Chapter 6

Classifiers as agreement markers

6.1 Introduction

I have argued that ‘classifier predicates’ consist of three types, in all of which the hand configuration is a meaningful unit, and that the hand configurations appearing on one of these types (VELMs) display different characteristics from those occurring in the other two types. I can now address the function of these hand configurations. In this chapter I will discuss the function of the hand configurations that appear on VELMs in the grammar of NGT, and to a certain extent, in sign languages in general. (The function of the meaningful hand configurations appearing on the other two types of predicates and in other signs will be discussed in Chapter 8.) We have seen in section 5.2 that the meaningful hand configurations in predicates expressing the motion, location or existence of a referent are systematically connected to the Theme argument of these predicates. In intransitive VELMs this is the subject and in transitive ones the object. In a discourse consisting of several clauses, the arguments are often left implicit after their introduction. Nevertheless, most of the time it is clear which referent is
involved in the motion, location, or existence that is expressed by the verbs, precisely because of the presence of these hand configurations. This suffices to keep track of the moving and located referents in such a discourse.

Linguistic referent-tracking devices come in various kinds. Verbal classifiers are among these, and I have shown that the meaningful hand configurations occurring on NGT VELMs share many characteristics with them. However, the occurrence of these hand configurations is even more systematic than verbal classifiers usually are. In this chapter, I will focus on an interpretation of these hand configurations as another well-known referent-tracking device, namely agreement marking. A similar interpretation was suggested earlier by, among others, Supalla (1982), Edmondson (1990), Janis (1992), Bahan (1996) and Benedicto & Brentari (to appear) for ASL, Bos (1990) for NGT and Glück & Pfau (1998, 1999) for DGS, although of all of these investigations, only the last presents an analysis in a clear theoretical framework. Sign languages have acknowledged agreement systems in which not hand configurations, but locations in signing space, function as agreement markers (as explained in section 1.5). Meaningful hand configurations therefore function as an additional agreement system. I will elaborate on the proposal by Glück & Pfau, and compare the meaningful hand configurations in NGT VELMs with noun class agreement systems of spoken languages. On the basis of this comparison, and taking into account the characteristics of the agreement system in which locations in signing space are used, I propose a feature-based account of agreement in NGT.
This chapter is structured as follows. In section 6.2, I discuss agreement systems in sign languages and argue (following Glück & Pfau) for an analysis of the meaningful hand configurations as agreement markers. I will focus on the morphological structure of VELMs in section 6.3. In section 6.4, I discuss some recent accounts of classifier predicates and compare them to my own analysis. Section 6.5 contains a summary.

6.2 Agreement

In this section I discuss the expression of agreement in connection with meaningful hand configurations on VELMs in NGT. First, I will discuss the connection between verbal classifier systems (including classifiers in NGT) and noun class agreement systems (section 6.2.1) and claim that while classifiers in NGT are very similar to verbal classifiers in spoken languages, they in fact function as agreement markers in a manner similar to noun class agreement. In section 6.2.2, I will propose a set of φ-features for the markers of agreement in sign languages. As a basis for the agreement account of classifiers, I outline the theoretical framework used (Distributed Morphology) in section 6.2.3. A discussion of the agreement account of Glück & Pfau (1998, 1999), which serves as a basis for my analysis, appears in section 6.2.4. In section 6.2.5, I provide my analysis of the implementation of agreement in sign languages.

6.2.1 Noun class agreement and NGT classifiers

In section 5.5, I have shown that the meaningful hand configurations on VELMs share many morphosyntactic and semantic characteristics with verbal classifiers in spoken languages. I have also shown that the use of
these hand configurations is even more systematic than that of verbal classifiers in spoken languages usually is, because the meaningful hand configurations occur obligatory, in contrast to (most) verbal classifiers in spoken languages. Strikingly, there are also spoken languages in which verbal classifiers are used obligatorily. An example is Miraña, a Witotoan language spoken in the Colombian Amazon. According to Seifart (2002, to appear), the verbal classifier system of Miraña shares some of the characteristics of noun class systems.\footnote{Seifart claims that the verbal classifier system of Miraña is evolving towards a noun class system. Evolution is a common issue in the literature on classificatory devices, although the evolutionary stages of a system can not usually be verified, because of the scarcity of historical material. It is still rather early to discuss the evolution of sign language classificatory systems, since the available data go back just a few decades in the best case.}

In noun class systems (such as those of Bantu languages), agreement markers appear on several elements in a sentence, including elements within the DP and outside it, namely on the predicate. The morphemes that expresses agreement with a particular noun can show variation in form depending on (among other factors) their host. Some examples from Luvale are in (1), in which the agreement morphemes occurring on the predicates are printed in boldface:\footnote{Luvale is a Bantu language spoken principally in the northeast of Angola, the northwest of Northern Zimbabwe and along the frontier of the Belgian Congo.}

\begin{quote}
(1)a. Vi-fuhwa vy-enyi vy-osena vy-acilikikile
\begin{itemize}
\item NC:4p-bone
\item NC:4p-POSS
\item NC:4p-all
\item NC:4p-became.crushed
\end{itemize}
‘All his bones were broken’.
\end{quote}
b. Mu-nwe we-nyi u-mwe u-najimbi
   CL:2s-finger CL:2s-POSS CL:2s-one CL:2s-has.swollen
   ‘His finger is swollen.’

c. Va-kweze j-etu va-mu-kwacile
   NC:1p-youth NC:1p-POSS1 NC:1Ps-NC:1Ss-catch.RMP
   uze-m-wane waru-pi
   that-NC:1s-child NC:1s-bad
   ‘Our youths have caught that wretched child.’

   (adapted\textsuperscript{3} from Horton 1949: 26/29/37, ex. 50c/58c/84d)

I compared meaningful hand configurations on VELMs with spoken language verbal classifier systems in section 5.5, and here I will compare the morphosyntactic and semantic characteristics of these meaningful hand configurations with those of noun class agreement systems. For that purpose, I summarize a number of prototypical characteristics of noun class systems marking agreement on the verb from the overview literature (Aikhenvald 2000; Grinevald 2000) and from overviews of the noun class agreement systems of a number of Bantu languages (Horton 1949; Hyman 1979; Anderson 1980; Hedinger 1980; Stallcup 1980; Watters 1980; Carstens 1993). These characteristics are as follows:

\textsuperscript{3} Adaptation of the Luvale examples in this chapter consist of separating the different morphemes within a word (as far as possible from the descriptions of the examples), adapting the glosses accordingly and addition of a prose translation in English, based on the glossed translation.
1) A noun class agreement marker always indicates an argument of the verb.
2) A noun class agreement marker can indicate the subject/Agent or the direct object of the clause.
3) Noun class agreement markers are used to keep track of the referent arguments of the verb.
4) Noun class agreement markers appear obligatorily on verbs, although there are circumstances in which object agreement markers are left unexpressed.
5) Noun class markers appear on all verbs.
6) The assignment of nouns to noun classes is partly semantically based, but also related to the morphology or phonological characteristics of the noun.
7) Nouns are usually associated with one class, although some variability is possible, especially in systems in which the noun classes are semantically transparent. In the latter systems the choice of a noun class marker depends on the viewpoint of the speaker.
8) All nouns are member of a noun class.
9) The system has a limited, countable number of classes.

The prototypical characteristics of noun class agreement systems are summarized in Table 1 and compared to the characteristics of NGT meaningful hand configurations on VELMs.
Table 1  Noun class systems compared to NGT classifiers

<table>
<thead>
<tr>
<th>Noun class-gender systems</th>
<th>NGT classifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. linked to arguments of the verb</td>
<td>yes</td>
</tr>
<tr>
<td>2. S/A or direct object</td>
<td>S/O</td>
</tr>
<tr>
<td>3. referent-tracking</td>
<td>yes</td>
</tr>
<tr>
<td>4. usually obligatorily present</td>
<td>yes</td>
</tr>
<tr>
<td>5. present on all verbs</td>
<td>no</td>
</tr>
<tr>
<td>6. assignment partially semantic, but also</td>
<td>mainly semantic</td>
</tr>
<tr>
<td>morphological and/or phonological</td>
<td></td>
</tr>
<tr>
<td>7. nouns are basically uniquely assigned to a</td>
<td>no</td>
</tr>
<tr>
<td>class (but some variation is possible)</td>
<td></td>
</tr>
<tr>
<td>8. classification of all nouns</td>
<td>?</td>
</tr>
<tr>
<td>9. limited number of classes</td>
<td>yes</td>
</tr>
</tbody>
</table>

*Deviances are shaded.*

The characteristics of these hand configurations are clearly similar to the prototypical characteristics of noun class markers that appear on verbs. They typically pattern like noun class agreement in Bantu languages.

4 Traditionally, ‘noun class’ and ‘gender’ have been distinguished in the linguistic literature. Corbett (1991:5) indicates that the difference between the two is marginal, based on the semantics of the classes, gender being sex-based and noun class having different bases such as humanness, animacy, and shape, and treats them as one, ‘gender’ system. For this reason, Van Gijn & Zwitserlood (2001, to appear) use the term ‘gender agreement markers’ for classifiers. Since I would like to maintain the terminology I have used so far, I will refrain from introducing this new term here.
First, both in noun class agreement systems and in VELMs, the marker that appears on the verb expresses the relation between an argument of the verb and that verb. The markers can be linked to the subject argument and to the object markers (In contrast to NGT, Bantu languages do not have different agreement markers for subject and object). As in Bantu languages, the markers in NGT function to maintain reference with a noun and appear obligatorily. Furthermore, both Bantu languages and NGT have a limited set of markers. For instance, Horton (1949) indicates that the Bantu language Luvale has eighteen classes, following the classification system of Proto-Bantu proposed by Meinhof (1948), whereas Kiswahili has fourteen (Carstens 1993). It should be noted that the classes as proposed by Meinhof include singular and plural classes, and thus the number of classes can be reduced as suggested by Carstens (1993). She indicates that the fourteen classes of Kiswahili should be reanalysed as nine classes, five of which have singular and plural markers, while the other four have only a singular marker. NGT, as we have seen in the previous chapter, also has a limited number of markers, namely fifteen entity classifiers and eight handling classifiers.

