CLASSIFIER CONSTRUCTIONS IN MALTESE SIGN LANGUAGE (LSM): AN ANALYSIS

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UNIVERSITY OF MALTA
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Certificate by the Supervisor in conformity with the M.A. in Linguistics Course Regulations, 2000

I certify that the dissertation entitled *Classifier constructions in Maltese Sign Language (LSM): An analysis* is in conformity with the M.A. Linguistics Course Regulations, 2000. The dissertation may, therefore, be submitted to the Co-ordinator of the Linguistics Area of Study for examination.

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Dr. Marie Alexander Signature

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July, 2006

DECLARATION OF AUTHENTICITY

I, the undersigned, hereby declare that this dissertation is my own original work, gathered and utilized especially to fulfil the purposes and objectives of this study, and has not been previously submitted for a higher degree. I also declare that the publications cited in this work have been personally consulted and that, unless otherwise stated, all conclusions are mine.

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July, 2006

ABSTRACT

Very little research has been carried out on Maltese Sign Language (LSM). No study has yet investigated the use of classifier handshapes in LSM. This study is a first attempt at an analysis of classifier handshapes in LSM. It deals not only with the classifier handshapes but strives to understand the behaviour of these handshapes in context: whether patterns of movement/behaviour for classifier handshapes may be identified in LSM.

The LSM data was collected using Supalla et al. (in press) *The test battery for American Sign Language morphology and syntax*. This consists of 80 film segments where toys move around in different ways. Two participants were recorded signing these 80 stimuli. The data was then transcribed using Valerie Sutton's (1995) signwriting system. In this dissertation it will be argued that signwriting is an ideal much-needed IPA for sign languages.

The results indicate that there are different types of movements for different classifier handshapes in LSM. However there are exceptions to the suggested rules. Thus it is questioned whether these are truly exceptions or whether they point to flaws in the categorization of classifier handshapes.

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għal
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u għal Mulej li hu f'nofsna

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ABBREVIATIONS AND CONVENTIONS USED

ASL	American Sign Language
BSL	British Sign Language
LIS	Lingua Italiana dei Segni (Italian Sign Language)
LSM	Lingwa tas-Sinjali Maltija (Maltese Sign Language)
NGT	Sign Language of the Netherlands
AUSLAN	Australian Sign Language
IPSL	Indo-Pakistani Sign Language
WE	Whole Entity
SSS	Size and Shape Specifier

Glosses

In-text examples are glossed in capital letters. However, in the transcriptions of the data, utterances are glossed using both capital and small letters. The handshapes/referents are glossed using capital letters and all other information (such as movement and contact) is written in small letters. This is done in order to facilitate the flow of reading.

In-text underlined glosses indicate parts of the utterance that needs to be focussed on.

Occasionally signwriting examples alone are given in the text. This is done to facilitate the flow of reading. All signwriting examples and their glosses may be found in Appendix C.

Chapter 1: Introduction

1.1 The birth of sign linguistic research

Sign language research has not been around for many years. While the analysis of spoken languages dates back to Aristotle and perhaps even before that, the shrill cry of the birth of sign language research was heard just around fifty years ago. Anyone doing sign linguistics knows that the person responsible for the start of serious linguistic analysis of sign languages was no other than William Stokoe, the man who analysed the unanalysable. Stokoe, Casterline and Croneberg's (1976) work gave life to sign linguistic research across the globe.

1.1.2 LSM research: Almost a toddler

Research into LSM has not started walking steadily yet. Like a toddler learning to walk, it has perhaps taken its first tentative step with the work of Azzopardi (2001). More recently it has been making more courageous steps with the work that is being carried out in the LSM dictionary (Alexander, 2003; 2004). Still research hasn't yet taken off to a point where it can run…but it is getting there.

Prior to the works mentioned above, there have been other studies of different aspects of LSM. These include the documentation of LSM signs (D'Amato, 1988) and the narrative techniques (Fenech, 2002), writing skills (Cassar, 1995) and communication skills (Porter, 1995; Azzopardi-Axiak, 2005) of the Deaf.

1.2 Two influences on the flow of sign linguistic research

Two aspects that have greatly influenced research in sign language seem to stand out. The first is due to the early goal of sign language research - seeking higher esteem. The second aspect is due to the lack of a writing system for all sign languages.

1.2.1 Esteem-seeking research

The early research carried out in sign linguistics was geared up to find comparisons in spoken languages and thus push sign languages to a higher level of esteem so that they would be considered full languages just like spoken language (Stokoe, 1990, p. 2-3; Newport & Supalla, 2000). As Azzopardi (2001, p. 15) notes, this aim led research away from studies of the spoken component used by the Deaf when signing. Deuchar (1984, p. 76) suggests that this may also be due to a long history of low status of sign languages in contrast to spoken languages, hence a reaction to oralism in deaf education (Ladd, 1988, p. 27; Mottez & Markowicz, 1980; Brennan & Hayhurst, 1980; Hansen, 1980; List, 1990, p. 19). Brennan and Hayhurst (1980, p. 235) add that there have also been unfounded claims about the inferior nature of sign languages. One such claim is found in Lyons (1981, p. 2, pp. 66-99). Thus this pushed early ASL linguistics to combat such claims.

Recently, researchers are beginning to realise that sign language research has been too heavily dependent on frameworks devised for spoken language research (cf. Wilbur, 2000). Although spoken frameworks contribute immensely to the development of sign linguistics (Fischer, 2000), they may also lead to certain problems. Sign linguistic research has been around since the seventies. However, there are certain issues which have remained unsolved. These include such basic concepts of what constitutes a 'verb' or 'noun' in sign language.

In numerous sign linguistic works researchers simply apply the terms 'verb' and 'noun' based on their intuition of verbs and nouns (cf. Supalla, 1982, Schembri, 2001, Klima & Bellugi, 1979, Liddell 2003). This is also discussed below in Section 1.3 and Chapter 2, Section 2.1.

1.2.2 An IPA for sign languages?

Another major problem with sign linguistic research is the lack of a standard international writing system. The IPA for spoken language research has been invaluable. It has helped with the objective analysis of unknown languages and has made cross-linguistic comparisons possible. It has also been the basis of all studies in phonology, where rules governing sounds in a language could only be identified using the IPA to filter out idiosyncrasies from linguistically significant sound distinctions.

In this study Valerie Sutton's signwriting (Sutton, 1995) is used. This writing system is used to transcribe the LSM data and to illustrate in-text examples in the study. It is as invaluable a tool to sign linguistic research, as the IPA is to spoken languages. For more detail see Chapter 2, Section 2.64, 2.7, and Appendix A.

1.3 Classifier constructions

The main aim of this study is to analyse the LSM data in an attempt to arrive at possible rules for the formation of classifier constructions in LSM. The term ‘classifier’ in sign linguistics seems to have been used for the first time by Frishberg (1975, p. 715). Although tied to the term ‘classifier’ is the idea of ‘classification’, the definition itself has and still undergoes investigation. Certain researchers claim that classifiers function as pronouns (cf. Klima & Bellugi, 1979), reference markers (cf. Edmondson, 2000), or agreement markers (cf. Zwisterlood, 2003).

As for the term ‘classifier construction’ there is a widespread idea that most of these constructions are verbs (cf. Supalla, 1982; Schembri, 2001; Schembri, 2003; Schick, 1990; Liddell 2003; Zwisterlood, 2003). However, what marks these constructions as verbs as opposed to any other parts of speech seems to be based on the notional ideas of verbs. For instance in his introduction to the chapter on depicting verbs (classifier constructions) in ASL, Liddell (2003, p. 261) explains that: “Depicting verbs (classifier constructions), like verbs in general, encode meanings related to actions and states.” Perhaps a more rigorous analysis based on the form of the classifier constructions is needed. When different forms of classifier constructions are identified, it may be easier to categorise them according to their formation properties, rather than the notion of what meanings they encode.

1.3.1 Terms used in this study

In this study the term ‘classifier handshape’ is used. Aranoff, Meir, Padden and Sandler (2003, p. 63) state that a generally accepted definition of ‘classifiers’ is that of “morphemes that classify nouns according to semantic criteria”. However, whether classifier handshapes are morphemic or not will not be investigated in this study. Thus

Schembri's (2003, p. 3) definition is perhaps more appropriate for this study. He (ibid.) describes a 'classifier' as a term used for "the choice of handshape that varies according to salient characteristics of the referent, especially its shape". Additionally, Aikhenvald (2003b, p. 87) defines 'classifier constructions' as "separate grammatical units – such as noun phrases, verb phrases or clauses – which require classifiers, chosen according to the semantics of a noun". This definition of 'classifier construction' is adopted in this study. However, this work, in itself, questions these definitions.

1.4 Conclusion

In this study of LSM, classifier constructions are investigated. The use of different classifier handshapes in LSM is expected, however, whether there are rules governing the formation of classifier handshapes is still unknown. This work will hopefully shed light on this issue.

Signwriting (Sutton, 1995) is used for the transcriptions of the data. This study also explores the usefulness of signwriting as an IPA for sign languages.

Additionally, this study questions the traditional method of the classification of classifier handshapes in sign linguistic research.

Chapter 2: Literature Review

2.1 Sign linguistic research divergence

As mentioned in Chapter 1, Section 1.2, sign linguistic research has been building up since the seventies with perhaps two short-comings: strong comparison to spoken language research, and the lack of an IPA for sign languages. These two peculiarities of sign language research are tackled in the following sections 2.1.1 and 2.1.2.

2.1.1 Adopted spoken language frameworks

> The natural thing to do, although cautiously, was to try to find things in signed languages that looked like, or seemed to act like, familiar things in spoken languages. In this way, we were trying to answer the question: "In what ways are signed languages like spoken languages?"
>
> Battison, 1980, p 224

In this section I do not intend to undermine the usefulness and insight that spoken languages frameworks have contributed to sign linguistic research. I am aware that such frameworks have shed light on many discoveries in sign languages (Fischer, 2000, p. 197), and without them this may not have been possible. What is questioned here is whether spoken language frameworks have diverted researchers focus away from important language-unique aspects of sign languages.

As previously mentioned in Chapter 1, Section 1.2.1, the aim of early sign linguistic research was to find comparisons in spoken languages, thus proving that sign languages were full languages just like spoken languages (Stokoe, 1990, p. 2-3; Newport & Supalla, 2000). Fischer (2000, p. 197-198) notes that linguistic theory has been extremely important for the development of sign linguistics. However, it may be the case that depending too heavily on spoken language frameworks may lead researchers to overlook some important issues that are language/medium specific.

In fact many researchers are ready to admit when they are misled as are Klima and Bellugi (1979, p. 241) who admit that when they used glosses to transcribe their data they were, at the time, unaware that such glosses were not fully representing the data but were obscuring the reality. They became aware that using glosses from spoken language made them overlook some inflectional processes of the language (ibid.).

To understand the phonology of sign languages many researchers use spoken language phonological models. Minimal pair contrast is used in sign linguistic research to arrive at the phonemes of the language (cf. Stokoe et al., 1976). This method, however, appears to be a practical and reliable way of identifying phonemes in any language. It does not rely on sound but rather on two contrasting elements that have the potential of modulating meaning.

Other researchers using spoken language frameworks to analyse the phonology of sign languages are Sandler (1990), Perlmutter (1990), Ahn (1990, pp. 11-26), Corina (1990, pp. 27-49), McDonald (1983, p. 33), and Wilbur (1979, p. 29, 1990, p. 108; Wilbur, 1990). Coulter (1990, p.112) attempts to understand the nature of emphatic stress in

ASL and in doing so uses not only a spoken language framework but also the same techniques for testing spoken language stress.

In his more recent work (2000, p. 215), Wilbur is clearly aware that there may be significant differences between the phonology of sign and speech.

> Or given the substantial differences in the physics of speech and sign, might there not be higher level organizational differences between the two linguistic modalities, and if so, what and where?
>
> Wilbur, 2000, p. 215

Many researchers compare other levels of sign language, such as the grammar, to spoken languages and thus seem to have taken on several terms from spoken language linguistic research (cf. Klima & Bellugi, 1979; Sutton Spence & Woll, 1999). Certain fundamental issues, such as the distinction between nouns and verbs, seem to have been overlooked by several researchers. For instance, Pizzuto, Giuranna, and Gambino (1990) discuss verbs and nouns in LIS without defining what is meant by these terms. In fact this is a rather interesting example since there is an indication that the so-called 'verbs' and 'nouns' in question demonstrate similar behaviour (ibid., p. 95). If this is the case then perhaps what appears to be a 'verb' and 'noun' should be re-organised into the same class, due to the fact that they share formal properties.

