1995). *Introduction to Auslan: Level 2 student workbook and videos*. Melbourne: National Institute for Deaf Studies and Sign Language Research, La Trobe University.
- Branson, J., Toms, J., Bernal, B. & Miller, D. (1995) The history and role of fingerspelling in Auslan. In H. Bos & T. Schermer (Eds.), *Sign language research 1994: Proceedings of the Fourth European Congress On Sign Language Research, Munich, September 1-3, 1994* (pp. 53-67). Hamburg: Signum Press.
- Brennan, M. (1990). *Word formation in British Sign Language*. Stockholm: University of Stockholm.
- Brennan, M. (1992). The visual world of BSL: an introduction. In Brien, D. (Ed.), *Dictionary of British Sign Language/English* (pp.1-133). London: Faber and Faber.
- Brennan, M. (1993). Semi-semiotics for the semi-conscious (A review of Calbris, G. (1990). the semiotics of french gestures). *Signpost*, 6 (1), 47-54.
- Brennan, M. (1994). Pragmatics and productivity. In I. Ahlgren, B. Bergman, & M. Brennan (Eds.), *Perspectives on sign language usage: Papers from the Fifth International Symposium On Sign Language Research* (pp. 371-390). Durham: International Sign Linguistics Association.
- Brennan, M., Colville, M.D., & Lawson, L.K. (1984). *Words in hand: A structural analysis of the signs of British Sign Language* (2nd ed.). Edinburgh: Moray House College of Education.
- Brentari, D. (1995a). *Sign language phonology: ASL*. In J.A. Goldsmith (Ed.), *The handbook of phonological theory* (pp. 615-639). Cambridge, MASS: Blackwell.
- Brentari, D. (1995b). Prosodic constraints in American Sign Language: Evidence from fingerspelling and reduplication. In H. Bos & T. Schermer (Eds.), *Sign language research 1994: Proceedings of the Fourth European Congress on Sign Language Research, Munich, September 1-3, 1994* (pp. 39-52). Hamburg: Signum Press.
- Brentari, D. (1996). Trilled movement: Phonetic realization and formal representation. *Lingua*, 98, 43-71.
- Brien, D. (Ed.) (1992). *Dictionary of British Sign Language/English*. London: Faber and Faber.
- Burling, R. (1993). Primate calls, human language, and nonverbal communication. *Current Anthropology*, 34(1), 25-53.
- Collins-Ahlgren, M. (1989). *New Zealand Sign Language*. Unpublished doctoral dissertation, Victoria University, Wellington.
- Collins-Ahlgren, M. (1990). Word formation processes in New Zealand Sign Language. In S.D. Fischer & P. Siple (Eds.), *Theoretical issues in sign language research, 1: Linguistics* (pp. 279-312). Chicago: University of Chicago Press.
- Corina, D. & Sandler, W. (1993). On the nature of phonological structure in sign language. *Phonology*, 10, 165-207.
- Corina, D.P. (1990). Handshape assimilation in hierarchical phonological representations. In L. Ceil (Ed.), *Sign language research: Theoretical issues* (pp. 27-49). Washington D.C.: Gallaudet University Press.
- Corina, D.P., Poizner, H., Bellugi, U., Feinberg, T., Dowd, D., & O'Grady-Batch, L. (1992). Dissociation between linguistic and nonlinguistic gestural systems: a case for compositionality. *Brain and Language*, 43, 414-447.
- Coulter, G.R. & Anderson, S.R. (1993). Introduction. In C.R. Coulter (Ed.), *Phonetics and phonology, 3: Current issues in ASL phonology* (pp. 1-17). New York: Academic Press.
- Crowley, T., Lynch, J., Siegel, J. & Piau, J. (1995). *The design of language: an introduction to descriptive*

- linguistics*. Auckland: Longman Paul.
- Crystal, D. (1987). *The Cambridge encyclopedia of language*. Cambridge: Cambridge University Press.
- Eastman, G.C., Noretsky, M. & Censoplano, S. (1989). *From mime to sign*. Silver Spring, MD: T.J. Publishers.