The characteristics of meaningful hand configurations in NGT and noun class agreement markers differ in the set of verbs on which they appear: in contrast to noun class agreement markers, the NGT meaningful hand configurations only appear on a subset of verbs. The non-occurrence of classifiers on the other verbs is explained by the phonological

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Horton (1949) uses a different classification, of ten (general) classes that each have a singular and plural marker, and five subclasses. It is not clear to me why subclasses are distinguished.
specifications of both predicates and classifiers (Meir 2001): VELMs are
only phonologically specified for movement, and classifiers are only
specified for hand configuration and orientation. The classifiers can
therefore be combined with VELMs, but cannot be combined with verbs
that have full feature specifications for hand configuration and orientation
(This is similar to the argument in section 1.5 that non-agreement verbs
cannot show agreement because they are phonologically specified for a
place of articulation on or near the body). Thus, in fact, the restriction of
the use of classifiers to a subset of verbs is a phonological one.

Another difference is that some variation in the choice of a
meaningful hand configuration is possible, whereas there is
(prototypically) only marginal variation in the choice of a noun class
agreement marker. However, Horton (1949) notes that the agreement
markers of nouns that are used within the DP can differ in class from
those that are used on the predicate in Luvale. Especially animate entities
of various classes preferably take a class 1 subject or object agreement
marker on the predicate. For instance, the nouns *cilolo* (headman) and
*cimbanda* (doctor) are in class 4, but the agreement markers on the
predicates are from class 1, as in (2):

\[(2)\] Ci-lolo c-ami a-sanyikanga ci-mbanda
\[
\text{CL:4s-headman CL:4s-POSS CL:1sS-called CL:4s-doctor}
\]
\[
\text{wamangana a-mū-ke}
\]
\[
\text{cl:4s-of-wisdom CL:1sS-CL:1sO-that.might.treat}
\]

‘My headman asked the doctor to treat him.’

(adapted from Horton 1949:37, ex. 85a)
According to Aikhenvald (2000:41-45) there is a larger amount of variability in noun class systems with semantically transparent classes. The variability serves to highlight a particular aspect of the referent (sex, particular shape, function, attitude of the speaker towards it). Since the classification in NGT is (still) largely based on semantic features of the referent noun, the larger variability is only to be expected.

I conclude that the deviance of the NGT meaningful hand configurations on VELMs with respect to the prototypical characteristics of noun class agreement systems does not justify exclusion of the meaningful hand configurations as members of a system of agreement markers. This conclusion follows from my generalizations over VELMs and the systematic pattern of meaningful hand configurations that occur on these predicates taken with morphosyntactic characteristics of verbal classifiers and noun class agreement systems. Although the NGT hand configurations sharing characteristics with prototypical verbal classifier systems, their obligatory presence on VELMs leads me to conclude that they function as agreement markers on these predicates, and that the classification of nouns in NGT is (still) semantically based. This conclusion is in line with previous proposals, as stated in Chapter 2, although by no means fully standard in the sign language literature.

6 And, since the prototypical characteristics of verbal classifiers are very similar to those of noun class agreement markers, there may actually not be as much difference between these systems as has previously been assumed in the literature.
6.2.2 φ-features in classifier agreement

In this section I will return to the issue of φ-features in sign languages, already briefly discussed in section 1.5. There it was stated that the commonly assumed features for person and gender may not be applicable in the recognized agreement system in sign languages, in which locations in signing space are used to mark the referents. The system makes use of a locus feature instead. I will now turn to list the features involved in the meaningful hand configurations, and then provide a feature-based account of agreement in NGT (and other sign languages), comparable to the feature accounts developed for spoken languages.

There do not appear to be separate features in the meaningful hand configurations for the signer, addressee and non-discourse participants in NGT. These can all be represented by the same meaningful hand configurations. A systematic number distinction is also lacking. I have shown in section 4.3.2 that the \( \text{\textbf{\text{\textbf{}}} \text{\textbf{\text{\textbf{}}}}} \) hand can undergo number incorporation to indicate two, three, four and multiple animate referents, and that the \( \text{\textbf{\text{\textbf{}}} \text{\textbf{\text{\textbf{}}}}} \) hand can be combined with a paucal to form a \( \text{\textbf{\text{\textbf{}}} \text{\textbf{\text{\textbf{}}}}} \) hand configuration. For referents represented by hand configurations other than the \( \text{\textbf{\text{\textbf{}}} \text{\textbf{\text{\textbf{}}}}} \) or \( \text{\textbf{\text{\textbf{}}} \text{\textbf{\text{\textbf{}}}}} \) hands, a signer usually uses more than one VELM combined with a meaningful hand configuration to indicate plural referents. Taken with the analysis of φ-features in the location agreement system, these facts indicate that the φ-features in NGT appear not to contain person or gender.

\footnote{Notice that this is different from the agreement system of Bantu languages: these have special markers for first and second person, for non-discourse participants the noun class markers are used. Furthermore, there is a systematic difference between markings for singular and plural referents in these languages.}
number features (see Van Gijn & Zwitserlood (to appear) for more
detailed argumentation and Lillo-Martin & Klima (1990) and McBurney
(2002) for a similar argument with respect to ASL pronouns).

The hand configurations may pattern like gender (or noun class)
agreement features, however. Although NGT does not have distinct
hand configurations for masculine (or male) and feminine (or female)
referents, some sign languages do, notably Taiwan Sign Language (Smith
1989) and Nihon Syuwa (Fischer 2000). The inventory of meaningful
hand configurations in NGT, furthermore, is similar to the noun class
systems we see in Bantu languages. The number of classes found in
Bantu languages and in NGT is larger than the two or three classes found
in Indo-European languages. Bantu languages and NGT both classify
referents according to animacy and shape, rather than sex as in Indo-
European gender systems. However, I am not aware of a formalization of
the features involved in noun classes; usually, numbers are used to
indicate the noun classes. I will suggest a formalization for the
representations of the classifiers in NGT, based on their denotation as
stated in Chapter 4.

There appear to be three types of feature specification: (i) features
indicating animacy and leggedness; (ii) features indicating shape; and
(iii) features indicating the amount of control exercised by a manipulator.
The [animate] and [legged] features are only relevant for entity
classifiers, the [control] feature is only relevant for handling classifiers.
The features concerning shape are [±straight], [±small], [±flat] and
[±volume] and occur in entity and handling classifiers. The specifications

8 Recall that ‘gender’ and ‘noun class’ are not formally distinct (footnote 4).
for animacy, leggedness, straightness, roundness and size are straightforward. The feature [+]flat] indicates that the referent is flat or thin, and [-volume] that the handshape indicates the outline of the referent, not its volume. Thus, the \( \text{classifier} \) and \( \text{classifier} \) classifiers have the same specifications for straightness, roundness, flatness and size, but they differ in that the \( \text{classifier} \) classifier is specified for [+]volume] and the \( \text{classifier} \) classifier for [-volume].

Note that some entity classifiers (\( \text{classifier} \) and \( \text{classifier} \)) are polysemous, and therefore are connected to two feature sets. Recall furthermore from section 4.2 that some classifiers are polysemous in that they can function both as entity and as handling classifiers; these hand configurations are also connected to two feature sets. For the sake of clarity, I will represent the feature specifications of entity and handling classifiers in separate tables (Table 2 and Table 3). Features that are not important for a particular type of classifier do not appear in the tables (such as the [control] feature for entity classifiers). Lack of marking of a feature implies the absence of that feature. Several hand configurations in a cell indicate the variants of a particular classifier.

The entity classifiers in NGT have the feature specifications in Table 2.

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9 There are two entity classifiers that represent specific entities, namely trees and airplanes. Since these classifiers have such idiosyncratic representations, I do not specify features for them.
Table 2  Feature specifications for NGT entity classifiers

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<th>flat</th>
<th>volume</th>
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The hand configurations $\mathcal{b}$, $\mathcal{c}$, $\mathcal{d}$, $\mathcal{e}$, $\mathcal{f}$, $\mathcal{g}$, $\mathcal{h}$ are not included in this table because they are analysed as instances of the $\mathcal{b}$ hand configuration, taking plural (dual, trial, quadral and paucal) features. Similarly, the $\mathcal{m}$, $\mathcal{n}$ hands.