Liddell (2003b, p. 22, 25, 42) also compares ASL with English and other languages. However, this does not stop him from identifying unique aspects of ASL. In fact, Liddell is aware that many aspects of ASL cannot be compared to spoken languages because of the different medium involved (ibid., p. 139). Additionally, when there are no terms available from traditional linguistics he coins his own terms to describe aspects unique to ASL. For instance, he coins the term 'buoys' to refer to non-dominant hand holds (ibid. p. 223).

It is important to re-emphasise that the aim of this section is not to state in any way that traditional linguistics frameworks and terminology have been detrimental to the study of sign language. The question being asked here is whether such frameworks have made us researchers take on certain assumptions rather than investigate fundamental aspects of sign language.

Traditional linguistic frameworks have developed from the study of spoken languages and not sign languages. As Fischer (2000, p. 198-208) discusses in her article, the contribution that sign language has to offer to linguistic study, rather than the other way round, is extremely enriching to the area of linguistics. One significant contribution is that sign language forces linguistics “to confront and rethink some messy issues that we have in the past preferred to sweep under the rug” (Fischer, 2000, p. 205).

2.1.2 An IPA for sign language

Languages have been written for centuries. The advantages of writing systems are several. One important aspect of a writing system is that it helps the language become standard and as a result less dramatic language change occurs than in languages that have no writing system (Milroy & Milroy, 1999, pp. 22-23). A writing system allows for artistic expression of the language such as poetry and prose. It also facilitates distant communication such as writing letters or emails. Additionally, a writing system may aid metalinguistic awareness and language learning.

Many researchers are aware of the need for an IPA for sign languages. For instance, Sandler (1990, p. 13) writes, “Unfortunately, there is not yet an IPA for sign languages, and as in spoken language, full phonological representation of each form are lengthy and complex.”

In sign language research several attempts at codifying the language have been made, and several different notations are used at present. As mentioned in Chapter 1, Section 1.2.2, this has made cross-linguistic comparison in sign languages rather difficult. Brief explanations of some of these notations are presented in the following sections 2.1.2.1-section 2.1.2.

2.1.2.1 Stokoe System & Hamburg Notational System (HamNoSys)

Stokoe et al. (1976) devised a system for transcribing sign language. As Martin (2000, p. 7) notes, Stokoe et al. (ibid.) did not devise this system for writing, but rather his aim was to prove that ASL signs have internal structure. It did, however, lack the codification of a lot of other significant detail in sign language, such as location marking, facial expressions and other non-manual phenomena. Having said so, the system was ideal for the purpose of Stokoe's (ibid.) study, and perhaps this is the most important consideration when choosing a notational system.

HamNoSys developed from Stokoe's system into a more complex one that could account for the gaps mentioned in Stokoe's system (Hanke, 2004, p.1). This system has many similarities with Valerie Sutton's signwriting system (see Section 2.1.2.). This system is widely used by Australian sign linguists such as Trevor Johnston and Adam Schembri. For more information on HamNoSys visit http://www.sign-lang.uni-hamburg.de/Projects/HamNoSys.html (University of Hamburg, 2004).

2.1.2.2 Glosses

In Sutton-Spence and Woll's (1999, p. xi) book the authors make it clear that no standard notations are used. They are, however, aware of the importance of using a notational system. Still they recognise their limitations, since they understand that a lot of time is required in order to learn to use a notational system. They thus came up with conventions used to talk about signs in BSL.

One of the conventions they use is glosses. However, glossing has two drawbacks. One of these is the fact that glosses are only close approximations of the meaning of the sign; there are occasions when a sign cannot be precisely expressed into spoken language (e.g. multichannel signs). The other drawback is identified by Sutton-Spence and Woll (1999, p. xiii): glosses only give an indication of the meaning but say nothing about the *form* of the sign. Therefore, glosses give no indication on *how* it is signed (handshapes, movement, non manual activity, body shifts etc.).

In fact, as previously mentioned in Section 2.1, Klima & Bellugi (1979, p. 241) noted that using glosses had the drawback of misleading some of their findings about ASL.

Although the main transcriptional system used in this study is signwriting (see Section 2.1.2.5), glosses are also used to aid in the understanding of the transcriptions (see Appendix C and Appendix D).

2.1.2.3 Letters symbolising handshapes

Due to the constraints of glossing mentioned above, researchers like Sutton-Spence and Woll (1999, pp. xiv-xvii) also use codes that refer to the different handshapes. These codes have become quite standard and are used (sometimes with slight differences) by other researchers (cf. Brien, 1992; Klima & Bellugi, 1979, p. 44). Some of these codes have originated from fingerspelling in ASL (e.g. A, L, O, H). One problem with using just these codes is that they say nothing about the palm orientation. This needs to be described separately. Although Sutton-Spence and Woll (1999) did not use any complex notations, the conventions they used served their purpose well and it makes their book accessible to a wide audience. In this study letter-codes are also used and incorporated into the glosses (see Appendix C). Letter-codes are also used for describing the list of classifier handshapes found in the LSM data (see Chapter 4, Section 4.3.1).

2.1.2.4 Illustrations/Photography

Many researchers use illustrations depicting the actual signing to talk about the linguistics of sign languages. Even though this is the earliest form of coding sign languages (cf. Klima and Bellugi, 1979; Sternberg, 1981), very recent research also resorts to using illustrations (cf. Liddell, 2003a,b; Zeshan, 2003). However, generally speaking, illustrations are not used alone. All researchers mentioned also use letter coding to refer to handshapes and describe other features of the signing such as facial expressions and movements.

It may be argued that the visual image (e.g. photography) of the signing is enough for cross-linguistic study. However taking the analogy of spoken languages although audio recording has evolved to high levels of quality (Dolby etc.), it has not replaced writing. Additionally, writing systems have the advantage of providing immediate holistic accessibility, rather than having to playback the audio or visual recording over and over again. This indicates how important a writing system is for a language.

2.1.2.5 Signwriting

Signwriting is a system of writing sign languages that was created around 1974 by Valerie Sutton (Martin, 2000, p, 8). She used iconic symbols to write dance movements and thus this system of 'dance writing' could be used to write sign languages since they consist of body movements (ibid.). The system has evolved since then and continues to evolve, whereby unnecessary complex drawings are being shortened down to what is essential to perceive the symbol as a sign.

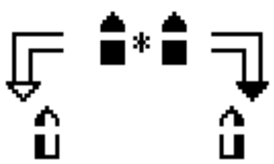
Signwriting uses symbols to represent different handshapes, palm orientation, hand movement, facial activity, and body movements. It is also written down in columns, thus spatial relationships may be encoded in the use of space within the column (for instance, writing a symbol to the left versus the right side of the column). For a guide to decipher basic signwriting symbols see Appendix A.

2.1.2.5.1 Pictographic symbols

Signwriting is pictographic but is very different to any other pictographic writing system, because it is a picture not of the thing referred to, but rather of the sign that represents the thing (Martin, 2000, p. 6).

2.1.2.5.2 Simultaneity and sequentiality

It has been argued that, besides simultaneous structure (cf. Stokoe et al., 1976), sign language also has segmental structure (cf. Supalla, 1990). Signwriting may represent a sign simultaneously or sequentially. When sequentiality is meaningful it is expressed by the relative position of the symbols of signwriting. Any meaningful sequential units can be coded by using signwriting, for example:



TABLE

In the above example, the position of the symbols, in relation to each other, make its sequentiality visible. The arrows indicate that the starting point is at the 2-B Hands palm facing down . The following symbol  indicates that the two hands' initial position also consists of them being at contact with each other. These two hands move away, and then down, and the final position of the hands can be found at the bottom of these arrows,  the B-Handshape palms facing each other. The change of orientation of the hands from the beginning to the end of the sign is meaningful and, thus, can be transcribed.

However when sequentiality is not meaningful, it need not be transcribed. For example:

SKY

In the signwriting above the tilt of handshape has not significantly changed from the beginning of the arrow to the end, thus is unnecessary to signwrite it as follows:

SKY

2.1.2.5.3 Ideal for phonetic studies

Signwriting has been criticised for containing too much detail. However, this fact is actually an asset. Such detail means that signwriting is a useful tool for representing the phonetic level of a language. In a first transcription, a researcher may include as much detail as needed. If a researcher requires a purely phonetic transcription, signwriting makes this possible. If the researcher then wishes to proceed to transcribing phonologically all that is required is that he/she makes a decision on which symbol to use (e.g. if B-hand and B-hand thumb forward is a phonetic difference, the researcher has to make a decision to stick to one or the other whenever these come up in the data). In fact, the analysis includes a small section on some phonetic distinctions observed in the LSM data (see Chapter 4, Section 4.3.2). If the data were to be re-transcribed phonologically, a decision would need to be taken on the choice of the symbol required to represent the different physical productions of the phoneme in question.

2.1.2.5.4 Handshapes and palm orientation

Valerie Sutton's signwriting system consists of a vast list of all possible handshapes (Sutton, 1995; http://signwriting.org/lessons). Furthermore, the orientation of the palm is incorporated within the handshape (see Appendix A).

2.1.2.5.5 Hand movements

Signwriting is ideal for representing different movements. Once data is transcribed it can be used to isolate the meaning of the movements and to detect any slight modulations in meaning (Battison, 1980, p. 225).

2.1.2.5.6 Non-manuals and spatial locations

Another advantage of signwriting is that it can code all types of facial expressions and non-manuals. Thus, it is ideal for representing longer sequences of signing such as sentences. Facial expressions play an important role in representing the prosodic layer, thus signwriting also has the potential of incorporating this level of analysis in the transcriptions.

Signwriting is ideal for representing spatial relationships. This is done by writing down in columns: transcribing to the right versus the left side of the signing space. My gratitude goes to Joe Martin who through personal communication (October, 2003) illustrated how to signwrite spatial relationships and movement using columns.

A guide to the basic signwriting symbols is given in Appendix A.

2.1.2.5.7 The Signwriting List

This is a very useful email network where signwriters discuss any problems and issues on signwriting. Valerie Sutton, the creator of signwriting, personally answers all emails and gives her own feedback to all queries and comments, using her vast knowledge and experience of signwriting. Many queries encountered whilst transcribing the data were answered by the list. Thus, special thanks go to Valerie Sutton, Stefan Woehrmann, Charles Butler and Joe Martin, whose correspondence was of great support. In fact, Joe Martin personally demonstrated how to signwrite spatial relationships using columns (personal communication, October, 2003). His explanation was very clear and was adopted for the transcriptions of the data where columns were used to portray spatial movements by the signers (Appendix C).

2.1.2.5.8 Signwriting in Malta

Another reason for using signwriting is that, in Malta, this writing system is the most widely used writing/notational system. It is used in the LSM dictionary, Volume 1 and 2 (Azzopardi-Alexander, 2003; 2004). Additionally a workshop was carried out a few years back where a few young Deaf children were taught how to use signwriting. Using signwriting in this dissertation thus makes this work more accessible for the Maltese Deaf.

Signwriting is also the notational system that I have gained experience in using. It proved to be very useful in my previous study (Azzopardi, 2001). I have also used signwriting for the work on the LSM dictionary, since I was part of the dictionary team between 2001 and 2005, and in giving a workshop in signwriting (2002).

2.2 Classifier constructions research: Terminology

Schembri (2003, p. 9) notes that Frishberg (1975) seems to be the first person to use the term 'classifier'. She (Frishberg, 1975, p. 715) adopted the term from the classification of spoken languages as 'classifier languages'. These classifier spoken languages intrigued typologists at the time (cf. Allan, 1977). Since then, the term 'classifier' has been widely used in sign linguistic research. Schembri (2003, p. 4) notes there is a long list of different terms used to describe the same phenomena. He adds that this has made cross-linguistic comparisons extremely difficult (ibid. p. 9). In this section an exhaustive list of all the different terms used is not given, since this has already been tackled with great precision by Schembri (2003, p. 4).