- Ebbinghaus, H. & Hessman, J. (1996). Signs and words: Accounting for spoken language elements in German Sign Language. In W.H. Edmondson, & R.B. Wilbur (Eds.), *International Review of Sign Linguistics*, 1 (23-56). Mahwah, NJ: Lawrence Erlbaum Associates.
- Engberg-Pedersen, E. (1993). *Space in Danish Sign Language: The semantics and morphosyntax of the use of space in a visual language*. International studies on sign language and communication of the Deaf, 19. Hamburg: Signum Press.
- Frishberg, N. (1975). Arbitrariness and iconicity: Historical change in American Sign Language. *Language*, 51, 676-710.
- Fromkin, V., Rodman, R., Collins, P. & Blair, D. (1996). *An introduction to language* (3rd Australian Ed.). Sydney: Holt, Rinehart, and Winston.
- Hulst, van der, H. (1993). Units in the analysis of signs. *Phonology*, 10, 209-241.
- Hulst, van der, H. (1996). On the other hand. *Lingua*, 98, 121-143.
- Jeanes, R.C. & Reynolds, B.E. (1982) *Dictionary of Australasian signs for communication with the deaf*. Melbourne: Victorian School for Deaf Children.
- Johnson, R.E. & Liddell, S.K. (1984). Structural diversity in the American Sign Language lexicon. In D. Testen, V. Mishra & J. Drogo (Eds.), *Papers from the twentieth regional meeting of the Chicago Linguistic Society* (pp. 173-186). Chicago: University of Chicago Press.
- Johnston, T. (1989a). *Auslan dictionary: A dictionary of the sign language of the Australian deaf community*. Sydney: Deafness Resources, Australia.
- Johnston, T. (1989b). *Auslan: The sign language of the Australian deaf community*. Unpublished doctoral dissertation, University of Sydney.
- Johnston, T. (1991a). Transcription and glossing of sign language texts: Examples from Auslan (Australian Sign Language). *International Journal of Sign Linguistics*, 2 (1), 3-28.
- Johnston, T. (1991b). Spatial syntax and spatial semantics in the inflection of signs for the marking of person and location in Auslan. *International Journal of Sign Linguistics*, 2 (1), 29-62.
- Johnston, T. (1996). Function and medium in the forms of linguistic expression found in a sign language. In W.H. Edmondson, & R.B. Wilbur (Eds.), *International Review of Sign Linguistics*, 1 (57-94). Mahwah, NJ: Lawrence Erlbaum Associates.
- Katamba, F. (1989). *An introduction to phonology*. London: Longman.
- Katamba, F. (1996). *English words*. London: Routledge.
- Kendon, A. (1980). Gesticulation and speech: two aspects of the proces of utterance. In M.R. Key (Ed.), *Nonverbal communication and language* (pp. 207-277). The Hague: Mouton and Co.
- Kendon, A. (1988). *Sign languages of Aboriginal Australia: cultural, semiotic and communicative perspectives*. Cambridge: Cambridge University Press.
- Klima, E. & Bellugi, U. (1979). *The signs of language*. Cambridge, MA: Harvard University Press.
- Kyle, J.G. & Woll, B. (1985). *Sign language: the study of deaf people and their language*. Cambridge: Cambridge University Press.
- Lakoff, G. & Johnston, M. (1980). *Metaphors we live by*. Chicago: University of Chicago Press.
- Liddel, S.K. (1993). Holds and positions: Comparing two models of segmentation in ASL. In C.R. Coulter (Ed.), *Phonetics and phonology, 3: Current issues in ASL phonology* (pp. 189-211). New York: Academic Press.
- Liddell, S.K. & Johnson, R.E. (1989). American Sign Language: the phonological base. *Sign Language Studies*, 64, 195-277.
- Liddell, S.K. (1984). THINK and BELIEVE: sequentiality in American Sign Language. *Language*, 60, 372-399.
- Liddell, S.K. (1994). Tokens and surrogates. In I. Ahlgren, B. Bergman, & M. Brennan (Eds.), *Perspectives on sign language structure: Papers from The Fifth International Symposium on Sign Language Research* (pp. 105-120). Durham: International Sign Linguistics Association.
- Marschark, M. (1994). Gesture and sign. *Applied Psycholinguistics*, 15, 209-236.