Note that the $\mathcal{b}$ and $\mathcal{m}$/$\mathcal{n}$ share the feature sets. This is in accordance with the idea that the thumb, as well as the fingers, represents an entity (Shepard-Kegl (1985) calls it a *copy classifier*). The difference between the two hand configurations is that in the $\mathcal{b}$ hand configuration only one entity is represented, and in the $\mathcal{m}$/$\mathcal{n}$ two (opposite) entities. I have as yet no feature set available for this difference. There may be a notion of plurality involved in the representation of the $\mathcal{m}$/$\mathcal{n}$ hands.
hand configuration is analysed as a paucal variant of the hand configuration and therefore not included either. The features specified do not exhaust the possible features we meet in sign language classifier systems, since some sign languages have classifiers denoting, for instance, vehicles (ASL) and males and females (NS, TSL). These should be established separately for each language. The feature specifications of handling classifiers appear in Table 3:

<table>
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<th></th>
<th>straight</th>
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<th>flat</th>
<th>control</th>
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These features cannot be used in agreement verbs that use loci in signing space. As stated at the beginning of this section, this type of agreement employs plain locus features. Although different positions in signing space are used, there does not appear to be a systematic grammatical
distinction between them.\footnote{Although there appear to be pragmatic conventions, such as the conventions of semantic affinity, comparison and iconicity. These have been described for DSL by Engberg-Pedersen (1993:71-78). In will refrain from discussing such conventions since they are not of importance here.} Therefore, I do not assume several different locus features, but follow Lillo-Martin & Klima (1990), Meir (2002) and Van Gijn & Zwitserlood (to appear) in assuming one abstract referential locus (R-locus), which has the feature [+loc]. Referents in the discourse have distinct loci, which are distinguished by abstract but overt indices. Thus, locus agreement uses abstract, overtly indexed loci.

6.2.3 A basic outline of the framework of Distributed Morphology

Before I turn to a discussion of the analysis of meaningful hand configurations as agreement markers by Glück & Pfau (1998, 1999) and to my own analysis, I will explain the framework that is used in these accounts, namely that of Distributed Morphology (Halle & Maranz 1993). This framework (especially in its more recent form (Harley 2001; Harley & Noyer in press; Marantz 2001)) is well equipped to cover the phenomena. (Moreover, as we will see in Chapter 8, this framework can also account for signs other than VELMs that have a meaningful hand configuration.)

The framework extends the T-model used in generative linguistic theory by positing a separate morphological component (Morphological Structure or MS) in addition to Deep Structure (DS), Surface Structure (SS), Phonological Form (PF) and Logical Form (LF). This is illustrated in Figure 1.
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Figure 1 The five-level conception of the grammar in the DM framework

The model furthermore rests on the assumption that there is no lexicon in the sense familiar from earlier versions of generative grammar, specifically a list of items with i) one or more idiosyncratic characteristics; ii) a phonological specification; and iii) a meaning. Thus, the traditional lexicon contains items like ‘cat’ and ‘dog’, whose phonological features /kæt/ and /dog/ are connected to meanings like ‘furry feline domestic animal’ and ‘furry canine domestic animal’, and syntactic information, like grammatical category N, countability, animacy, and so on. Instead there are three separate lists in DM. List A contains morphosyntactic features (also called lexical items), such as [Determiner], [Root], [plural], [+past]. List B contains Vocabulary Items, that is, phonological features that are connected to morphosyntactic features. For instance, in English the phonological string /dog/ is connected to the morphosyntactic feature bundle [Root, +count, +animate], and the phonological string /ad/ is connected to the morphosyntactic feature [+Past]. Finally, list C contains encyclopedic knowledge (such as that a dog is a hairy canine domestic animal). This list is outside of the grammar. The lists are illustrated in Figure 2.
Figure 2 Structure of the grammar in DM

(Harley & Noyer in press: 465)\textsuperscript{12}

\textsuperscript{12} Illustration reproduced by permission of the publisher; © 2003 by Mouton de Gruyter, Berlin.
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DM incorporates three important principles: i) Late Insertion; ii) Underspecification; and iii) Syntactic Hierarchical Structure All the Way Down. Late Insertion refers to the idea that phonological features (Vocabulary Items) are inserted into terminal nodes after syntax, in a process called Spell-Out. Underspecification means that the Vocabulary Items (the phonological feature bundles) are not connected to fully specified morphosyntactic features, but to underspecified ones. In fact, the Vocabulary items only have the minimally necessary set of features. For instance, instead of having complete specifications for person and number, the agreement affixes in Dutch are connected only to those features that are absolutely necessary, that is, although -∅ has a fully specified set of features, -t is only specified for number and tense, whereas -en only needs a specification for tense, as shown in (3):

\[
\begin{align*}
(3)a. \quad -∅ & \leftrightarrow [+1, +sg, +pres] \\
b. \quad -t & \leftrightarrow [+sg, +pres] \\
c. \quad -en & \leftrightarrow [+pres]
\end{align*}
\]

Vocabulary Items compete for insertion, which means that a given bundle of morphosyntactic features in a terminal node in syntax is inserted with that Vocabulary Item that shares most of these features without causing a...
feature clash. For Dutch this indicates that Vocabulary Insertion for an agreement affix for second person singular present tense will result in -t because this Vocabulary Item matches at least the singular and tense features and there are no feature clashes. Insertion of -en does not meet the requirement of insertion of the most highly specified Vocabulary Item; insertion of -∅ results in a feature clash, because it has the feature [+1] that is not present in the agreement morpheme.

Syntactic Hierarchical Structure All the Way Down indicates that the terminal nodes into which Vocabulary Items are inserted are hierarchically structured according to principles and operations of the syntax. The operation we are specifically concerned with is Merger, which adds a new terminal node to the existing structure. Lexical items are merged into a hierarchical structure, in which no distinction is made between derivation and inflection.

Like all other items in List A, roots typically have neither a syntactic category nor phonological features (these being properties of Vocabulary Items). The construction in which a lexical item occurs is assigned a category through merger at MS with a category node (a head), called little x, in which x can be a verb (little v), a noun (little n), or an adjective (little a). Little x determines the edge of a cyclic domain. At cyclic domains derivations are shipped off to PF and LF, and subsequently to the Conceptual Interface (Marantz 2001) where Vocabulary Insertion takes place. There, outside of the grammar, the structure will be provided with non-linguistic, encyclopedic information. Cyclicity ensures that derivations are shipped off to PF and LF several times. Thus, after merger of the derivation with little x and subsequent Vocabulary Insertion and
interpretation, structures are further derived. This is illustrated in (4), in which root is abbreviated as √ (thus √P means root phrase) and the double bars indicate cyclic domains.

(4)

Vocabulary Insertion is cyclic. Thus, it starts out from the most deeply embedded lexical item at Spell-Out and works its way outwards.

6.2.4 Meaningful hand configurations as agreement markers

Now that I have explained the basic principles of DM, we can turn to the analysis of the structure of VELMs that is proposed by Glück & Pfau (1998, 1999). As explained in Chapter 2, they argue that meaningful hand configurations function as agreement morphemes in DGS. Although the pro-drop evidence provided for this analysis is problematic (see section 2.3.3), the basic idea is workable. Glück & Pfau use the DM framework (Halle & Marantz 1993) in order to account for the different forms found in the agreement system of DGS, namely classifiers and loci. Note that this framework has undergone several changes since their analysis. I will
use a more recent version of the same framework in my own analysis, which is an extension of the analysis of Glück & Pfau (1999).

Glück & Pfau assume that agreement nodes are attached to verbs in the derivation and φ-features for person and number are copied. At Spell-Out, phonological material is inserted into some of these agreement nodes, namely loci in signing space. The singular forms of the Vocabulary Items that are inserted into these nodes are in (5), in which X is a point in the signing space and the subscript specifies that point:

\[
\begin{align*}
& (5)\text{a. } /X_{prox.body-central-neutral}/ \leftrightarrow [+1sg] \\
& (5)\text{b. } /X_{dist.body-central-neutral}/ \leftrightarrow [+2sg] \\
& (5)\text{c. } /X_{dist.body-dominant-neutral}/ \leftrightarrow [+3sg]
\end{align*}
\]

Glück & Pfau assume that classifier predicates have full phonological specifications for the hand configuration. Merger of an agreement morpheme thus cannot result in insertion at Spell-Out of a Vocabulary Item consisting of a classifier, because the sign already has a hand configuration. Glück & Pfau solve this by arguing that not all Vocabulary Items contain phonological material: some of them are phonologically zero and trigger phonological readjustment rules that change the phonological form of stems. 14 According to Glück & Pfau, the

\[14\text{ There are also Vocabulary Items that are connected to person and number features that trigger morphosyntactic readjustment rules. For instance, the feature cluster } [+1pl] \text{ triggers readjustment into the feature cluster } [+1sg]. \text{ The reason for positing these rules is not clear to me, since phonological readjustment rules can have the same effect.} \]
Vocabulary Items that are connected with (classifier) agreement morphemes are zero and trigger phonological readjustment rules that change the phonological feature value of the hand configuration of the stem into a particular classifier agreement marker.\textsuperscript{15} This is comparable to ablaut phenomena in some spoken languages.

Glück & Pfau’s analysis is attractive because it captures the systematicity with which arguments are connected to meaningful hand configurations on VELMs and to loci in signing space on other agreement verbs. On the other hand, their account does not predict this systematicity other than by postulating different types of agreement verbs: i) agreement verbs that agree with their subject and object by means of points in signing space on the one hand; ii) intransitive verbs that agree with their subject by means of a classifier; and iii) transitive agreement verbs that agree with their object by means of a classifier. Their proposal is also not yet fully developed with respect to the features connected to classifier hand configurations. A disadvantage is that their account does not capture the fact that classifiers occur only on a subset of verbs: because ‘classifier morphemes’ trigger a readjustment rule changing the hand configuration of a sign, any verb could in principle have a classifier. Furthermore, the fact that there is a rigid assignment of person features to particular loci in signing space in their system (for instance, second person is always connected with a locus that is distal and central with respect to the signer) does not allow for the free use of loci that we actually encounter. I will adapt and extend their analysis to arrive at a unified account of (locus and classifier) agreement in sign languages, Classifier agreement is only worked out for direct object agreement by these authors.
using a more recent form of the DM framework (Harley 2001; Harley & Noyer in press; Marantz 2001).