An additional problem with many of the terms is that, on the basis of the terms alone, the boundaries of what researchers are analysing is unclear. Thus, it is difficult to know whether they are referring to classifier handshapes in isolation or longer constructions where classifier handshapes are used. For instance, when Frishberg (1975, p. 715) used the term 'classifier' for the first time, she was not talking about a whole construction, but of the specific handshape used. On the other hand, when Supalla (1982) talks of 'verbs of motion and location' he is analysing a whole construction where classifier handshapes are used.

As Section 2.1 above illustrates, research in sign linguistics has relied heavily on spoken language terms and this may have led researchers to make assumptions and thus overlook some important aspects of the language. In this area of classifier research this reality is also evident. Supalla (1982), Schembri (2003) and Liddell (2003b) use the term 'verbs'. Wallin (1990), Collins-Ahlgren (1990), Valli and Lucas (1995) and Cogill-Koez (2000) use the word 'predicates'. Schembri (2003, pp. 4-5) goes further and says that he is aware that such constructions may not always be verbal, however he still uses this term in preference of others such as 'predicate'. Still he (ibid.) does not explain why he labels these constructions as verbs.

In this study, the term 'classifier construction' is used. This term is adopted from the name of Emmorey's (2003) book 'Perspectives on classifier constructions in sign languages'. The term 'classifier', to refer to the handshape, is very popular and widespread (cf. Corazza, 1990; Supalla, 1982; Klima & Bellugi, 1979; Sutton-Spence and Woll, 1999; Valli & Lucas, 1995; Wilbur, 1979; Azzopardi, 2001; Azzopardi-Alexander, 2003; Liddell, 2003a, b; Kyle & Woll, 1985). The neutral word 'construction' is used, in this study, to refer to longer stretches of signing that include classifier handshapes. These constructions are under investigation in this study. A 'classifier construction' consists of many parts: classifier handshape/s, movement/s or other behaviour of the hands in the signing space, facial expressions, and other non-manual activity.

2.3 Classifier handshapes

2.3.1 The function of the classifier handshape

Allan (1977, p. 285) states that in spoken languages a classifier is a morpheme and that it contains meaning of some salient feature of the referent. The function of classifiers in spoken languages is to categorize the world around us: “Classifiers serve to organize human knowledge into classes according to the principles of human perception and human functioning” (Aikhenvald, 2003a, p. 319). Grinevald (as cited in Schembri, 2003. p. 21) also claims that the function of classifier handshapes is that of classification. However, as Schembri (2003, p. 21) notes, she does not explain what she means by classification.

Schembri (2003, p. 25) states that the primary function of the handshape does not seem to be classification but rather representation. Edmondson (2000, p. 10) also argues that the handshape classifier should be seen as a ‘reference marker’. Klima and Bellugi (1979, p. 13) describe classifier handshapes as having a pronominal function. Zwisterlood (2003, p. 61, chapter 6) describes classifier handshapes as functioning as ‘agreement markers’.

2.3.2 Categorizing classifier handshapes

A lot of research on classifier handshapes has focussed on categorizing the different types of handshapes. Schembri (2003, p. 9) points out that there is lack of agreement between researchers on how many different subclasses of classifier handshapes actually exist and that this adds another problem for cross-linguistic comparison. Researchers have grouped such handshapes according to what they classify semantically. Perhaps a more objective way of classification would be by grouping different classifier handshapes according to shared morphological/syntactic behaviour (see Chapter 4, Section 4.2.1).

Here I will not be accounting for all the different categorizations of classifier handshapes (for an exhaustive list see Schembri, 2003, pp. 9-10). An outline of the most important works will be given in the following paragraph.

Wallin (2000) and Zwisterlood (2003) see classifier handshapes as fitting into two distinct categories. Schembri (2001) and Schick (1990) describe three categories and Engberd-Pedersen (1993) adds another category to the above list, this being 'limb' handshapes. Supalla (1982) groups handshape classifiers into 5 distinct categories: 'size shape specifier' handshapes, 'semantic' handshapes, 'body' handshapes, 'body part' handshapes, and 'instrument' handshapes. Brennan (1992) identifies 6 groups of different handshapes, and Liddell and Johnson (as cited in Schembri, 2003, p. 9) describe 7 different categories of classifier handshapes.

In this dissertation the three-way categorisation, based on Schick's (1990) and Schembri's (2001) work, is used. These three categories are 'Whole Entity' (WE), 'Size and Shape Specifier' (SSS) and 'Handle' (HANDLE) classifier handshapes. Schick states that:

> Each classifier category is based on either semantic or visual-geometric information and has a specific morphosyntactic interpretation. CLASS forms categorise nominals on the basis of semantic information and represent the free movement in space of the object category. HANDLE and SASS forms categorise nominals according to visual-geometric information: HANDLE predicates indicate the handling of the object category, and SASS forms indicate adjectival information.
>
> Schick, 1990, p. 17

Thus, in this study, a WE classifier handshape represents a whole/complete entity. SSS handshapes contain semantic information about the size and shape of objects. HANDLEs are a group of handshapes that mimic the actual grasp/clutch of human/animal/inanimate objects.

In Chapter 4, Section 4.2.1, certain problems with this notional approach of classification are tackled.

2.3.3 An orientated classifier handshape

Baker and Cokely (as cited in Liddell, 2003a, p. 200) pointed out that it is not the handshape alone that carries the meaning but the orientated handshape. Thus a B-handshape palm facing down carries a different meaning than a B-handshape palm facing upwards. This fact adds to the argument on the adequate transcriptional notations of signwriting. Using signwriting the orientation of the handshapes is evident (see sections 2.9.4; 2.10). Supalla (1982, p. 42), Wallin (1990, p. 142), and Zwisterlood (2003, p. 123) treat the orientation of classifier handshapes as morphemic, since palm orientation represents the bearing of the referent. However, Liddell (2003a, p. 212) argues that some aspects of palm orientation are not morphemic. He (ibid.) explains that while the ASL sign UPRIGHT PERSON is oriented vertically, the direction in which palm faces is variable. Liddell (ibid.) claims that all spatial entities in ASL, and thus also the direction of the palms, are not morphemic. Classifier handshape orientation in LSM is analysed in Section 4.4.2.

2.3.4 Internal structure of a classifier handshape

Supalla (1982) recognises that the handshape itself may contain internal structure. Thus for example, in LSM, the vehicle B-handshape palm facing down, and the upright person (INDEX) have a front and back (ibid.). In fact, the nail part of the finger is the back of the person and the other side is his/her face. Supalla (1982) analyses every meaningful section of the handshape as being morphemic. Wallin (1990, p. 143) also analysed the meaning of parts of the classifier handshapes as morphemic. However Liddell (2003a, p. 208) argues against Supalla's (1982) totally morphemic analysis of classifier constructions, stating that the internal meaning of classifier handshapes should not be interpreted as morphemic in nature.

For more detail on internal meaning in LSM classifier handshapes see Chapter 4, Section 4.3.4.

2.3.5 Choice of classifier handshape

Schembri (2001) recognises that signers of AUSLAN do not always use the same classifier handshape to refer to the same nouns. This is also apparent in LSM, where for example the index finger palm facing the floor, and the B-hand palm facing the floor may both be used to refer to VEHICLES (see Chapter 4, Section 4.5). Zwisterlood (2003, pp. 125-137) also discusses variation in NGT, where there is a choice of classifier handshape. She explains the variation as being both allophonic and free variation. Allophonic variation for the LSM data is discussed in Chapter 4, Section 4.3.2, and free variation in Section 4.5.

Another interesting observation linked to this issue is that the choice of classifier handshape may be motivated by the signer's perspective (Schembri, 2003, p. 22). Schembri (ibid.) remarks that signers have a choice of different handshapes and this may reflect the signers' different perspectives of the characteristics of the referent represented. He adds that this has not been researched in depth. Thus this may also explain some of the variety of classifier handshapes observed in the LSM data collected (see Chapter 4, Section 4.5.1).

2.4 Movement of classifier handshapes

> Once movements had been separated (in a sense) from other parts of signs, it became easier to notice different roles that individual movements might play.
>
> Battison, 1980, p. 225

In the above quotation the importance of a good transcriptional system becomes evident, because only through an adequate notational system (such as signwriting) can the movement be seen immediately and separately from all the other parts of the construction.

Many researchers (cf. Schick, 1990; Supalla, 1982; Zwisterlood, 2003) attempt to account for patterns of movement for all the different groups of classifier handshapes. However, it may be the case that different groups of classifier handshapes operate on different rules and thus display different movements. After analysing the LSM data it became apparent that there was a group of classifier handshapes that shared certain movements that other groups of classifier handshapes seem less likely have (see Chapter 4, Section 4.4).

Supalla (1982) carried out a very thorough and detailed analysis of ASL and treated each movement as a morpheme, where the movement is the root of the verb and the handshape the affix. He (Supalla, 1990) also found certain rules operating on different groups of classifiers. He described ‘path morphemes’ as morphemes that carry the meaning of “move from point A to point B”. Supalla (1990, p. 141) discovered that in ASL these path morphemes cannot be affixed to certain groups of classifier handshapes. Supalla (1990, p. 136) calls these ‘body classifiers’: classifiers that are used to represent the manner of movement involving a human agent. These ‘body classifiers’ seem to correspond with a sub-group of the HANDLE handshapes in this study. From the LSM data there are no instances (except one) of HANDLE handshapes displaying path movement. However, there are several examples of SSS handshapes containing this movement (see Chapter 4, Section 4.4.1).

Supalla (1982, p. 11) talks of 3 types of movement: stative, contact and active. Stative movements are realised by the handshape held static or else by a tracing movement. Contact movement is realised by either a short stamping movement or by contact, and active movement consists of path movements.

Schick (1990, p. 17) describes three types of movement morphemes: movement through space, movement that imitates real-world action, and movement which consist of a single point in space. Schick (ibid.) coins these movements MOV, IMIT and DOT respectively. She (ibid., pp. 19-32) then proceeds to analyse these movements for the three-way categorisation of WE, SSS and HANDLE classifier handshapes. Schick's (ibid.) MOV movement includes path movement, trace movements. Schick (ibid., p. 24) talks of SSS+MOV as resulting in a tracing movement. Trace movements for LSM are discussed in Chapter 4, Section 4.4.4. She (ibid.) does not analyse these SSS as containing path movements, whereas from the LSM data path movements for SSS handshapes were observed (see Chapter 4, Section 4.4.1). SSS+IMIT consists of the movement involved in body anchored forms, in this study called SSS Body-Bound Tracing (see Chapter 4, Section 4.4.4.1).

A fresh perspective on 'classifier constructions' is presented by Liddell (2003b, pp. 269-275). He views such a classifier construction (that he refers to as a 'depicting verb') as a mixture of lexical features and gradient aspects that are meaningful in themselves

(Liddell, 2003b, p. 269). The classifier handshape, palm orientation, movement of the handshape (e.g. path, tracing), and the manner of movement (e.g. bouncing or zigzag) are lexical (ibid., p. 270). The points in space where the handshape starts and finishes its movement are seen as gradient and variable (ibid., p. 271).

2.5 Holds in classifier constructions

Liddell (2003b) talks of 'buoys' in ASL. He describes these as follows:

> Signers frequently produce signs with the weak hand that are held in a stationary configuration as the strong hand continues producing signs. Semantically they help guide the discourse by servicing as conceptual landmarks as the discourse continues.
>
> Liddell, 2003b, p. 223

Although Liddell's (ibid.) definition of 'buoys' in ASL is parallel to what is meant by a 'hold', he does not tackle 'buoys' with reference to classifier constructions. In his examples of different types of buoys, his THEME buoy (Liddell, 2003a, p.242) comes closest to what is meant by a hold in a classifier construction. Liddell's (ibid.) examples are difficult to compare with classifier handshapes being held because the examples are abstract referents being held, such as LANGUAGE AND CULTURE (ibid. p. 243) and EXPERIENCE (ibid. p. 246). However, the dominant hand later interacts with the buoy, and this is what happens between holds and articulators in a classifier construction of LSM (see Chapter 4, Section 4.4.3).