- McDonald, B. (1982). *Aspects of the American Sign Language predicate system*. Unpublished doctoral dissertation, University of Buffalo.
- McIntire, M.L (1977). The acquisition of American Sign Language hand configurations. *Sign Language Studies*, 16, 247-266.
- McNeill, D. & Pedelty, L.L. (1995). Right brain and gesture. In K. Emmorey & J.S. Reilly (Eds.), *Language, gesture and space* (pp. 63-85). Hillsdale, NJ: Lawrence Erlbaum Associates.
- McNeill, D. (1985). So you think gestures are nonverbal? *Psychological Review*, 92 (3), 350-371.
- McNeill, D. (1987). *Psycholinguistics: A new approach*. New York: Harper and Row.

- McNeill, D. (1992). *Hand and mind: What gestures reveal about thought*. Chicago: The University of Chicago Press.
- Meier, R. & Newport, E. (1991). Out of the hands of babes: On a possible sign advantage in language acquisition. *Language*, 66, 1-23.
- Meier, R.P. (1991). Language acquisition by deaf children. *American Scientist*, 79, 60-70.
- Meier, R.P. (1993). A psycholinguistic perspective on phonological segmentation in sign and speech. In C.R. Coulter (Ed.), *Phonetics and phonology, 3: Current issues in ASL phonology* (pp. 169-188). New York: Academic Press.
- Miles, D. (1988). *British Sign Language: A beginner's guide*. London: BBC Books.
- Newport, E.L. & Meier, R.P. (1985). The acquisition of American Sign Language. In D.I. Slobin (Ed.), *The crosslinguistic study of language acquisition* (pp. 881-938). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Padden, C. & Humphries, T. (1988). *Deaf in America: Voices from a culture*. Cambridge, MA: Harvard University Press.
- Parker, D. & Schembri, A. (1996). *Technical signs for computer terminology: A sign reference book for people in the computing field*. Sydney: North Rocks Press.
- Penn, C. (1992). *Dictionary of Southern African signs for communicating with the Deaf, 1*. Human Sciences Research Council.
- Perlmutter, D. (1993). Sonority and syllable structure in American Sign Language. In C.R. Coulter (Ed.), *Phonetics and phonology, 3: Current issues in ASL phonology* (pp. 227-259). New York: Academic Press.
- Perlmutter, D. (1996). Compounds and lexemes in American Sign Language. Paper presented at the Fifth International Conference on Theoretical Issues in Sign Language Research, Montréal, Canada.
- Petitto, L.A. (1987). On the autonomy of language and gesture: evidence from the acquisition of personal pronouns in American Sign Language. *Cognition*, 27 (1), 1-52.
- Petitto, L.A. (1994). Are signed languages 'real' languages? Evidence from American Sign Language and Langue des Signes Québécoises. *Signpost*, 7 (3), 173-182.
- Pinker, S. (1994). *The language instinct: The new science of language and mind*. London: Allen Lane.
- Pizzuto, E. & Corazza, S. (1996). Noun morphology in Italian Sign Language (LIS). *Lingua*, 98, 169-196.
- Poizner, H., Klima, E. & Bellugi, U. (1987). *What the hands reveal about the brain*. Cambridge, MA: MIT Press.
- Prillwitz, S., Leven, R., Zienert, H., Hanke, T. & Henning, J. (1989). *HamNoSys Version 2.0: Hamburg Notation System for sign languages—An introductory guide*. Hamburg: Signum Press.
- Rimé, B. & Schiaratura, L. (1991). Gesture and speech. In F.S. Feldman & B. Rimé (Eds.), *Fundamentals of nonverbal behaviour* (pp.). Cambridge: Maison des Sciences de l'Homme & Cambridge University Press.
- Sandler, W. (1989). *Sequentiality and simultaneity in American Sign Language phonology*. Dordrecht: Foris.
- Sandler, W. (1996). Representing handshapes. In W.H. Edmondson, & R.B. Wilbur (Eds.), *International Review of Sign Linguistics, 1* (115-158). Mahwah, NJ: Lawrence Erlbaum Associates.
- Schermer, T. (1992). *In search of a language: Influences from spoken Dutch on sign language of the Netherlands*. Delft: Eburon.