### 6.2.5 The implementation of agreement in sign languages

In this subsection, I address the implementation of agreement in NGT (and other sign languages). I follow Glück & Pfau in treating classifiers on VELMs as agreement markers. This implies that sign languages have two types of agreement systems: agreement by means of loci, and agreement by means of classifiers. Some verbs take locus agreement markers, other verbs take classifiers, and some verbs can take both. Moreover, there is also a set of verbs that do not show agreement at all, as explained in section 1.5. Padden (1988) claims that the (locus) agreement possibilities of a verb in ASL are determined by their phonological feature specifications. That is, a verb that is phonologically specified for place of articulation on or near the body cannot show locus agreement. Meir (2001) makes a similar claim with respect to the incorporation of classifiers in ISL: she claims that a verb that is phonologically specified for a particular hand configuration cannot be combined with a classifier. Furthermore, she claims that the agreement possibilities of a verb are determined by its semantics (Meir 2002): a verb can only show agreement if it has a denotation of motion and/or transfer.\(^\text{16}\) I combine these claims with the account of Glück & Pfau (1999) to arrive at a unified proposal concerning the agreement

\(^{16}\) In fact Meir (2002) claims that verbs per se do not show agreement, but that some verbs fuse with a morpheme (DIR) that takes spatial agreement morphology. I refer the reader to her work for details.
possibilities provided by meaningful hand configurations and loci in signing space, not just in NGT, but in sign languages in general.

Recall that I indicated in Chapter 1, section 1.6, that the sign language interface between grammar and phonological form (PF) forces signs into particular surface forms. That is, all uttered signs have at least one place of articulation and at most two. Furthermore, all signs have a particular configuration of the hand(s) and a particular orientation of the hand(s). All signs have a movement, either a change in place of articulation, a change in hand configuration, a change in orientation, or a combination of at most two of these.\(^{17}\) With these facts, it is possible to make predictions about the agreement possibilities of verbs in sign languages in the same vein as Padden and Meir, including classifiers in the analysis.

First, let us consider VELMs. I assume that a VELM consists of a root, selecting one obligatory internal argument and one or two optional internal arguments.\(^{18}\) This root has neither a syntactic category nor phonological material. The verb will acquire these after the point in the derivation where it merges with little x (in this case: little v), creating a little v phrase (vP). Recall that merger of little x establishes a cyclic domain after which the structure derived so far gets shipped off to PF, LF and the Conceptual Interface in order to be inserted with Vocabulary Items and to get an interpretation. The Vocabulary Item that is inserted

---

\(^{17}\) I disregard the non-manual component(s) in this analysis.

\(^{18}\) Hence VELMs are considered unaccusative roots. This is in line with arguments provided by Benedicto & Brentari (to appear) and work in progress by the author (Zwitserlood in prep.).
for the root consists of a path movement (or localization or a non-movement) in signing space. This is illustrated in Figure 3.

Figure 3 Derivation until vP

The structure is then further derived above the little v node. Agreement nodes will be merged for the Theme argument and for the Source and Goal arguments if present. Again, the structure is shipped off to PF, LF and the Conceptual Interface. At Spell-Out, further phonological information is provided by the Vocabulary Items which spell out the terminal nodes consisting of the feature bundles of the agreement markers. I will illustrate this with the intransitive NGT VELM in (6).

(6) LOCshelf-move.down-CL:flat ent

'The book falls down from the shelf.'
The example in (6) contains a VELM that shows agreement with two arguments: a Theme argument (a book) and a Source argument (a shelf). Agreement with the Theme argument is expressed by a classifier, and agreement with the shelf by a particular locus in space that has been established in the previous discourse. Derivation of this structure involves merger of two internal arguments with the motion root, a Theme and a Source. Subsequently a little v node is merged, creating a cyclic domain and the derivation is shipped off to PF and to LF and the Conceptual Interface. Vocabulary Insertion inserts the root with a movement and the structure will receive the interpretation move down. This is illustrated in Figure 4.

Figure 4  Derivation until vP, Vocabulary Insertion and Interpretation

The structure is further derived and agreement nodes and other material are merged. Since NGT has two agreement systems, the correct Vocabulary Items must be inserted into the correct agreement nodes. It is
obvious that all nouns can occur as all types of arguments. It is impossible to tell which $\varphi$-features should be connected to them in a particular construction, locus features or classifier features. Therefore, all DPs can be connected with both types of $\varphi$-features. Both the shelf and the book in example (6) are thus connected with locus features (which have been assigned to them in the previous discourse), for instance, $[\text{loc}_x]$ and $[\text{loc}_y]$. Furthermore, both are connected with classifier features. In this example both referents have the same features: $[+\text{straight}, -\text{small}, +\text{flat}, +\text{volume}]$. The relevant Vocabulary Items competing for insertion in the agreement morphemes of the derivation of (6) are in (7). Note that the morphosyntactic features of the classifier agreement morphemes are less specific than those specified in section 6.2.2: they are underspecified.

(7) a. $\varphi \leftrightarrow [+\text{straight}, +\text{flat}, +\text{volume}]$
b. $\varphi \leftrightarrow [+\text{straight}, +\text{flat}] / [+\text{voice}]$
c. $[\text{loc}_{\text{shelf}}] \leftrightarrow [+\text{loc}_x]$
d. $[\text{loc}_{\text{book}}] \leftrightarrow [+\text{loc}_y]$

VELMs, like all structures in DM, have a hierarchical morphosyntactic structure, according to the principle *Syntactic Hierarchical Structure All the Way Down*. I assume that the order of merger of agreement nodes follows that of the arguments. When the derivation once again gets shipped off to PF and LF (recall that the derivation below little $v$ already has phonological features and an interpretation), Vocabulary Insertion starts with inserting a Vocabulary Item for the innermost morphosyntactic feature bundle that does not have yet phonological
features. In this structure, this is the agreement node that is closest to the root, containing the agreement marker for the Theme argument. Competition of the Vocabulary Items ensures that the most highly specified, non-clashing Vocabulary Item is inserted. Since classifier agreement markers have more feature specifications than locus agreement markers, the Theme agreement marker is spelled out with the appropriate meaningful hand configuration: \( \text{\textcircled{\( b \)}} \). Subsequent Vocabulary Insertion of the agreement morpheme connected to the Source argument could in principle spell out the most highly specified Vocabulary Item as well, namely a classifier agreement marker. However, because of the fact that the sign has already acquired phonological specifications for hand configuration this will result in a clash at PF: there would be two feature specifications for one phonological parameter within one sign. A locus marker is inserted instead. Cyclicity and the principle of Syntactic Hierarchical Structure All the Way Down thus predict that the agreement node connected with the Theme argument is always inserted with a Vocabulary Item consisting of a hand configuration (that is, in VELMs, where the Vocabulary Items inserted for the roots are not specified for a hand configuration).

The example just discussed concerns an intransitive VELM. We have seen that handling classifiers are only inserted in transitive structures. Since I have assumed that VELMs are basically unaccusatives, a transitive VELM needs a voice node projecting an Agent argument above little v. \(^{19}\) Only in that environment insertion of a handling classifier will

\(^{19}\) The argument goes along similar lines as that provided by Kegl (1985, 1990) and Benedicto & Brentari (to appear) in that the handling classifiers is connected to voice
be spelled out. Let me illustrate this with the sign in (8), comparable to that in (6) except for the hand configuration, but differing in transitivity.

(8)

\[ \text{x-LOC}_{\text{shelf}} - \text{move down-\text{CL}:flat ent} \]

\'(Someone) takes the book down from the shelf.\'

The derivation of both signs is the same until the point where little v is merged. As in the derived structure of (6), a root is merged with the internal Theme and Source arguments, little v is merged and the derivation is shipped off to PF, LF and the Conceptual Interface. The derivation of the structure of (8) is different from that in (6) from that point on: a voice node is merged in the derivation, which triggers merging of a node containing an external argument. This is illustrated in Figure 5.

marking. However, in contrast to these researchers, I do not claim that it is the handling classifier itself that heads the voice node.
In the subsequent derivation, agreement nodes are merged (among others). When the derivation is once again shipped off to PF and LF, the relevant Vocabulary Item that will be inserted into the agreement node for the Theme argument is the $\mathcal{H}$ hand configuration. This hand configuration has the features $[+\text{straight}, +\text{flat}]$ and, furthermore, is only inserted in the environment of a $[+\text{voice}]$ feature. This Vocabulary Item is repeated here as (9).

(9) $\mathcal{H} \leftrightarrow [+\text{straight}, +\text{flat}] / [+\text{voice}]$

Since the $\mathcal{H}$ hand configuration is not specified for this environment, it will lose the competition for insertion to the more highly specified $\mathcal{H}$ hand configuration. The other agreement node that is merged (connected with the Source) will be inserted with a locus in signing space.

Let us now turn to agreement verbs. For the most part, these contain roots whose Vocabulary Item has a specification for hand configuration and movement, but does not have a (full) specification for place of
articulation. After merger with little v (and after having received phonological features and an interpretation), terminal nodes for agreement will be merged (among others). The morphological feature bundles in these nodes can not be inserted with Vocabulary Items consisting of the most highly specified phonological features (those for hand configuration), since the sign language interface prohibits double specifications for hand configuration. Therefore, they are spelled out with locus features. Consider the two inflected forms of the NGT sign for ‘to visit’ in (10a,b), where the locations $J$ and $M$ are connected to John and Mary, respectively.

The Vocabulary Item that spells out the verb root has phonological features for an arc movement and two hand configurations, but not for
the places of articulation. These are provided by the Vocabulary Items that spell out the morphosyntactic feature bundles agreeing with the Source and Goal agreement markers, so that the sign moves from the locus of the Source to that of the Goal. In (10a) these are \([\text{loc}_{\text{signer}}]\) and \([\text{loc}_M]\) respectively, in (10b) \([\text{loc}_M]\) and \([\text{loc}_J]\).