Supalla (1982, p. 14) analyses 'holds' as part of what he calls 'stative' movement (see Section 2.4 for more detail). He (ibid.) adds that the hold movement simply means 'be stationary'.

2.6 Frozen Signs

Frozen signs are signs that may be constructed by different classifier handshapes and movements, but seem to be less subject to change than the rest of the other signs. Some frozen signs from the LSM data can be found in Chapter 4, Section 4.4.7.

Liddell (2003a, p. 211) views the phenomena of 'frozen signs' as an argument against a totally morphological make-up in classifier constructions (cf. Supalla, 1982). He (ibid.) gives the example of a swinging chain in ASL. Liddell noticed that although the ASL sign is produced by an INDEX finger pointing downwards and swinging from side to side, the meaning does not incorporate the swinging but rather it is a lexical unit meaning CHAIN. Supalla (1982, p. 63) recognises the fact that in constructions where the verb is frozen the morphemes are not functional, hence he states that frozen signs become monomorphemic. Schick (1990, p. 18) follows Supalla (ibid.) and claims that the MOV (also known as path movement) is not present in frozen signs.

However, recently Zwisterlood (2003, p. 26) questioned the status of frozen signs as being lexicalized. She argues that treating frozen signs as monomorphemic does not explain why there are so many frozen signs in the language and furthermore why frozen signs appear to be productive. Zwisterlood's (ibid.) argument seems to be appropriate for the same reasons in the case of LSM frozen signs.

2.7 Sequentiality in classifier constructions

Supalla's (1982) work was an analysis of simultaneous classifier constructions. However, in later work (Supalla, 1990, p. 130) he carried out research on what he called 'serial verbs of motion' (serial classifier constructions) in ASL and found that that there are two types of serial verbs: one type results from physical restrictions and the second type can be physically signed, but are ungrammatical.

The first type occurs when, for example, there are three referents (for example a sentence such as ‘the car drove past a pole and then hit a tree’). Since people only have two hands it is physically impossible to sign all three referents simultaneously (ibid. p. 131). Supalla (ibid. pp. 132-135) discovered that when a sequence could be physically signed simultaneously but is not, there are grammatical rules at play. He came to the conclusion that locomotion verbs cannot have path morphemes attached to them. Supalla’s (ibid.) ‘locomotion verbs’ correspond to a sub-group of HANDLE classifier handshapes, where the signer uses his arms and hands to imitate human movements, such as swimming, walking, limping etc. Supalla’s (ibid.) conclusion corresponds to the analysis of LSM data, where it appears to be the case that no HANDLE classifier handshapes (except one) can be incorporated with path movements (see Chapter 4, Section 4.4.1).

For more detail on serial classifier constructions from the LSM data see Chapter 4, Section 4.4.8).

2.8 Classifiers: ‘Stage-Play Mode’ vs. ‘Role-Play Mode’

As previously mentioned in Chapter 1, Section 1.2.1, so strong was the need to compare sign language to spoken languages that issues of non-manuals, iconicity and simultaneity in sign languages were either avoided or certain theories were rejected. In classifier literature this is evident also. For instance, as Liddell (2003a, p. 202) notes, the work of DeMatteo on visual analogues in American Sign Language did not receive a warm welcome. DeMatteo (as cited in Liddell, 2003a, p. 202) proposed that the classifier handshapes could simply move around in space just like puppets on a stage, the stage being the signer's space.

Supalla's (1982) analysis was the opposite of DeMatteo's, since he (1982) analysed classifier constructions into complex morphological structures that are highly productive. However, although Supalla (ibid.) never talked about the possibility of such constructions being iconic in nature, he did recognise the fact that there are two ways of signing the same thing in ASL (ibid., pp. 45-50). He referred to this difference as 'real' versus 'abstract reference systems'. His examples (ibid, p. 49) show that he is talking about the same phenomena observed in the LSM data, and that is here coined as 'stage-play' and 'role-play' mode (see also Chapter 5, Section 5.3).

Schick (1990, pp. 32-36) also discusses this phenomena. She (ibid., p. 32) also came to two conclusions: that HANDLE handshapes are always part of Role-Play Mode, and that WE handshapes (Schick refers to these as 'CLASS' handshapes) are always found in Stage-Play Mode.

Pizzuto and Volterra (2001, p. 266) also describe Italian Sign Language (LIS) as being made up of classifier, pantomimic, and language specific entities. It appears to be the case that the language specific entities of LSM can possibly be traced back to classifier 'frozen' signs (see Chapter 4, Section 4.4.7) and thus are a sub-group of the classifier structures of signing. If this is so, the three aspects of signing mentioned by Pizzuto and Volterra (ibid.) can be cropped down to two aspects, as was suggested by Supalla (1982, pp. 45-50), and as is suggested in this study (see Chapter 5, Section 5.3), i.e. stage-play mode and role-play mode.

2.8 Conclusion: Research questions

This study investigates classifier constructions in LSM. Classifier constructions in LSM are expected, however, whether there are rules at play, and what these rules are, is to be explored in this work.

Furthermore, this study questions the appropriateness of current methods used in sign linguistic research for the classification of classifier handshapes.

Chapter 3: Methodology

In this chapter the method used for data elicitation and analysis of the data is outlined.

3.1 The participants

The same two children who participated in my first thesis (Azzopardi, 2001) agreed to participate in this study. Their two fictitious names are Stan and Amy. They are now both young adults.

As outlined in my previous study (ibid., p. 16), the main differences between the participants are 1) that one is a male the other a female, 2) their exposure to LSM, and 3) their families. Stan is the male participant. He was exposed to LSM from birth since both his parents are Deaf. Amy's exposure to LSM started around age three onwards. She was exposed to this language via her peripatetic teacher since both her parents are hearing and not users of LSM.

3.2 Informed consent

The informed consent for participation can be found in Appendix F.

3.3 Materials used for data elicitation

Ted Supalla (1982) devised a video which consists of toys moving around on a stage. This video was made in order to elicit the signing of children who were the focus of his study. Originally it was known as *Verbs of motion production test* (VMP) and consisted of 120 test items, each one being a very short animated film of toy animals, toy people, and household objects moving around in different ways.

Such material is ideal for eliciting sign language because, as Schembri (2001, p. 156) notes, it does not rely on any spoken or written language but is completely visual and thus more accessible to the Deaf. It is ideal for eliciting data on classifier constructions. It is also a bonus that it elicits patterns in these constructions, thus helping to reveal any rules in these constructions.

In this study, permission was given by Ted Supalla (personal communication, September, 2005) to use a shorter version of the 120 animated test items. The shorter version consists of a total of 85 visual animated items (the first 5 items are practice items and not included in the data analysis). This is the same version that was used by Schembri (2001) to elicit data from the participants in his study and was also used by Schembri, Jones, and Burnham (2005) in a more recent study. These 85 test items are part of the *Test Battery for American Sign Language Morphology and Syntax* (Supalla, Newport, Singleton, Supalla, Coulter, & Metlay, in press).

In the present study, the instructions on how to use the test were not recorded into LSM. However they were interpreted into LSM for the participants before recording.

3.4 Data collection

As explained above, the video consists of 80 different film segments of animated toys moving around in various ways. In order to collect the data, the setting arranged for the recording was as follows: The TV and recording camera were placed next to each other. The signer was placed facing the TV and the camera. The video was played and the participants received the stimuli from the TV and immediately signed the interpretation of the stimuli into the camera.

Supalla et al. (in press) divided the 80 items into 2 groups, A and B, because it was realised that a break might be needed after the production of the first 40 items. When collecting the data, this break was given in order to avoid exhaustion that could interfere with the production of the signing. The first 5 practice items were also recorded but will not be analysed in this study. Supalla et al. (in press) also cautioned that the camera and recording setting may influence the signers' production. However, this is probably less so the case for the two participants, since they are also two of the team of participants recorded for the compilation of the LSM dictionary, Volume 1 and 2 (Azzopardi-Alexander, 2003, 2004). They are thus familiar with the recording setting.

The recordings of the two participants took place on separate dates. Although it is true that my presence as a hearing person may influence their signing, I see myself as being integrated quite well within the Deaf community, due to my work as an interpreter for the past four years. Also I have been frequently present during recordings for the LSM Dictionary (Azzopardi-Alexander, 2003, 2004). Another reason, for my being present during the recordings, is that it is not always easy to find an available Deaf adult to carry out the recording instead of myself.

3.5 Data transcriptions

The transcribed data, corresponding to the production of the signing of the 80 animated film segments, are numbered from 1 – 80. These number-codes correspond to the codes given by the producers of this test. For Stan's transcriptions the letter 'S' is added prior to the number. Thus his data is coded from S1- S80. Amy's signing is coded from A1-A80.

Every item is transcribed vertically in columns. This is an ideal way of writing because it portrays the use of space by signers, without adding additional codes. In fact, in my first dissertation (Azzopardi, 2001), although the stories signed by the participants were transcribed down in columns, the addition of codes Loc: 1, 2, 3 etc were added. This does not seem to be necessary for the purpose of this study. The use of columns and transcribing to the left and right sides of the columns seems to be sufficient. In fact, Azzopardi (2001, p. 20) is incorrect to say that Valerie's system of signwriting does not make it possible to encode the use of physical space. As was clarified by Joe Martin, a sign linguist at the Western Washington University, (personal communication, October, 2003), this is very possible.

In most of the instances, both Stan and Amy produce a construction that can be further subdivided into other units. Thus besides the codes S1-S80 and A1–A80, each unit of a given construction of one stimulus is given a small letter from a-g. Thus for example Amy's production of the second stimulus can be further sub-divided into A2a and A2b (see Appendix C).

English glosses are included in the transcriptions. The gloss is an approximate meaning of the signing. However, as Sutton-Spence and Woll (1999, p. xiii) note glosses do not describe how a sign is produced (see also Chapter 2, Section 2.1.2.2 and Appendix E). Thus letter-codes representing the classifier handshapes are added to the gloss (see Appendix C).

3.6 Data organisation

After the data was transcribed it was entered into a database created on Access. The database facilitated the analysis, since it consisted of a function whereby the different classifier constructions could be organised according to the classifier handshapes. This way each separate category could be observed and patterns of behaviour for each category could be more easily identified. Transcriptions organised according to classifier handshape category can be found in Appendix D.

3.7 Conclusion

In this chapter, the methodology of the research has been outlined. Data was collected from two participants and transcribed using signwriting (Sutton, 1995). Permission was given from Supalla (personal communication, September, 2005) to use 85 test items from the 'Verbs of motion production test (VMP)' (Supalla, 1982) for the elicitation of data in this study.

Chapter 4: Analysis of the Data

4.1 Task of the analysis

The main task of the analysis of the LSM data is to examine the behaviour of all the different classifier handshapes in order to arrive at a rule-based system of classifier constructions in LSM.

4.2 Classifier categorization: The notional approach

In this study an assumption is held that there is a minimum of three categories of classifier handshapes. This assumption is based on the analysis of Schick (1990) and Schembri (2001). For more detail on other categorizations of classifier handshapes see Chapter 2, Section 2.3.2.

The three categories assumed will be referred to as Whole Entity (WE) (also referred to as 'Semantic Class' by Supalla 1982, and CLASSes by Schick, 1990), Size and Shape Specifier (SSS) (also known as SASSes, cf. Schick, 1990), and Handle Handshapes (HANDLE). WE classifier handshapes represent whole entity objects. SSS handshapes contain semantic information about the size and shape of objects.

HANDLEs are a group of handshapes that mimic the actual grasp/clutch of human/animal/inanimate objects.

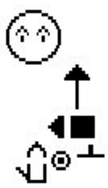
The aim of this study is not to justify the number of classifier handshape categories. I use the three-way classification (Schembri, 2001; Schick, 1990) as a framework for investigation into the behaviour of the handshapes in context. The ultimate aim of the analysis is to arrive at something beyond the 'notion' of what the handshape refers to.

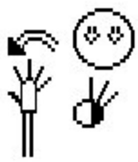
This study questions whether classifier handshape categories are justifiable categories. When analysing the data several problems were encountered when using notional criteria (WE, SSS and HANDLE) for the categorisation of the handshapes. These problems are discussed below (Section 4.2.1).