- Schick, B.S. (1990a). Classifier predicates in American Sign Language. *International Journal of Sign Linguistics, 1* (1), 15-40.
- Schick, B.S. (1990b). The effects of morphosyntactic structure on the acquisition of classifier predicates in American Sign Language. In C. Lucas (Ed.), *Sign language research: Theoretical issues* (pp. 358-374). Washington D.C.: Gallaudet University Press.
- Singleton, J., Goldin-Meadow, S., & McNeill, D. (1995). The cataclysmic break between gesture and sign: Evidence against a unified continuum of gestural communication. In K. Emmorey & J.S. Reilly (Eds.), *Language, gesture and space* (pp. 287-311). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Singleton, J.L., Morford, J.P., & Goldin-Meadow, S. (1993). Once is not enough: Standards of well-formedness in manual communication created over three different timespans. *Language*, 69 (4), 683-715.
- Spencer, A. (1991). *Morphological theory: An introduction to word structure in generative grammar*. London: Basil Blackwell.
- Spicer, P. & Rogers I. (1989). *Technical signs for mathematics*. Sydney: The NSW Department of Technical and Further Education.
- Stokoe, W.C. (1960). Sign language structure: An outline of the communication systems of the American deaf. *Studies in Linguistics, Occasional Papers, 8*.
- Studdert-Kennedy, M. (1994). A review of McNeill, D. (1992). Hand and mind: What gestures reveal about thought. *Language and Speech*, 37(2), 203-209.
- Supalla, T. & Newport, E.L. (1978). How many seats in a chair? The derivation of nouns and verbs in American Sign Language. In P. Siple (Ed.), *Understanding language through sign language research* (pp. 91-132). New York: Academic Press.

References

- Supalla, T.** (1978). Morphology of verbs of motion and location in American Sign Language. In F. Caccamise & D. Hicks (Eds.), *Proceedings of the Second National Symposium on Sign Language Research and Teaching* (pp. 27-45). Silver Spring, MD: National Association of the Deaf.
- Supalla, T.** (1982). *Structure and acquisition of verbs of motion and location in American Sign Language*. Unpublished doctoral dissertation, University of California, San Diego.
- Supalla, T.** (1990). Serial verbs of motion in ASL. In S.D Fischer & P. Siple (Eds.), *Theoretical issues in sign language research, 1: Linguistics* (pp. 127-152). Chicago: University of Chicago Press.
- Sutton-Spence, R. & Woll, B.** (1993). The status and functional role of fingerspelling in BSL. In M. Marschark & M.D. Clark (Eds.), *Psychological perspectives on deafness* (pp. 153-183). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Valli, C. & Lucas, C.** (1995). *Linguistics of American Sign Language: A resource text for ASL users*. Washington, DC: Gallaudet University Press.
- Wallin, L.** (1994). *Polysynthetic signs in Swedish Sign Language: English summary of 'Polysyntetiska tecken i svenska teckenspråket'*. Stockholm: University of Stockholm.
- Webb, R.** (1996). Metaphoric gestures redefined: Standards of form and componentiality in gesture. Paper presented at the Fifth International Conference on Theoretical Issues in Sign Language Research, Montréal, Canada.
- Wilbur, R.B.** (1987). *American Sign Language: Linguistic and applied dimensions*. Boston: Little, Brown and Co.
- Wilbur, R.B.** (1990). Why syllables? What the notion means for ASL research. In S.D Fischer & P. Siple (Eds.), *Theoretical issues in sign language research, 1: Linguistics* (pp. 81-108). Chicago: University of Chicago Press.
- Wilbur, R.B.** (1993). Syllables and segments: Hold the movements and move the holds! In C.R. Coulter (Ed.), *Phonetics and phonology, 3: Current issues in ASL phonology* (pp. 135-168). New York: Academic Press.
- Wilcox, S.** (1992). *The phonetics of fingerspelling*. Amsterdam/Philadelphia: John Benjamins.
- Woll, B.** (1983). *Historical change in British Sign Language* (Final Report to the Leverhulme Trust). Deaf Studies Unit, University of Bristol.
- Woll, B.** (1990). Sign Language. In N.E. Collinge, (Ed.). *An Encyclopedia of Language* (pp.). London: Routledge.