A structure that, after Vocabulary Insertion into all of its terminal nodes, lacks phonological features for all of the components that are minimally necessary in view of the requirements of the sign language PF interface will receive phonological default specifications. The default specifications for place of articulation in agreement verbs are near the signer and slightly away from the signer.\(^{20}\) Thus, the citation form of the sign for ‘to visit’ surfaces as a movement with a particular hand configuration from an underspecified, default begin locus to an underspecified, default end locus, as in (11).

\(^{20}\) This is reversed in backwards verbs, that is in verbs that, in contrast to ‘normal’ agreeing verbs, do not move from the locus of the subject to the locus of the object but the other way around (Padden 1988; Bos 1994; Meir 1998). According to Meir, all agreeing verbs move from Source to Goal, and in backwards verbs the object happens to be connected with the Goal and the subject with the Source.
Finally, I assume that ‘non-agreement verbs’ as well as agreement verbs (including VELMs) are, in fact, combined with agreement morphemes. However, the roots of non-agreement verbs are connected to Vocabulary Items that have full phonological feature specifications. Therefore, any agreement marker spelled out with a Vocabulary Item carrying phonological feature specifications for locus or hand configuration would result in a clash of phonological features at PF. Instead, the agreement markers are left phonologically unspecified.

The analysis presented here accounts for the agreement phenomena we see in sign languages in a way that combines two agreement ‘systems’ into one. The phonetic output is predictably determined by the morphosyntactic features of the lexical items from List A, the phonological feature specifications of the Vocabulary Items of verb roots, the presence of voice nodes, agreement morphemes, and the application of properties of the DM framework such as cyclicity, late insertion, competition of Vocabulary Items and Underspecification. I have used and extended the ideas put forward by Glück & Pfau (1999), using a more recent version of the DM framework. Since I assume that the Vocabulary Items of some verb roots are not specified for all of the phonological features that are necessary for a sign to be spelled out, and since I assume competition between Vocabulary Items for the agreement morphemes, my analysis gives a unified account for all verbs and the agreement phenomena in NGT, and predicts which verbs will show agreement morphology. It also predicts the type(s) of agreement that will surface on an inflected verb. In this, my analysis makes use of earlier suggestions of Padden and Meir about the possibility of agreement marking on verbs,
but I have worked these out in the DM framework. Finally, I have argued that the absence of person features in the agreement system of sign languages is accounted for in this analysis: agreement morphemes have classifier agreement features and a [loc] feature.

6.3 The morphological structure of the VELM

In the interest of completeness, this section treats the morphological structure of VELMs and compares my analysis of the meaningful hand configurations in these verbs with previous analyses. It has been claimed in the literature that classifier predicates have considerable complexity (Supalla 1982; Shepard-Kegl 1985; Liddell 2003; Talmy 2003). For some researchers, this complexity poses problems for morphological, syntactic and phonological theories of sign languages and language in general. The morphological structures proposed sometimes combine a large number of morphemes, usually not attested even in polysynthetic spoken languages. For instance, Liddell (2003) observes that the predicate in (12) must consist of at least 18 (and at most 44) morphemes, four of which are roots (namely a hold root on the non-moving hand; and a hold root, a movement root, and another hold root on the moving hand), and 14 of which are affixes: classifiers and affixes for orientation, facing, placement, distance, directionality and repetition.\footnote{Note that this example does not show two signs, but one. The first photograph shows the initial location of the hands, the second shows their end locations.}
Morphological complexity in itself should not be a reason for concern in linguistic theory, provided that evidence exists for the proposed morphemes in the structure and for the complex structure itself. I join Liddell (2003) and others in questioning the validity of some of the proposed morphemes and part of the proposed structure of classifier predicates.

I will begin with a discussion of the movement of the hand in section 6.3.1, then proceed to the manner of motion in section 6.3.2. In section 6.3.3, I discuss the orientation of the hand and the spatial relations between referents. I compare my analysis to previous analyses of the morphological structure of VELMs in section 6.3.4, and section 6.3.5 contains a summary.

6.3.1 The movement in the classifier predicate is the root

Supalla (1982, 1986) and many other investigators of classifiers in sign languages assume that classifier predicates consist of a root and several

22 The illustrations from Liddell (2003) ‘Sources of Meaning in ASL Classifier Predicates’ are reprinted by permission of the publisher; © 2003 by Lawrence Erlbaum Associates, Mahwah NJ.
Classifiers as agreement markers

affixes. The root is expressed by a movement of the hand(s). McDonald (1982) and Engberg-Pedersen (1993) disagree with this assumption. First, the hand configuration affects the argument structure of the verb; second, the movement of the hand does not have a consistent meaning: it can indicate a motion, but can also indicate the size and/or shape of a referent. This is considered counterevidence for the status of the movement as the root of a classifier predicate. Instead, McDonald & Engberg-Pedersen consider the hand configuration to be the stem of the verb, which can combine with a movement. The grammatical status of the movement remains unclear. According to Engberg-Pedersen (1993:252): “[I]t is not yet clear how the movement morphemes should be classified morphologically, as stems, derivational affixes, or inflectional affixes.”

If the movement were analysed as a stem, the structure of the classifier predicate would conform the ideas of Slobin et al. (2003). Slobin et al. do not consider one element of the predicate as a root, but consider the classifier predicate as consisting of more than one root, with the hand configurations functioning as roots as well as the movement. Other components of the sign can also function as roots. None of the components can stand alone as a complete sign. Furthermore, all of these components can be substituted by others. This is an interesting line of thought that will be pursued in the analysis of motivated signs in Chapter 8.

However, in VELMs there appears to be only one root. VELMs are unmistakably verbs, expressing an event or a state. These are expressed by the movement (or non-movement) of the hand(s). The hand configurations systematically provide information about the referent
involved, and are interchangeable with other hand configurations, depending on the particular referent involved. The hand configurations thus form a paradigm. Moreover, they form a closed class. For these reasons, an analysis of the movement of the predicate as the root and the hand configuration as an agreement morphemes is preferable over an analysis in which the latter is analysed as a stem or root.

The observation by Engberg-Pedersen and McDonald that there is a systematic relationship between the type of meaningful hand configuration (entity versus handling) and the argument structure of the verb is confirmed by my data: entity classifiers occur on intransitive verbs and handling classifiers on transitive verbs. However, they explain the difference in argument structure by assuming different stems, and alternative accounts are possible. I provided an alternative account in section 6.2.5 and others have connected the transitivity alternation with elements outside the stem (for instance Kegl 1985, 1990; Benedicto & Brentari to appear).

The fact that a movement in a sign can indicate either motion of a referent or the outline of a referent gives rise to homonymy: different predicates are involved that have the same form but a different meaning. The morphemes in VELMs (especially the movement) may have a different grammatical status from those in contour signs.

On the basis of the arguments above, I will assume that the movement of the hands in VELMs functions as the root, and will now discuss the VELMs that, according to proposals in the literature, combine several movement roots, either sequentially or simultaneously. First, consider the structure in (13), which in Supalla’s analysis is a classifier predicate in
which three roots are combined sequentially: a movement, a pivot and a movement.\textsuperscript{23}

(13)

\begin{center}
\begin{tabular}{ccc}
\text{CAR-MOVE-Straight-Out-} & \text{CAR-PIVOT-} & \text{CAR-Move-Straight-To-Side} \\
\end{tabular}
\end{center}

Supalla’s proposed structure seems unnecessarily complex. Clearly, three different events are expressed, involving the same referent. In my data, I have observed that such sequences often show intonational breaks, that is, non-manual signals that indicate the boundary of an intonational phrase. Such signals include radical changes in head position and/or eye gaze, changes in body posture and/or eye blinks. This is independent evidence that such structures form not one predicate, but several. My claim is that (13) consist of three VELMs, each heading its own clause that consists solely of the verb (that is, there are no overt arguments or other signs such as adverbials present in the clause). The verbs in this sequence are all inflected with a subject agreement marker that agrees with the referent in motion (a car). This marker is spelled out with a Vocabulary Item that consists of the ASL classifier for vehicles. In principle, it should be possible to express more signs in each clause and thereby interrupt the sequence of VELMs, but in the typical discourse, a signer will choose to

\textsuperscript{23} The example is reconstructed using an interpretation of Supalla’s proposals by Newport (1981:116).
focus on the sequence of events. This can be compared with an English sequence such as *the car drove, turned, drove on and ...*, in which three verbs form a continuous sequence.

Second, consider the ASL predicate which expresses that one person moves to another person, repeated here as (14).

(14)

![Image of ASL sign](ASL-Liddell-2003-202-Fig-95)

According to Supalla’s analysis, this predicate consists of (at least) a hold root on the non-dominant hand and a movement root on the dominant hand. I suggest instead that two VELMs are articulated *simultaneously* in the construction in (12) and similar two-handed constructions. Thus, each hand articulates one VELM, and each VELM is affixed with one subject agreement marker. The non-dominant hand indicates the existence of an upright person at a particular locus in signing space. The dominant hand indicates the path motion of an upright person from a particular locus to another particular locus (the latter connected to the other person). A more literal translation of the sign (or rather: signs) in (12), then, is: *An upright person is located here. An upright person moves*

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24 I disregard here the hold roots at the beginning and end of the movement.
from here to here. Since the end locus of the verb expressing the path motion of one person coincides with the locus of the verb expressing the existence of the other person, we interpret and translate the structure as: One person moves to another person. However, in contrast to this translation, there is not one predicate (and clause) involved, but two. My analysis of such constructions is supported by the fact that there is no difference in interpretation of the construction in (12) and a similar construction which consists only of a movement of the dominant hand when the end locus of this movement is connected with another person. I illustrate this with the examples in (15a,b).