As will also be discussed in Chapter 5, Section 5.4, the use of notional criteria is not a scientific approach to the categorization of language units. The method used in sign language research for classifier categorization is similar to using notional criteria to establish the difference between word classes such as verbs and nouns in spoken language. This method is no longer acceptable in linguistic research. Nowadays linguists use formal criteria (morphological and syntactic distinctions) to establish different word categories of a language. Thus the same should apply for sign language research.

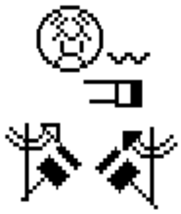
4.2.1 Problems with the notional approach

When categorising the LSM data according to the notion of WE, SSS and HANDLE several flaws become apparent. It becomes immediately clear that there is a very fine line (and thus continual overlap) between all three categories. Decisions on category membership have to be made because there is often a dilemma when determining which category a handshape should fall under. For instance, all WE handshapes have shapes and sizes incorporated within, so in actual fact when using the notional approach all WE handshapes could be analysed as SSSs. Using the notional approach, the borderline between WE and SSS is not clear. This is illustrated by the two following examples from the LSM data below. The B hand in S5b and A2b can be interpreted as an SSS or WE referring to the GROUND. The F hand can be seen as a SSS specifying the shape of a round flat object or else as a WE referring to a loop as a whole entity.

S5b  A2b  SURFACE/GROUND

S1  A16b  LOOP/ROUND OBJECT

Using the notional approach the HANDLE Group seems to be more distinct from the other two, SSS and WE. However, there still is a fuzzy line between some SSS and Handle constructions. For instance, in the examples given below, the two S+ARMS may be seen as specifying the shape of wings of a chicken (and thus SSS classifier handshapes). They may also be interpreted as the signer role-playing and thus imitating a chicken (hence HANDLE classifier handshapes). In the second example the frozen sign for MAN originated from a B-forward handshape that, either specifies the shape of a cap (SSS) or, is used when role-playing the action of putting on a cap (HANDLE).



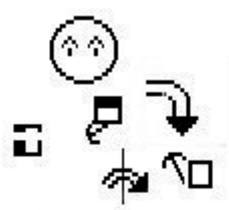
S30a, A30a CHICKEN

S58b, A53a MAN

These difficulties of categorisation question the appropriateness of using the notional approach of the handshape meaning as a method of classification.

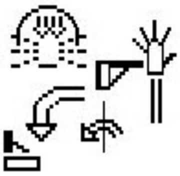
Additionally, taking the analogy of word classes in spoken languages, there are often different morphological behaviours for each category. Although it is true that in spoken languages morphological behaviours are not always consistent, patterns can be identified. Thus in sign languages, some sort of regularity within a classifier category is to be expected. However, from the LSM data there are instances of SSS handshapes behaving like WEs, HANDLEs behaving like WEs, and SSS behaving like Handle.

In the example below, A4c, the HANDLE classifier handshapes behaves like a WE.



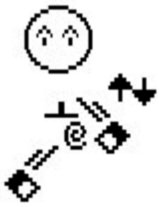
A4c HOLD-PAINTBRUSH FALLS FROM SWING

Another example where a HANDLE classifier behaves like a WE can be found in S6e:



S6e (HOLD) TWIG FALLS FROM TREE

An example of a WE behaving like a HANDLE handshape can be found in A45a and S45a, where the WE handshape has imitative movement typically associated with HANDLE handshapes. Another example can be found in S54a:



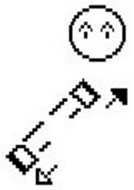
A45a CL-H KNIFE RUB AGAINST EACH OTHER IMITATING THE CUTTING MOVEMENT OF A KNIFE.

S54a CL-H PAINTBRUSH IMITATES MOVEMENT OF PAINTING AND BRUSHES AGAINST CL-B SIDE SURFACE.

A11a and S2a start out as SSS handshapes, however at the end of the utterance the same handshapes behave like WE handshapes, where they move from one point in the signing space to another, i.e. path movement.

A11a TWO HANDS CL-BABY C FLAT ROUND OBJECT ARE POSITIONED IN THE SIGNING SPACE.

A11c  TWO HANDS CL-BABY C FLAT ROUND OBJECT ZIGZAG FORWARD.

S2a  TWO HANDS CL-BABY C FORWARD THIN FLAT SHAPE TRACE THE SHAPE OF A RULER.

S2b  CL-BABY C FORWARD RULER MOVES TO THE RIGHT.

All the above given examples reinforce the question of whether the classifier handshapes are a suitable means of classification or whether movements and behaviours should be classified.

4.3 Classifier handshapes

In this section classifier handshapes found in the LSM data are investigated.

4.3.1 List of classifier handshapes found in data

This is an exhaustive list of the handshapes (excluding the orientation of the palm) found in the LSM data sample (see Appendix E). The list consists of WE, SSS, and HANDLE handshapes.

Table 4.1: A list of classifier handshapes found in the LSM data

Stan	*Amy*
B	B
B BENT (HOUSE and BEAK thumb touching other fingers, this slight difference is probably phonetic)	B BENT
B+ARM	B+ARM
C	C
C FORWARD	C FORWARD
BABY C	BABY C
BABY C FORWARD	BABY C FORWARD CLOSED
OPEN C	/
Y	Y
INDEX	INDEX
/	INDEX+ARM
INDEX BENT and T (similar handshapes probably just phonetic difference).	T
5+ARM	5+ARM
5	5
5 FORWARD	5 FORWARD
/	5 FORWARD+ARM
/	5 BENT
S	S
S+ARM (WINGS)	S+ARM
4 (not necessarily phonological, it makes up part of PORCUPINE and makes no difference if 5 hand is used instead)	/
V	V
H	H
V BENT (not necessarily phonological)	H BENT
8 BENT	/
O	/
A	A
F	F

/	OPEN F
L	L
/	G+ARM
/	W
DISCONTINUOUS 4 (ANIMAL)	

4.3.2 Phonetic and phonological distinctions

When transcribing the data using signwriting all detail was included. Thus certain slight differences were coded. However, during the analysis it became clear that certain details are in fact insignificant and thus need not be encoded differently. The fact that they are different may be a result of physical differences between the signers or allophonic differences.

As previously mentioned in Chapter 2, Section 2.1.2.5.3, signwriting is ideal for linguistic analysis because the amount of detail available in the transcriptions puts a linguist in a good position to outline what is significant in the language (thus the phonology of the language) and what is not significant but is still physically different (the phonetic differences). As argued in Chapter 2, Section 2.1.2.5, signwriting is an ideal IPA for sign languages.

When transcribing the data, slight distinctions such as B and B-thumb forward were transcribed using signwriting. However, it cannot be concluded from the data that this distinction is phonological. Rather, it appears to be just phonetic. This variation in Sign Language of the Netherlands (NGT) was also noted by Zwisterlood (2003, p. 130). She too concluded that this slight distinction does not result in any change of meaning in her data and thus is phonetic.

From the list of handshapes found in Section 4.3, there are a few instances where it is still not entirely clear whether a handshape is phonetic or phonological, for instance, the O hand versus the C, and the 5 versus the 4. There is little evidence to suggest that these are phonological distinctions, since there are no instances where the difference results in a change of meaning in the data.

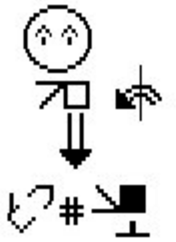
4.3.3 Classifier handshape meaning

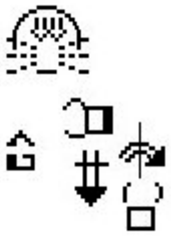
In this section the different meanings found in classifier handshapes from the LSM data are dealt with.

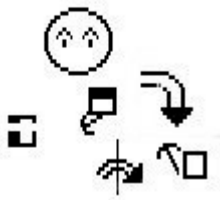
4.3.4 Internal structure of classifier handshapes

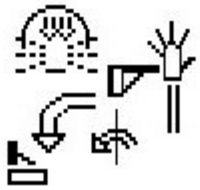
Classifier handshapes can be seen as having internal structure where sections of the hand carry the meanings of FRONT, BACK, TOP, and BOTTOM (Supalla, 1982; Wallin, 1990) (see Chapter 2, Section 2.3.4).

From the LSM data it can be seen that classifier handshapes have internal structure. They represent real-world entities, and thus different sections of the handshapes may represent BACK, FRONT, TOP BOTTON, INSIDE, OUTSIDE. The presence of FALL/TIP OVER movements confirms that there is in fact internal structure in the handshapes. In a FALL/TIP OVER the handshape representing an entity changes its orientation; it 'falls on its back'. This indicates that there is definitely a TOP and BOTTOM distinction, as can be seen in the following examples:

A10c  CL-V PERSON FALLS DOWN AND HITS AGAINST CL-B SURFACE.

S10c  CL-BABY C SMALL UPRIGHT OBJECT FALLS OVER FROM CL-B TABLE.

A4c  CL-T HOLD PAINTBRUSH FALLS OFF FROM NEAR CL-S HOLD SWING BAR.

S6e  CL-5 BENT THIN STRAIGHT OBJECT FALLS FROM CL-5+ARM TREE.

Another interesting example of the internal structure of handshapes is TREE. In LSM, TREE is produced by having an extended arm up and 5-Hand. It is interesting because the 5-Hand contains the meaning BRANCHES. In fact, in A58c and S58c the person falls from a BRANCH and thus the person about to fall is positioned on one of the fingers in the 5-hand. Thus this construction does not just mean: CL-

PERSON FALL FROM a TREE, but more specifically CL-PERSON FALL FROM A BRANCH OF A TREE.

A58c, S58c 

In the LSM dictionary, Volume 2 (Azzopardi-Alexander, 2004, p. 143), the sign FOLLOW also indicates that the classifier handshape involved in this construction has internal structure. The classifier handshape involved is an UPRIGHT INDEX-Hand and the nail side of the finger seems to represent the back of the person, while the other side represents the front, see Table 4.2.

Table 4.2: Internal structure of the Upright-Index-Person classifier handshape

Top

Palm side  Nail side

Front side of person Back side of person

Right hand	 a b c	a. Upright person facing signer b. Upright person back facing signer c. Upright person to the side facing left
Left hand	 a b c	a. Upright person facing signer b. Upright person back facing signer c. Upright person to the side facing left*

However, due to physical constraints many signers cannot fully rotate their left/non-dominant hand to the left side. Thus in a construction such as 'A person, follows another person to the left side', the left hand is not produced as  , but is kept in a comfortable position  . Even though the person being followed is not giving his back to the person who is following, it still means FOLLOW:

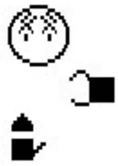
FOLLOW*

FOLLOW

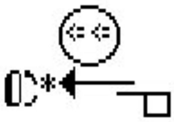
4.3.5 Classifier handshape orientation

The orientation of the hand in classifier constructions is also significant and carries meaning. From the data there seems to be evidence that slight vague distinctions of meaning arise from the orientation of the palms. For instance, a BABY-C or C-handshape can be positioned parallel to the floor or parallel to the wall. From the data it seems to be the case that when the palm is parallel to the floor (placed on a horizontal plane), the entity contains the meaning of FLAT, and when the palm is parallel to the wall (vertical plane) it consists of the meaning of UPRIGHT. For example, in the data there are instances of:

S25a  A25b  THIN <u>FLAT</u> ROUNDISH OBJECT

S31b A34c THIN UPRIGHT OBJECT



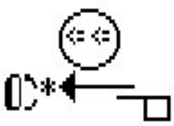
A20c THICK FLAT ROUND OBJECT

Another issue is the FALL movements of classifier handshapes (see Section 4.4.1.2). Part of the meaning FALL emerges from the fact that there is a change in orientation of the palm. See also Section 4.3.4.

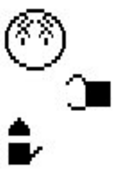
4.3.6 Classifier handshape slight distinctions

Additionally, the difference between a C-handshape and a BABY-C handshape results in the vague distinction of THICK versus FLAT, as can be seen in the two examples below:

S15b THICK UPRIGHT ROUND OBJECT



A20c THICK FLAT ROUND OBJECT

S31b A34c THIN UPRIGHT OBJECT

Schick (1990, p. 24) tackled this phenomena for ASL and described slight variations of the handshapes as resulting in slight variations of meanings of depth. However, she (ibid.) did not tackle the slight modifications of meaning due to orientation change, i.e. UPRIGHT versus FLAT, as discussed above in Section 4.3.5 for the LSM data.

4.4 Classifier handshape behaviour

In this study the classification of handshapes into WE/SSS/HANDLE groups is carried out on the basis of the 'notion' of what the handshape represents. However, as has been seen in Section 4.2.1 this approach creates problems and dilemmas as to whether a handshape is a member of one category or another. The next part of the analysis focuses on the behaviours of the handshapes in context to arrive at handshape movement patterns that perhaps are more appropriate for categorisation than the notions the handshapes entail.

The following observations are a summary of classifier handshape behaviours observed in the LSM data. All these will be tackled in more detail in the sub-sections to follow below.

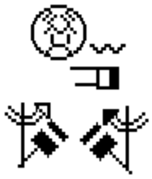
Both WE and SSS can have path movements. One major difference is that all instances of WEs are one-handed (there is one exception to the rule, BOAT see A51a and S51a – however this instance may be seen an SSS and not a WE), whereas SSSs can be 2-handed. As for the HANDLE handshapes, there are three instances of path movements (A4c, S6e, and S80c). A4c and S6e contain FALL movements, and S80c a TRAVEL movement. The handshapes in S6e and S80c are questionably

HANDLE. They may also be interpreted as SSS handshapes. If this is the case, there is only one example of a HANDLE handshape having path movement. Since many renowned researchers (cf. Schick, 1990; Supalla, 1982) have claimed that HANDLE handshapes do not have path, this one example will be viewed as an exception to the rule that even in LSM HANDLE handshapes do not perform path movements. This, however, requires further investigation (see Section 4.4.1 for more detail).

Only SSS handshapes have trace movement, i.e. they can trace the size and shape of an object in space. Also SSSs may trace the shape of an object bound to the body, e.g. GIRL (traces the hairline at the side of the cheek), or BIRD (handshape for BEAK bound at the chin/mouth area) (see Section 4.4.1).

HANDLE handshapes are unique in that they lack path movements (except for a few instances of FALL movement see Table 4.3.1). All movement observed in HANDLE classifiers is similar to the IMIT move suggested by Schick (1990, p. 17). HANDLE handshapes represent the hands holding instruments. HANDLE handshapes seem to be the key classifier handshapes that are involved in role-play mode, where the hands may represent the clutch of humans, animals or even inanimate objects (see Chapter 2, Section 2.8; Chapter 5, Section 5.3). From the LSM data, examples of the hands representing human and animal are given in the following examples.

HUMAN HOLDING A BROOM



BIRD FLAPPING WINGS

In the LSM data there are no examples of inanimate HANDLE classifier constructions, however in the LSM dictionary, Volume 2 (Azzoaprdi-Alexander, 2004, p. 48), there is one recorded instance of FREEPORT which is an instance of inanimate role-play. In this example the hand is 8-BENT+ARM and represents the crane's hook. Thus when in role-play mode, the signer acts like a crane and the fingers in 8-bent shape close together and move in space, representing the crane hook picking up an object and moving. However, this may be interpreted as a SSS rather than HANDLE handshape, as has been done by Schick (1990, p. 27). This reinforces the idea that there is a very slight distinction between WE and SSS when this is based on the simple notion of what is meant by the handshape in isolation.

4.4.1 Path movement: One and two handed

A path movement occurs when a one or two handed classifier handshape, that represents a whole entity, moves along the signing space from one point to another, in a way that represents the physical movement of an entity in space. From the LSM data it is observed that path movement occurs within the WE and SSS categories. For WE handshapes only one handed classifier handshapes are evident and for the SSS group classifier handshapes are two handed.

There are not enough instances of Handle classifier handshapes having path movements to conclude whether they do regularly perform path movements or not. There is one example of a HANDLE handshape falling: A4c. Another FALL movement found in a HANDLE handshape is S6. However, the handshape is questionably HANDLE. It may also be interpreted as SSS. There is one example of a HANDLE handshape that has TRAVEL movement, S80c. This handshape too may be interpreted as SSS instead of HANDLE. All three instances are one handed.

When the path movement is formed by a two handed SSS classifier the two hands are of the same shape and move together along a path in the signing space. The two handed classifier refers to a whole entity, thus it could be analysed as a sub-group of WE rather than SSS.

Table 4.3.1: Path movement one handed

Path Movement One Handed
WE S1a, S1b, S34c, S44, S14b, S14d, S18d, S21b, S22e, S23b, S24c, S27b, S35d, S39b, S41b, S42b, S46b, S49b, S51a, S74c, S51b, S56b, S64c, S69a, S72b, S75c, S76b, S3b, S66d, S77c, S40c, S 27b, S45b, S50c, S54b, S71c, S19a, S58c, S61b, S79d, S68a, S3b, S5b, S10b, S30b, S34c, S65b, S65e, S17c, S47b, S50c, S56b, S8b, S8c, S9b, S15b, S18b, S46b, S55c, S60c, S64c, S73c A41b, A36b, A64b, A63c, A34e, A62b, A63a, A33b, A35e, A26d, A36e, A60b, A61b, A31a, A40b, A66d, A29b, A28c, A30b, A65c, A32b, A31c, A58c, A53b, A45b, A48b, A52a, A46c, A51b, A59c, A51a, A49b, A50e, A44b, A47c, A54b, A26e, A39b, A38d, A1a, A56b, A42d, A44c, A55b, A43a, A43b, A14b, A56a, A37c, A74a, A10c, A76b, A12a, A11c, A75b, A77d, A27b, A9b, A68b, A16b, A13a, A8b, A74c, A6c, A7c, A78c, A5c, A6a, A79e, A3, A2b, a19b, A77c, A80c, A17b, A24c, A20c, A21b, A70b, A25d, A23b, A71b, A68c, A18d, A72c, A18b, A73b, A71c

SSS None
HANDLE S6e, S80c, A4c

Table 4.3.2: Path movement two handed

Path Movement Two Handed
WE S51a, A51a
SSS S59f, S2b, S11b, S7a, S28b A11c, A67a, A69d, A57b, A15c, A22c, S2b, S11b, S67b, S59e, S28b, S78c
HANDLE None

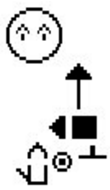
In the above tables it can be seen that there are three instances of HANDLE handshapes displaying path movements. However, as mentioned above, two of these have classifier handshapes that could be interpreted as SSS handshapes. Thus it could be concluded that from the LSM data there is only one occurrence of a HANDLE classifier handshape creating a path movement, and perhaps this could be seen as an exception to the rule. If this is the case, the phenomenon of the lack of HANDLE classifier handshapes having path movements (Schick, 1990; Supalla, 1992) may hint at the fact that LSM has two fundamental 'modes' of signing: Role-Play Mode, which would consist of HANDLE classifier handshapes and the absence of path movements, and Stage-Play Mode, which would consist of the WE and SSS handshapes and their different movements (see Chapter 5, Section 5.3).

The different path movements observed in the data are as follows:

1) TRAVEL from point A to point B
2) FALL / TIP OVER
3) BE-AT (no movement)

4.4.1.1 TRAVEL from point A to point B

A path movement consists of a move from point A to point B. The move may be a simplistic forward or back, up or down movement. For example point A is in neutral space and point B is at a point further forward. The classifier handshape moves from A to B, thus moving forward:

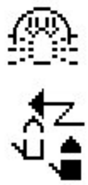


A2b CL-B FLAT OBJECT MOVES FORWARD BRUSHING CL-B SURFACE.

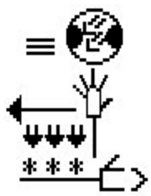
S14b CL-B VEHICLE MOVES FORWARD.

Additionally a path movement may contain more information such as bounce, zigzag, diagonal. For instance:

A5c  CL-H BENT ANIMATE ZIGZAGS FORWARD AND BRUSHES AGAINST CL-B SURFACE.

S21b  CL-B VEHICLE MOVES ZIGZAG FORWARD UPON CL-B SURFACE

A6a  CL-5 BENT CLOUD MOVES UP AND DOWN (BOUNCES) TO THE RIGHT.

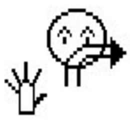
S29b  CL--5+ARM TREE BOUNCES ON CL-B+ARM SURFACE.

In the above treatment of LSM path movements, Supalla's (1982) framework is adopted. However no statement in this study will be made as to whether the movements are morphemes or something else (cf. Supalla, 1982 vs. Liddell, 2003, Schembri, 2001). Supalla's (ibid.) description of ASL path movements as consisting of the basic movements 'forward', 'back' versus 'up' and 'down', are a useful interpretation for basic LSM path movements. Supalla (ibid.) also describes additional modifications to these basic movements. Examples of such additional modifications can be found in the above given examples.

From the LSM data it can be stated that the actual path movement of WEs and two handed SSS contains little meaning. The crucial elements of meaning are i) the direction and path created i.e. from point A to B (or any other combinations e.g. from B to A and then back to B), and ii) whether the classifier travels on a vertical or horizontal plane, i.e. up vs. down, and forward vs. back.

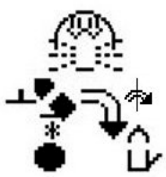
A path movement may consist of a WE or SSS classifier making a trip along a 'path' by itself as in S51a and A1a.

S51 a TWO HANDS CL-B BOAT MOVE UP AND DOWN TO THE RIGHT.

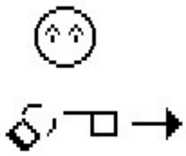


A1a CL-5 SUN MOVES UP AND OVER.

Additionally there may be other constituents in the sentence such as Holds, e.g. S46b, A80b (see also Section 4.4.3).



S46b CL-B VEHICLE FALLS OFF FROM CL-O ROUND OBJECT.



A80c CL-INDEX (PENCIL) MOVES AWAY FROM CL-BABY C (RULER).

Thus as a result of the path movements, other aspects of the construction become significant. For example, if there are two handshapes, one held static (hold) and the other moving, it is relevant how the moving hand interacts with the static hand: whether it passes it or hits against it, whether it departs from the static hand or moves towards it, when it touches, smashes against, rubs, or simply brushes against the static hand, or whether the moving hand articulates over or underneath the static hand. All this information is significant and is a result of the path movement of a classifier handshape in relation to the static hand (hold) (see Section 4.4.3).

4.4.1.2 FALL/TIP OVER movement

All WE and SSS two handed classifiers also have FALL/TIP OVER movement. FALL, TURN, TWIST, SPIN, ROLL meanings do not necessarily require a path movement. Axial movement is usually involved, where the arm or wrist does a pivoting movement (in order to change the orientation of the palm), but a FALL/TIP OVER movement does not necessarily travel from one point to another (e.g. S57c, A57b).

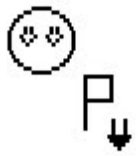
Thus the path itself is not of greatest importance in FALL/TIP OVER movements. Still, if something falls from a tree to the ground as in example S58c and A58c, the hand travels from the top part of the tree classifier to a lower part in the signing space. So in such an example only part of the meaning of FALL is present in the path movement. Moreover, it is the change of orientation of the hand, e.g. CL-Person FALL ON BACK S58c, or else wooden-bar FALL FLAT as in S23b that carries the meaning of FALL/TIP OVER.

Table 4.4: FALL/TIP OVER movement

FALL/TIP OVER Movement
WE: A24c, A73b, A23b, A6c, A10c, A39c, A46c, A60b, A63c, S4b, S23b, S10b, S69e, S39b, S46b, S79d, S58c, S60c, S67b
SSS: A57b, A67a
HANDLE: S6e, A4c

4.4.1.3 BE-AT movement

Supalla (1982, p. 11) described 'contact' movement, as a small downward movement that *places* the classifier handshape in position in the signing space. Here this will be referred to as 'BE-AT movement'. When transcribing the data for the first time this downward movement was thought to be overlooked. However one instance of it was transcribed in A50b:



A50b CL-INDEX (DOG) IS POSITIONED (BE) ON THE RIGHT SIDE OF THE SIGNING SPACE.