In both examples, the signer relates that mother moves towards the father. In the a) example the father is localized by means of a verb of location
that has a subject agreement marker consisting of the hand configuration. In the b) example he is localized in the same way, but now the subject marker consist of the default hand configuration. Thus, in both examples the locus to the left of the signer is connected to the father. In the a) example the hand is maintained throughout the following clause; the existence of the father at the locus to the signer’s left is thus expressed by a separate VELM. This is not the case in the b) example. In the second clause of both examples the mother is introduced and a VELM is used to express the motion of the mother towards the father. Apparently it is not necessary to express the existence of the father during the expression of the motion event to do this: (15b) shows us that a VELM indicating a motion towards the locus connected with the father still expresses the motion of the mother towards him, even if the father is not simultaneously represented. The analysis of such ‘two-handed classifier constructions’ in which both hands represent a referent as two (simultaneously expressed) VELMs is, therefore, independently motivated.

In short, then, VELMs sequentially and simultaneously consist of one root only, which is spelled out as a movement of the hand(s) and interpreted as a motion, localization or existence of a referent. Each VELM can combine with one classifier agreement marker (and maximally with two locus agreement markers). Constructions that have been analysed as two-handed classifier predicates consist of two VELMs. Classifier predicates that have been analysed as sequences of roots, too, consist of more than one VELM.
6.3.2 Manner of motion is affixed in VELMs

In section 5.4, I discussed verbs that express the manner of motion of a referent, such as flying and running, and I argued that these are not classifier predicates. The expression of manner of motion is, however, not (completely) restricted to these signs: there is a limited possibility of expressing manner of motion in VELMs as well. I will discuss these possibilities here, focusing on four types of manner of motion that can be combined with a path motion in VELMs: i) the concept of walking; ii) the concept of rolling; iii) the random movement of many referents along a path; and iv) speed and intensity. I will argue that manner of motion is affixed and not part of the root in these constructions, although it is not always easy to distinguish root and manner affix.

First, the concept of walking is often expressed by the wiggling of the fingers of the \( \text{左手} \) or \( \text{右手} \) hand configurations, as illustrated in (16a,b).

(16)a. move.left-walking-CL:legged ent 'Somebody) walks.'

(16)b. move.left-walking-CL:legged ent 'Somebody) walks.'

The root of the classifier predicate expresses the path motion (or the location or existence) of a referent. The \( \text{左手} \) or \( \text{右手} \) hand configurations can

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25 See also Supalla (1990) for a discussion of the expression of manner of motion in classifier predicates.
also occur on a path movement without finger wiggling. In that case the predicate has the interpretation that a legged entity (for instance a person or animal) is moving along a path, but it does not indicate walking along a path. It simply denotes a motion of a legged entity, for instance the motion of a person on an escalator. Thus, to indicate that the referent is walking, the signer has to do something extra, namely add wiggling. I therefore conclude that the walking manner of motion in verbs such as the ones in (16a,b) is not part of the root, but affixed. The walking event can also be expressed by a slight hopping movement instead of the wiggling of the fingers of the hand, as can be seen in (17). (This may be easier to articulate than wiggling two bent fingers.)

(17) 
\[
\text{move.left-walking-cl.legged ent} \\
\text{‘(Somebody) walks.’}
\]

Apparently, in this construction the indication of the walking motion has been transferred from a bending of the MCP joints to bending of the wrist, resulting in a repeated small arc movement along a path. This sign, although it can mean ‘to move in small arcs along a path’ (for instance jumping along a path as in a sack race), can also mean ‘to walk along a path’. The surface form of this sign is ambiguous in this respect.

The concept of rolling is expressed by a circular movement of the hand along a path, as illustrated in (18a,b).
(18)a. move.right-circling-CL:round ent
   ‘(The ball) rolled from the left to the right.’.
b. move.right-circling-CL:unspecified ent
   ‘(The ball) rolled from the left to the right.’.

Superficially, it seems as if the rolling manner of motion is expressed by the root, because there is a circling motion along a path. However, these constructions do not necessarily mean that a referent (for instance a ball) undergoes various circular motions (although that is a possible interpretation), but rather that the referent follows a straight path, with a rolling manner of motion. Articulatory constraints account for this “conflation” of path and manner: the wrist does not allow the hand to rotate and with the elbow joint allows at best a rotation of 180°. As we saw in Chapter 4, orientation and orientation changes of a referent are mostly expressed by a particular orientation of the hand in VELMs. The most realistic expression of a rolling movement by orientation change would be repeated partial rotation of the hand, as in (19).

(19) move.right-circling-CL:round ent
    * ‘(The ball) rolled from the right to the left.’
Such a construction, however, indicates partial rotation of several referents at various loci in signing space instead of a rolling motion along a path. Thus, it appears that the expression of the orientation change of a referent in the event of rolling is transposed from the elbow joint to the wrist joint. Since a straight movement of the hand is possible, indicating a gliding motion of the referent, I conclude that the rolling manner is affixed.

Wiggling of the fingers is also observed in predicates indicating the path motion of many small entities, such as insects and drops of water, but also of larger entities, such as people. In this case the finger wiggling does not necessarily indicate walking, nor is it obligatory. As illustrated in (20a), a verb of motion with the hand configuration (the palm is oriented downward) is used to indicate the straight path motion of many referents, such as soldiers marching in line.

(20)a. move.out-CL:many ent

move.out.randomly-CL:many ent

b. 'Many entities move forwards.'

'Many entities move forwards randomly.'

26 It is not yet clear to me whether this hand configuration and wiggling can also occur at a verb expressing the existence of these referents.

27 Note that the sign does not express 'marching' as a manner of motion.
A wiggling motion indicates that the motion is more random. The referents still follow a path, but do not keep the same position and distance with respect to each other. This is illustrated in (20b). Here we see another way of expressing a manner of motion: a random path motion that can only be expressed when many referents are involved. Since this manner is not obligatory and occurs simultaneously with a path motion, it must be affixed.

Fourth, consider the expression of fast, slow, tense and relaxed motion. None of these manners of motion is obligatory, but they can occur simultaneously with the path motion. The pace of the motion of the referent is expressed by a faster or slower movement of the hand than normal. Tense and relaxed path motions are indicated by the tenseness of the hand configuration. The muscles of the hand can be strained or relaxed, as illustrated in (21a,b), respectively.28

(21)a. move.left-tense-CL::legged ent

'Somebody) walks in a tense manner.'

b. move.left-relaxedly-CL::legged ent

'Somebody) walks in a relaxed manner.'

In sum, the optionality of the various manners of motion discussed allows them to be analysed as affixed to the root expressing the path motion.

28 Pace and tenseness are also expressed by non-manual markings. I will not discuss these here.
6.3.3 Orientation and spatial relations

All signs, including VELMs, have a particular hand configuration in a particular orientation. The orientation of the hand, as we saw in Chapter 4, gives information about the (relative) orientation of the referent in VELMs.\footnote{Except in predicates with the default classifier \( \text{default} \), which does not indicate any characteristics of the referent.} I follow Supalla’s analysis that orientations are affixed in the VELM, but not his suggestion that the orientations are morphemes that attach to classifiers (that is, that they have scope over the classifier, not over the VELM). I claim that orientations are affixed to the root.

Tang (2003), discussing Hong Kong Sign Language, follows other researchers in claiming that orientation changes express ‘manner’, as well as a static orientation. For instance, the orientation of the \( \text{hand} \) configuration (which represents animate referents in this language) in the sign in (22) expresses a manner of existence of the referent, namely leaning.

\begin{figure}[h]
\centering
\includegraphics[width=0.4\textwidth]{image.png}
\caption{HKSL (Tang 2003:151, Fig. 7.7)}
\end{figure}

(22) ‘A man leans against a tree.’

\footnote{Illustration reprinted by permission of the publisher; © 2003 by Lawrence Erlbaum Associates, Mahwah NJ.}
I adopt Tang’s analysis and claim that, alongside the manner affixes discussed in the previous section, morphemes expressing the orientation of a referent also indicate manner of motion or manner of existence. Like the manner morphemes in section 6.3.2, orientation morphemes are affixed. Underlying this claim is the fact that the exact orientation need not be expressed: a signer can choose not to specify the orientation of a referent. This has been described in some detail by Wallin (1990) for SSL, but is also attested in my data from NGT. Consider two examples from Wallin (1990), presented here in (23), in which the hand configurations represent cars.

(23)a. ‘2 2-D-object-be-located (next to each other)’

b. ‘2 2D-objects-be-located (one behind the other).’