When returning to the data to double check, there were much less instances of this BE-AT movement than expected. In fact, this movement was observed only four times in utterances A26, A50, A66, and S26. This suggests that the BE-AT movement is existent in LSM.

In the following examples S8a, S24a, and A24a although short movements (not downwards) have been transcribed, they do not appear to be related to the BE-AT movements. Rather, they seem to be movements that introduce the referent. In fact, the examples occur right at the beginning of the utterance. This idea requires further investigation.

S8a  CL-Y PLANE MOVES SLIGHTLY FORWARD (INTRODUCING MOVEMENT)

S24a CL-Y PLANE MOVES SLIGHTLY UP.

A24a CL-Y PLANE MOVES SLIGHTLY FORWARD IN THE SIGNING SPACE (IT IS INTRODUCED).

4.4.2 POINT-TO movement

There is also a POINT–TO movement which has been observed in the LSM data. The POINT-TO movement does not seem to occur with classifier handshapes, although it is incorporated into classifier constructions. It will not be investigated any further here. This pointing movement may be a type of deixis and is perhaps a borderline pantomimic/gestural element of the signing. The two examples observed in the data can be found below.

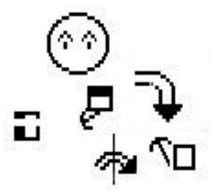
A69b  CL-F TOUCHES AND POINTS TO AREA ON WRIST (POINTING TO A BONE)

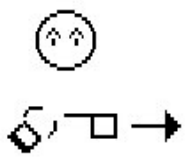
A79d  CL-INDEX TOUCHES AND POINTS TO CL-B BENT (DONKEY'S BACK).

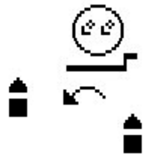
4.4.3 Holds

Holds have been briefly looked into in Section 4.4.1. A ‘hold’ consists of a classifier handshape, usually the non-dominant hand, which is stationary and not moving. This hand stays in position while the other hand is articulating.

From the analysis of the data it can be seen that all three categories display this behaviour. Thus WE, SSS, and HANDLE constructions may include holds.

HANDLE hold: A4c  S-HAND HOLD: HOLD-SWING BAR

SSS hold: A80c  BABY-C HOLD: RULER

WE hold: A18b  B-HAND HOLD: VEHICLE

4.4.3.1 The function of holds

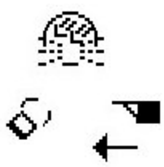
From the LSM data analysed the following functions of holds seem to be evident. It is not the hold alone that results in the functions, but the holds in combination with other elements in the classifier construction.

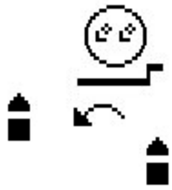
4.4.3.2 Prepositional function

Holds have a prepositional function since, in combination with the articulating hand, they show the relationship between two entities. For instance, all SURFACE examples in combination with another CL-handshape create prepositional meaning. When the articulating hand moves above the CL-SURFACE it indicates that the articulating hand moves *on/upon* the surface, for example A13 and S13b:

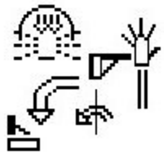
A13  S13b  CL-Y PLANE BOUNCES AND HITS UPON CL-B SURFACE.

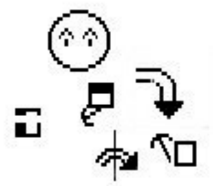
Another example of a hold's prepositional function can be found in S80b, where the pencil moves *to/towards* the stationary hand that represents the yardstick.

S80c  CL-BABY C CLOSED MOVES TO THE LEFT SIDE CLOSE TO CL-BABY C (RULER).

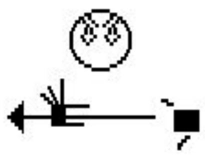
A18b  CL-B VEHICLE MOVES TO THE LEFT SIDE CLOSE TO CL-B FLAT SURFACE.

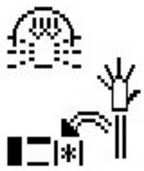
Other prepositional meanings that emerge from the relationship of the hold classifier and the articulating hand are *from, through, into, over* and *by:*

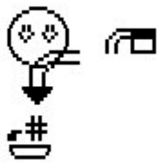
S6e  CL-5 BENT THIN STRAIGHT OBJECT FALLS FROM CL-5+ARM TREE.

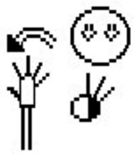
A4c  CL-T HOLD PAINTBRUSH FALLS OFF FROM NEAR CL-S HOLD SWING BAR.

S8c  CL-Y PLANE GOES THROUGH AND DIAGONALLY UP FROM CL-C FORWARD PIPE.

A8b  CL-Y PLANE MOVES THROUGH CL-OPEN F ROUND OBJECT.

S9b  CL-5+ARM TREE MOVES INTO CL-C FORWARD CONTAINER.

A3e  CL-H BENT ANIMATE JUMPS INTO CL-C ROUND OBJECT.

A16b, S16b  CL- F LOOP MOVES OVER CL-5+ARM TREE.

S25c  CL-B BENT THICK BEAK OPENS AND CLOSES IMITATING THE MOVEMENT OF A DUCK'S BEAK, AND MOVES FORWARD PASSING BY CL- BABY C ROUND FLAT OBJECT.

There are instances of both hands (of different shapes) being kept in a hold position. This usually occurs in order to anchor the position of two entities in relation to one another in the signing space.

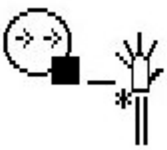
S26d  CL-H PERSON ON RIGHT SIDE AND CL-B BED ON THE OTHER SIDE.

A50d  CL-INDEX DOG IS HELD ON THE RIGHT SIDE AND CL-H PERSON IS HELD ON THE LEFT SIDE.

4.4.3.3 Contact relationship between two classifier handshapes

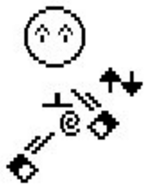
Besides the purely prepositional meaning that arises from the position and relationship between two classifier handshapes, there is also the fact that the articulating hand may come in contact with the classifier hold. The force and manner of contact results in slight differences of meaning, such as touch, hit, rub, brush.

A32b  simple contact (touch)

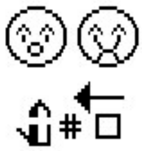
S6b  touch

A43a  brush

S79b  brush



A45a, S45a rub

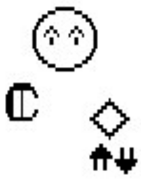


A49b hit

S49b hit

4.4.3.4 Reference holding

The function of hold classifier handshapes may be to keep the reference of that entity, while introducing other concepts (e.g. A46b, A46c).



A46b CL-S HOLD STEERING WHEEL MOVES UP AND DOWN IMITATING THE MOVEMENT IOF DRIVING, WHILE CL-C ROUND OBJECT IS HELD ON LEFT SIDE.

S46a CL-S HOLD STEERING WHEEL MOVES UP AND DOWN IMITATING THE MOVEMENT IOF DRIVING, WHILE CL-O ROUND OBJECT IS HELD ON LEFT SIDE.

4.4.3.5 Mixture of functions at the same time

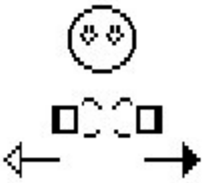
Classifier holds can have several functions simultaneously. For example, a hold may be functioning as a preposition while retaining the reference at the same time. For example, A74b below, where not only is a new referent being introduced while the B-hand is in hold position, but at the same time its position relative to the B-hand is relevant.

A74b  CL-F LOOP TRACES SHAPE OF A LONG THIN CYLINDER (LOOP) DOWN TO WHERE CL-C UPRIGHT BOAT IS POSITIONED.

Here it may be concluded that, in LSM, classifier constructions are frequently made up from a combination of hold and articulator classifier handshapes.

4.4.4 SSS tracing movement

The SSS category is the only category that displays this behaviour. In the data there are no instances of WE or HANDLE handshapes behaving like this. It is interesting to note that all instances of tracing (except for one) are found at the start of the utterance (see Table 4.5; note that the additional code ‘a’ means that they are the first sign in the utterance). This suggests that tracing movement tends to come at the beginning of the discourse. This was also noted by Zeshan (2003, p. 317) for the case of Indo-Pakistani Sign Language (IPSL). The tracing movement outlines the shape of an object in space. It is like drawing in the air. A few examples found in the LSM data are given below:

A2a  TWO HANDS CL-BABY C ROUND FLAT OBJECT MOVE AWAY FROM EACH OTHER <u>TRACING</u> THE SHAPE OF A RULER.

S2a  TWO HANDS CL-BABY C FORWARD THIN FLAT SHAPE <u>TRACE</u> THE SHAPE OF A RULER.

A15a  TWO HANDS CL-5 BENT <u>TRACE</u> THE SHAPE OF A BARREL.

S15a  TWO HANDS CL-5 WIDE SURFACE <u>TRACE</u> THE SHAPE OF A BARREL.

Table 4.5: Tracing movement

Tracing Movement
WE: none
SSS: A2a, A3c, A8a, A10a, A15a, A20a, A20b, A22a, A22b, A23a, A24b, A25b, A28b, A38b, A41a, A47a, A55a, A68d, A69a, A70a, A71a, A74b, A78a,b, A80a, S10a, S68b, S15a, S26a, S38a, S69a, S80a, S41a, S42a, S47a, S57a, S53a, S64a, S78a
Handle: none

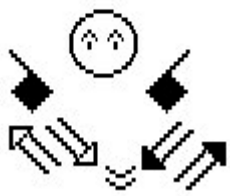
4.4.4.1 SSS body-bound tracing

In the SSS category there are also occasions where the handshape and tracing movement are bound to a body part. Usually these specifically trace body shapes, for example HAIRLINE (A3a), or objects related to the body such as CAP (from the frozen sign for MAN, S19a).

A3a CL-INDEX BRUSHES AGAINST CHEEK <u>TRACING</u> HAIRLINE OF A GIRL (‘STANDARD’ GIRL).

S19a CL-C FORWARD HOLDS <u>SPECIFIES/TRACES</u> SHAPE OF THE OUTER PART OF THE CAP (‘STANDARD’ MAN)

S61a CL-V TWO THIN STRAIGHT OBJECT OPENS AND CLOSES <u>TRACING</u> THE SHAPE OF A RABBIT'S UPRIGHT EAR.



A7b TWO HANDS CL-INDEX LONG THIN OBJECTS MOVE UP AND DOWN ALTERNATIVELY AROUND THE HEAD AREA, SPECIFYING/TRACING THE SHAPE OF SPIKES.

An interesting example of an SSS body-bound tracing movement, which has been displaced from its meaning related to the body-part, is recorded in the LSM dictionary in PORTUGAL (Azzopardi-Alexander, 2004, p. 125). Here the tracing of the signer's profile represents the map shape of the country Portugal and thus refers to PORTUGAL.

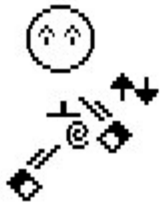
4.4.5 Imitative movement

HANDLE classifier handshapes perform movements that imitate the real-life movement involved. The imitative movement, discussed here, is the same type of movement identified by Schick (1990, p. 17) for ASL – the IMIT movement (see Chapter 2, Section 2.4). This IMIT movement explains why HANDLE classifier handshapes are seen as being used in classifier constructions for the role-play mode of signing (see also Chapter 2, Section 2.8).

Table 4.6: Imitative movement

Imitative Movement
WE: S56a, S54a, S71b, S45a A45a, A54a, A60a, A71b
SSS: S39a, S26b, S31a, S50b, S40a, S70a, S14c, S17a, S61a, S25c, S25b, S69c A39a, A30a, A50a, A25c, A14c, A17a, A70a, A69c, A79c, A61a
HANDLE: ALL (except S6e, S80c and A4c)

As can be seen in Table 4.6, there are several instances where SSS and WE have imitative movements. Two examples are given as follows:



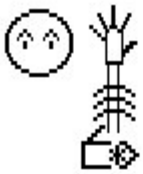
A45a, S45a WE-KNIFE IMITATES MOVEMENT OF CUTTING USING A KNIFE.