SSL (Wallin 1990:144, Fig. 17/19a)

The cars seem to face away from the signer in (23a) and to face each other in (23b), since the fingertips of the hand represent the front of a car in SSL and the fingertips of both hands are oriented outward and towards each other, respectively. However, this is not necessarily the case. According to Wallin, the cars described in (23a) could just as well be both facing the signer, or one could be facing the signer whereas the other faces away from the signer. Those in (23b) could equally well be
both facing left, or right. Thus, a signer can choose to leave the orientation (partially) unspecified, for instance when he considers (one of) the orientation(s) of the referent unimportant. In the example in (23b) the signer apparently considered the direction in which the cars face to be less important than the fact that they were lined up. The orientation can be fully specified, but need not be.\(^{31}\)

Liddell (2003) questions the presence of some of the morphemes proposed by Supalla to express spatial relations in VELMs between two or more referents. According to Liddell, the set of loci needed to express particular loci must be infinite. Likewise, the set of ‘distance morphemes’ that express the positioning of a referent with respect to other referents must be infinite. For that reason, Liddell suggests that part of the information provided by classifier predicates is not linguistic but can be inferred from the visual image. I disagree with his conclusions about the connection of referents to loci in signing space. Instead, I follow Lillo-Martin & Klima (1990) and Meir (2002) in their analysis of such loci as abstract morphemes that only consist of a locus (see section 6.2.2). Loci are associated with indices, which connect them to the correct referents (in sign languages, these indices are overt). However, I share Liddell’s conclusion that there is little independent evidence for a ‘distance morpheme’. Signers deliberately position referents in signing space and assign them particular loci. These loci are sufficient to express and understand the spatial relations between referents and there is no need to

\(^{31}\) Specification of (one of) the orientations can also be overruled by the constraints of the physiology of the articulators. However, this is outside the discussion of the morphological status of the orientation.
posit morphemes expressing the distance between them. Therefore, I do not analyse VELMs as containing ‘distance morphemes’.

6.3.4 VELMs and phonological constraints

It has been claimed in the literature that classifier predicates have considerable complexity (Supalla 1982; Shepard-Kegl 1985; Talmy 2003). Some researchers have argued that the observed complexity poses problems for syntactic and phonological theories of sign languages and language in general (among others, Cogill-Koez 2000; Aronoff et al. 2003). I will briefly focus on the latter, and discuss the former in section 6.4.2.

Aronoff et al. (2003) claim that VELMs in ASL and ISL freely violate phonological constraints on (prosodic) signs, such as the Selected Finger Constraint, monosyllabicity and Battison’s (1978) Dominance and Symmetry Conditions. For instance, the ISL sign in (24) violates the Dominance Condition. This condition states that if the hands of a two-handed sign do not share the same specification for handshape, then: i) one hand must be passive while the active hand articulates the movement; and ii) the specification of the passive handshape is constricted to one of a small set: \( \), \( \), \( \), \( \), \( \) or \( \). As can be easily seen, the hand configuration of the non-dominant hand (a lax form of the \( \) hand) in example (24) does not belong to this small set.
The Symmetry Condition is violated in the ASL example in (25). This condition states that if both hands of a sign move independently, then both hands must have the same specifications for location, handshape, movement (symmetrical or alternating), and orientation (symmetrical or identical). However, in this example the hands differ with respect to the specifications of handshape, movement and orientation.

The adaptations in the examples of Aronoff et al. (2003) consist of addition of the arrows that indicate the movements of the hands, based on the description of the signs in the text and video examples.

The illustrations from Aronoff et al. (2003) ‘Classifier Constructions and Morphology in Two Sign Languages’ are reprinted by permission of the publisher; © 2003 by Lawrence Erlbaum Associates, Mahwah NJ.
Furthermore, VELMs can violate the constraint of monosyllabicity, as Aronoff et al. illustrate with the ASL example in (26) in which the hand of the signer first moves to the right, then to the left, creating a bisyllabic sign:

(26) ASL (adapted from Aronoff et al. 2003:71, Fig. 3.9)

‘Car turns right || car turns left.’

In order to account for the latter phonological violation Aronoff et al. suggest that VELMs may spread over larger constituents than the prosodic sign and may even span several intonational phrases. The boundaries of intonational phrases are determined by non-manual markings such as a change in head position and a change in facial expression in ISL, longer duration of signs at the end of an intonational phrase in ASL and eyeblinks in both sign languages. I have made the same observations from my NGT data, which has led me to conclude that structures similar to that in (26) do not form one VELM but a sequence of VELMs (section 6.3.1). Consequently, such structures do not violate the monosyllabicity constraint, since they do not consist of one bisyllabic sign, but of two (or more) monosyllabic signs.

With respect to of the Dominance and Symmetry Conditions, I question the claim made by Aronoff et al. (and others) that these are violated in (24) and (25). Recall that I have argued in section 6.3.1 that
these two-handed constructions do not form one VELM, but two VELMs that are articulated simultaneously. Each hand thus articulates one VELM, with one subject agreement marker. A VELM is a prosodic sign that can be articulated simultaneously with another VELM. It thus appears that VELMs do not violate these conditions at all.

In sum, my analysis of VELMs as consisting of one root (that is combined with several affixes), sometimes occurring in uninterrupted sequences, predicts the possibility of constructions which, superficially, violate phonological constraints such as the ones discussed. Therefore, my analysis has a considerable advantage over analyses that need ways to explain the frequent ‘violations’ of these constraints.

6.3.5 Summary

In this section I have argued that a VELM always contains a root indicating the path motion of a referent, its localization, or its existence in signing space. The root can be affixed with morphemes that can indicate the manner of motion, such as walking and rolling, and (changes in) the orientation of the referent, for instance rotation. Morphemes expressing the manner of motion are not always recognizable as affixes; sometimes they are conflated with the path motion. This is often the result of articulatory limitations. Since the arm, wrist and hand joints do not allow certain movements, the required movements are sometimes transposed to other joints or to the path motion. Because of this, it sometimes looks as if the manner is expressed by the root as well as the path. However, I have argued that the expression of path and manner can still be separated into distinct morphemes. I have also argued that the structures that have
been previously proposed for VELMs are unnecessarily complex, posing
morphemes for which there is no independent evidence and giving rise to
violations of phonological constraints. I have reduced this complexity by
showing firstly that the structures that have been analysed as sequential
root combinations actually form a sequence of VELMs, each heading
their own clause and secondly, that ‘two-handed VELMs’ in which the
hand configurations represent different referents are distinct VELMs that
are articulated simultaneously.

6.4 Comparison to recent views on classifier predicates
Since the work by Supalla (1980, 1982) and McDonald (1982), most sign
language researchers who dealt with predicates that express the motion,
location, and existence of referents and the size and shape of referents
have analysed these as complex predicates, in which the hand
configuration has a particular meaning. These constructions were usually
thought to involve classifiers. More recently, however, the latter idea has
been called into question. It has been claimed that meaningful hand
configurations are not classifiers (Engberg-Pedersen 1993:243-252;
Emmorey 2001:97-102; Slobin et al. 2003). This criticism of the earliest
analyses is based on literature on classifiers in spoken languages that,
with hindsight, is relatively unsophisticated in comparison to the most
recent work (such as Aikhenvald 2000; Grinevald 2000).

This work has provided much more insight into classifier systems (in
spoken languages), especially into verbal classifier systems. It criticizes
the assumption that ‘classifier predicates’ in sign languages form a
homogeneous group of signs whose members should therefore show a
similar structure and behavior. In Chapter 5, I showed that the group of ‘classifier predicates’ consists of at least three different types of structures, with different morphosyntactic characteristics. Thus, it cannot be expected a priori that these separate types, as well as their individual components (particularly the hand configurations), have similar characteristics. Furthermore, I showed that for a subgroup of these predicates, namely VELMs, the meaningful hand configurations behave in a way that is strikingly similar to verbal classifiers in spoken languages, and even more strikingly, in a similar way to noun classes as well.

Although my analyses are based on NGT data, I claim that they basically hold for most (if not all) of the sign languages investigated to date. Sign languages, even unrelated ones, appear to be very similar in the domain of VELMs, as has been observed by Schembri (2001) and others. The main differences are found in the inventories of meaningful hand configurations of different sign languages, although they all share hand configurations that primarily denote shape, such as ‘long and thin’, ‘flat and wide’, and ‘cylindrical-shaped’. The structure of the VELM and the function of the hand configurations seem to be consistent across sign languages.

The fact that the structure of ‘classifier predicates’ in various sign languages has been found to be so similar has recently led some researchers to suggest that classifier predicates are not fully linguistic, but rather partly linguistic and partly paralinguistic (for instance Liddell 2003). Cogill-Koez (2000) even makes the extreme claim that they are not linguistic at all, but rather schematized visual representations. In this
section I will address the arguments of these researchers. I will discuss Liddell’s arguments in section 6.4.1 and those of Cogill-Koez in section 6.4.2.

6.4.1 Classifier predicates as unanalyzable lexemes?

Liddell (2003) considers the structure of classifier predicates as proposed by Supalla (notably VELMs) not only as “extremely complex”, but argues that the affixes for orientation and distance and the placement affixes (loci) suggested by Supalla (1982) are problematic in a morphological theory because it is impossible to list them exhaustively in the lexicon: there are infinitely many orientations, distances and loci. He claims that the information conveyed by these elements is analogical and gradient instead of contrastive, and that these elements therefore are not discrete morphemes. He proposes that the information that is revealed about the spatial positioning of the elements and the spatial relations between two classifiers is not linguistic, but deictic. Thus, classifier predicates (and this also holds for agreement verbs) do not contain locus morphemes, nor morphemes that express the orientation of referents, nor indicate distance between the referents. Instead, loci are non-linguistic, and classifier predicates and agreement verbs (the latter are, in his terms, ‘indicating verbs’) move to, from or between non-discrete locations, that do not have linguistic features (Liddell 1995, 2003; Liddell & Metzger 1998). What is left as a linguistic sign, he argues, is a form that is analyzable in a particular classifier, a particular path or locational
movement, and the orientation of the hand with respect to the base plane.\textsuperscript{34}

Notwithstanding the fact that such signs have distinct morphemes, Liddell claims that there is no productive process in which new forms can be created from such morphemes. His argument is that a productive process predicts the existence of a large number of complex signs. While many such signs are not attested in ASL and are not accepted by ASL consultants. He illustrates this with the ASL sign in (27), which shows a repeated up and down movement of a $\overline{\text{a}}$ hand configuration along a path, indicating that a person walks leisurely from an original position to a final position.

(27)

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{UPRIGHT-PERSON-WALK-ALONG.png}
\caption{UPRIGHT-PERSON-WALK-ALONG}
\end{figure}

According to Liddell, the up and down movement does not denote a bouncing movement as might be expected, but an unhurried manner. This manner, however, is not productive, because it cannot be used in a similar structure with any other classifier, not even with a $\overline{\text{a}}$ hand configuration.

\textsuperscript{34} It is not clear to me why this part of the orientation features is linguistic while the other orientation features (such as the facing of the hand) are not.
The latter construction (see (28)) in the meaning ‘legged entity walks along in an unhurried manner’ is not accepted by ASL signers.

(28) BIPED-WALK-ALONG (non-existent sign) ASL (Liddell 2003:210, Fig. 9.8d)

Liddell mentions several other gaps that are to be unexpected if the sign formation process is productive. He thus concludes that the attested forms (such as the one in (27)) are fixed lexical signs that may be analyzable into separate morphemes, but the sign formation process which builds them is improductive.

As described in section 6.3.3 I agree with a number of Liddell’s ideas on the (non-)linguistic status of some of the elements of classifier predicates. However, Liddell’s claim that there is no productive sign formation process underlying VELMs is doubtful, given standard morphological views. Liddell seems to confuse morphological (or morphosyntactic) productivity with a full range of attested forms, and he sees unacceptability of forms and non-attested forms as evidence for the improductivity of the process. The fact that a morphologically complex word or sign, or a group of words or signs could be formed but is not attested does not imply that the morphological process that creates these words or signs is not productive. Even though a particular word formation rule is productive, a language may not contain all the forms
that are possible outputs of that rule. Native speakers do not accept all possible grammatical outputs. There are a number of reasons why such forms may not exist. There may be phonological restrictions on combinations of morphemes, morphological constraints on the combinations of certain morphemes, or semantic reasons for the non-existence of particular forms. Also, the formation of a complex form may be blocked by the existence of a homonym (for instance in English the complex word *stealer* is blocked by the existence of the homonym *thief*), or a language user may prefer to use another form.

As for the unattested or unacceptable forms in ASL mentioned by Liddell, it seems likely that signers see no need to express a number of forms, or they use an alternative form. An alternative analysis of the structure in (27) can relatively easily explain the non-existence of the structure in (28). As I discussed in section 6.3.2, in NGT a walking manner of motion can be affixed to a movement root. This is usually indicated by wiggling of the fingers of the \* or \# hands. However, we have seen that a walking motion can also be expressed by a slight hopping motion. A similar difference in the expression of a type of manner of motion could also be present in ASL, especially since wiggling in the \# hand configuration would not indicate a walking manner. Therefore, the hopping motion could be argued to express the walking manner instead of relaxedness, as was claimed by Liddell. The relaxedness could just as well be expressed by the non-manual adverb consisting of pursed lips (usually glossed as ‘mm’) (following Liddell 1980). This would predict that we would not see the same hopping motion in VELMs when the walking manner of motion is already spelled
out by a wiggling of the fingers (as in (28), or when no morpheme expressing a walking manner of motion is present, as in VELMs that express the motion of a car.

In short, I do not accept Liddell’s notions about most of the extra-linguistic structure of classifier predicates, since my analysis can explain for the attested phenomena in a linguistic framework. Furthermore, I do not share his opinion that the rules which derive classifier predicates are unproductive (in my analysis this would boil down to stating that inflectional processes are unproductive): there are alternative explanations for the fact that some of the forms that might be expected to occur or to be possible appear not to exist and/or are not accepted by ASL signers.

6.4.2 Classifier predicates as non-linguistic units?

I now turn to the views of Cogill-Koez (2000) on the structure of classifier predicates (in AUSLAN). I will not go into the details of her analysis of these structures, but focus on and discuss the validity of her arguments against an analysis of classifier predicates as linguistic structures. According to Cogill-Koez, structures analyzed as linguistic should display a number of characteristics. She claims that classifier predicates in AUSLAN do not display most of these.

First, Cogill-Koez claims that classifier predicates should pattern similarly to structures in the rest of the language in phonological and morphological structure and syntax. She notes that many of the phonemes (handshapes and locations) in classifier predicates are not meaningless (for example, those in monomorphemic signs), and she adheres to the
statements mentioned in section 6.3.4 that classifier predicates do not obey the same phonological constraints as prosodic (in her terms, monomorphemic) signs. Also, she indicates that the hand configurations in classifier predicates are drawn from a larger set than the set of phonological handshapes in monomorphemic signs (in ASL and AUSLAN). In addressing syntax, Cogill-Koez claims that classifier predicates may violate the hierarchical syntactic structure of the clauses in which they occur, since they allow rather free reversibility and different orderings of classifier predicates without rendering the sentence ungrammatical. Also, she argues that in contrast to other complex structures, the structure of classifier predicates is ‘flat’; that is, there is no recursive hierarchy.

Second, Cogill-Koez claims that the meaningful units in the classifier predicate should show duality of patterning, that is, they should be arbitrary symbols, just like monomorphemic signs. From a comparison of several characteristics of classifier predicates with those of monomorphemic signs, she concludes that classifier predicates are not linguistic.

Cogill-Koez’s arguments show some severe weaknesses. Her phonological arguments are dubious given that research into the phonology of sign languages is still largely undeveloped and it is not well understood what the phonological features of sign languages are. It is likely that the set of phonological handshapes proposed for many sign languages are not phonemic after all, but that manual phonemes consist of more abstract features, and the set of phonemic hand configurations is much smaller and subject to allophonic variation, as argued by Crasborn
Thus, a comparison of the hand configurations attested in classifier predicates with the set of phonological hand configurations of a language seems premature. It is also not clear why the components (hand configuration, movement, place of articulation) of classifier predicates should necessarily be meaningless like those in monomorphemic signs, since they constitute morphemes in these predicates.

Cogill-Koez’s claims are based on previous analyses of classifier predicates which make no distinction between the different types, but even if we set this issue aside, her arguments regarding the syntactic structure of classifier predicates remain unconvincing. First of all, when Cogill-Koez considers symmetric contour signs in which both hands trace the outline of a referent, she treats the fact that the begin and end locations of such signs can be reversed (and consequently, the movement between points is reversed) as a syntactic phenomenon. However, this is a phonological phenomenon, namely metathesis (which also occurs sporadically in monomorphemic signs (Wilbur 1979; Brentari 1990)).

Secondly, we have seen in section 6.3.1 that classifier predicates (that is, VELMs) can form clauses on their own. A sequence of these predicates forms a sequence of clauses, and reversal of the predicates is thus not a reversal of constituents within a clause (which would disrupt the hierarchical syntactic structure of that clause), but a reversal of clauses.

Thirdly, her claim that classifier predicates do not show a recursive, hierarchical structure is unfounded: even in the earliest discussions of these predicates, a distinction is made between roots and affixes, which clearly implies a hierarchical structure. Furthermore, the simultaneous
expression of morphemes does not entail that they do not show hierarchical structuring.

Finally, Cogill-Koez’s claim that the elements within classifier predicates should show duality of patterning is no longer supported in generative linguistic theory. As argued by Armstrong (1995) and Aronoff et al. (2000), among others, duality of patterning is a generalization formulated on the basis of spoken languages that have existed for a long time. However, it is not a requirement for language and it apparently does not apply to sign languages. Rather, as exemplified by Aronoff et al. (2000), the structure of sign languages is such that they can directly reflect visual information about size, shape and spatial relations by using signing space and particular hand configurations.

I conclude, then, that Cogill-Koez’s arguments are invalid, partly because of false assumptions and partly because of erroneous analyses of the phenomena. Some of her arguments are falsified by the linguistic analyses presented in this thesis.

6.5 Summary

The complexity of classifier predicates and the problems they pose in a linguistic-theoretical context have been reduced considerably now that the meaning and structure of these predicates have been investigated more thoroughly; not only morphologically, but also morphosyntactically. In this chapter, I have shown that the meaningful hand configurations on VELMs are not only very similar to verbal classifiers, but also to noun class agreement markers. Following and extending analyses by Glück & Pfau (1998, 1999) for DGS, I have shown
that these hand configurations function as subject and direct object agreement morphemes on these predicates. I have further explored the morphological and morphosyntactic structure of VELMs, showing that parts of Supalla’s (1982, 1986) analysis of their morphological structure are correct, such as that of the path motion or the non-motion of the hand(s) as the root of the predicate and that other material in the predicate, such as manner, orientation, loci in signing space and classifiers are affixed. I have argued that sequential VELM roots do not form one predicate but are separate VELMs, and that two-handed constructions in which the hand configurations represent different referents are separate VELMs, too, that are articulated simultaneously.

I have contested Liddell’s claim that VELMs are not formed by productive sign formation processes but are fixed lexical items. I have argued that these claims are based on misinterpretation of the notion of productivity and insufficient linguistic knowledge about the structures involved. I have also refuted Cogill-Koez’s claim that classifier predicates are non-linguistic elements. I have argued that a number of assumptions underlying her claims are based on generalizations about spoken languages that do not necessarily hold for sign languages. Her faulty conclusions are also in part due to a lack of knowledge of sign language structures in general and of classifier predicates in particular. Classifier predicates (VELMs, contour signs, manner of motion predicates) occur in linguistic contexts and fit seamlessly in sentences and discourse. Because of that, linguistic analyses of these predicates (like the one provided in this thesis) are preferable over those that require recourse to representations other than linguistic ones.