S25b SSS-THICK BEAK IMITATES MOVEMENT OF OPENING AND CLOSING OF A BEAK.

4.4.6 Internal movement

So far all the types of movement that have been discussed are meaningful. However, there is another type of movement found in LSM signs that does not carry meaning, i.e. there does not seem to be a one-to-one correlation between the movement involved and any part of the meaning expressed. Liddell (2003, p. 211) also noticed that the ASL sign for CHAIN is produced with an INDEX finger pointing downwards and swinging from side to side. However the swinging movement does not incorporate the meaning of SWINGING but, rather, is a lexical unit meaning CHAIN.

In the LSM data many TREE examples, such as S63a below, have internal movement where the CL-5 hand shakes. This movement does not carry any meaning of movement. Rather it is part of the lexical meaning TREE.



S63a TREE

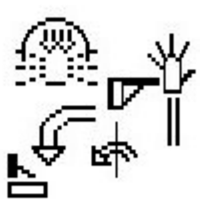
Another example is S62a. The HANDLE handshapes imitate the holding of the motorbike's handlebars, and the right hand wrist moving, imitates the starting of the engine. However, in this example, the imitating movement does not contain the meaning START MOTORBIKE. It is part of the lexical meaning MOTORBIKE. For the sign START MOTORBIKE in LSM, the signer would probably also puff air out of his/her cheeks and not necessarily keep his/her eye-gaze on the audience. The puffed air released in the LSM sign for START THE ENGINE was in fact recorded in the LSM dictionary (Azzopardi-Alexander, 2004, p. 153).

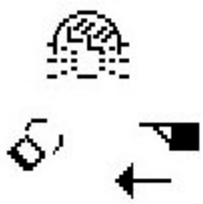
S62a MOTORBIKE

Another example is CAR, S59b. The movement of the two HANDLE handshapes is part of the meaning CAR, and does not mean that the person is driving. Although not found in the data, for the sign DRIVE a different facial expression is expected, and again, the eye-gaze perhaps does not necessarily need to stay fixed on the audience.

S59b CAR

This observation leads to the question of what markers are used to indicate when or when not the movement in the sign carries meaning. The LSM data seems to indicate that there are non-manuals involved in disambiguating between movements which are internal and movements which carry meaning. For instance, in the example below, S6e, Stan's eye gaze moves away from the audience and instead looks down and follows the movement of the classifier handshape. Additionally, Stan releases air from his cheeks (a puff).

S6e  CL-BABY C CLOSED MOVES TO THE LEFT SIDE CLOSE TO CL-BABY C (RULER).

S80c  CL-BABY C CLOSED MOVES TO THE LEFT SIDE CLOSE TO CL-BABY C (RULER).

In classifier constructions where the movement of classifier handshapes is internal, the eye-gaze of the signer remains fixed on the audience. For instance, ASHTRAY:

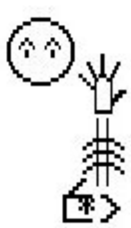
A11b  CL-V HOLD CIGARETTE MOVES DOWN FROM MOUTH AREA CLOSE TO CL-BABY C FLAT ROUND OBJECT ('STANDARD' ASHTRAY).

A11b does not mean that someone is smoking and puts the cigarette onto the ashtray, but it simply means ASHTRAY.

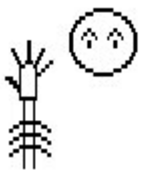
However, the markers involved in disambiguating internal movement from meaningful movement needs a more detailed investigation in order to be conclusive.

4.4.7 Frozen signs

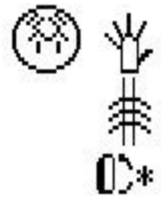
An issue that is partly related to the previous section is that of frozen signs. From the data it is apparent that LSM nouns are in fact productive. Nouns tend to be thought of as being static, though slight variation in a noun is possible even in well established nouns such as TREE. This sign can be made up of the 5-Arm that shakes alone or else a CL-B surface can be added to it. Additionally, the B-Hand SURFACE that makes up part of TREE is not necessarily always a B-Hand classifier handshape, but it may differ according to the meaning. For instance, in S55a below, the TREE is not on a FLAT SURFACE but on a ROUND OBJECT.



S9a TREE ON FLAT SURFACE

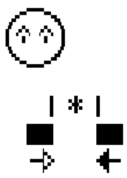


S16a TREE

S55a  TREE ON ROUND OBJECT

From the LSM data observed, it is suggested that the etymology of LSM ‘frozen’ signs may be traced back to their origin using a classifier system for such an analysis. As seen above, such signs are not as ‘frozen’ as we may think. With our presupposed knowledge of the linguistics of spoken languages, we tend to think of signs in the same way we think of words in spoken languages. However, spoken words we are familiar with tend to have a very long history and a very stable writing system, and thus are coded in dictionaries and appear not to change so much (Milroy & Milroy, 1991).

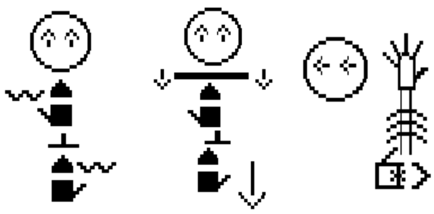
Frozen signs are made up of classifier handshapes and movements. In time they seem lose the classifier handshape meaning. For example, the LSM sign NEAR consists of two INDEX-hands that, probably, originally had two referents that were represented by the SSS classifier handshapes INDEX-hand. This handshape contains the meaning of LONG/THIN/NARROW SHAPE. However, when used in LSM today, these handshapes do not necessarily encode this meaning.

A68c, A77d  NEAR

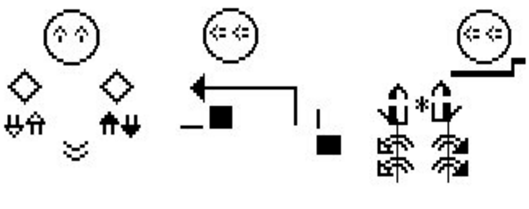
New signs are made by classifier handshapes and movements, which in time are then shortened (Klima & Bellugi, 1979, pp. 28-29, 216-224). Sometimes the frozen sign becomes so cut off from its original meaning that it becomes difficult to trace back the original meaning of the handshapes. Although there are no examples noted from the LSM data, a classical example is the LSM sign MAMA'. This is produced by the A-hand that hits the cheek twice. However, what the A-hand originally referred to is no longer clear (although it may refer to the breast, as in breastfeeding).

4.4.8 Sequentiality

In the data there are classifier constructions that are sequential and not simultaneous. Supalla (1990, p. 130) notes that sometimes in ASL the construction cannot be physically signed simultaneously. Thus the signs are placed in sequence, rather than simultaneously (see Chapter 2, Section 2.7). In the data, Amy signs TURTLE using two hands. Since her two hands are already occupied, it is impossible for her to simultaneously sign TREE and move this two handed TURTLE classifier towards it:

A75  TURTLE MOVES BACK TO TREE

Stan also signs the utterance 'CAR MOVES TO BOOK' in a sequence, for the same reason as explained above. BOOK is a two handed sign so it cannot be signed simultaneously with the classifier handshape representing the CAR.

A14  CAR MOVES TO BOOK

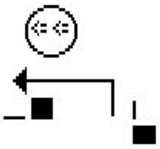
Supalla (1990, p. 130) adds that sometimes it is physically possible to simultaneously sign the construction, yet due to grammatical restrictions in ASL, sequential sequences are signed. This grammatical restriction is that HANDLE classifier handshapes cannot perform path movements (ibid.) (for more detail see Chapter 2, Section 2.7). From the data it has been seen (Section 4.4.1) that a HANDLE classifier cannot create a path movement (there is one exception to the rule A4c), thus the path movement is created by the classifier handshape in the following sign. Hence this phenomenon creates sequential signing. The above example A14 also indicates this, where the first sign CAR cannot create a path movement, so in the second sign a classifier handshape is used to represent the CAR and it creates a path movement. Another example can be seen below in example S21:

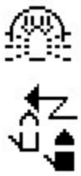
S21a  S21b 

4.5 Comparison between the participants

In this section a comparison between the signers production of LSM is made. The immediate observation is that all the different classifier handshape behaviours, discussed in the above sections 4.3.3 – 4.4.8, are reflected in both Amy and Stan. Thus, both have instances of holds, tracing movements, internal movements, path movements (one and two handed), frozen signs, internal structure of classifier handshapes, imitative movements, and sequential utterances.

Some slight differences are observed in the choice of classifier handshape. For instance, Amy uses two different handshapes to refer to VEHICLE, the INDEX-hand and B-Hand. However Stan only uses the B-hand.:

A14b  A18d  (Amy’s two VEHICLE classifier handshapes)

S21b  (Stan’s one classifier handshape used to represent VEHICLE)

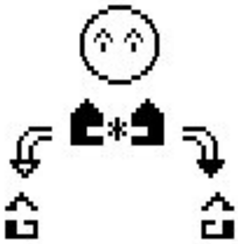
Another example is that of Amy’s use of CL-V (LEGS). Unlike Stan, she does not necessarily refer to PERSON by it. In A79 this classifier handshape substitutes the previously introduced nominal RABBIT.

A79 

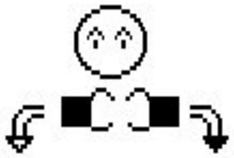
4.5.1 Reasons for variation

There may be several reasons for the differences between the two signers. In this section an attempt is made to point out one of them.

One possible explanation, that has been noted by Schembri (2003, p. 22), is that the signers perspective may influence the choice of handshape. For instance, from the LSM data, MANTLEPEICE is signed differently by the signers. A reason for the difference could be that Stan was focussing on the FLAT SURFACE+tracing movement, whilst Amy took note of the THICKNESS of the mantelpiece, thus the BABY-C hand + tracing movement. This reinforces the idea, suggested above, that in LSM different SSS handshapes may result in slight distinctions of meanings (see Section 4.3.4 and 4.3.5 above).



S10a MANTLEPIECE (Stan)



A10a MANTLEPIECE (Amy)

4.6 A rule-based system for classifier constructions in LSM

From the data the following rules seem to be present in classifier constructions in LSM:

i. WE and SSS classifier handshapes can have path movements. HANDLE classifier handshapes do not seem have path movements. There is one exception to the rule A4c, which is a FALL movement for a HANDLE classifier handshape. This requires further investigation.

ii. A classifier construction may consist of a combination of holds and articulating classifier handshapes. All WE, SSS and HANDLE classifier handshapes can have hold movements.

iii. Trace movement is observed for SSS classifier handshapes only. No instances of HANDLE or WE handshapes are found in the data.

iv. HANDLE movements have a higher frequency of the movement IMIT (imitative movement) than SSS and WE classifier handshapes. However, there are several instances where SSS and WE have imitative movements.

4.7 Non-manuals

This issue will not be tackled in this study. In this section some ideas, that need to be investigated in more detail, are overviewed.

As previously mentioned in Section 4.4.6, it seems to be the case that non-manuals play a major role in distinguishing the difference between signs that consist of internal movement only and those whose movement is meaningful.

As seen in Section 2.8, there seems to be a ‘mode setting’ in LSM, where one mode is the stage-play signing and the other the role-play signing. Having said so, the audience needs to have a signal as to which mode is being used. If there were no other signals, the following example would be ambiguous: . It could be a WE classifier handshape meaning LOOP MOVES FORWARD, or a HANDLE classifier handshape meaning HOLD-SOMETHING AND MOVE FORWARD. It could also be interpreted as an SSS classifier handshape meaning TRACE THIN LINE FORWARD (see Chapter 5, Section 5.3.1).

It may very well be the case that non-manuals are crucial in signalling the onset of the mode of signing. However, what the nature of these non-manual signals is requires further investigation.

4.7 Conclusion

The analysis in this chapter focuses on the classifier handshapes and their movements in classifier constructions. A separate study is needed to analyse the use and function of non-manuals in classifier constructions.

Chapter 5: Discussion

5.1 Spoken language influence on sign linguistic research

As has been seen in the literature review (Chapter 2, Section 2.1.1) spoken language frameworks may have diverted the research in sign linguistics away from some important issues. Traditional linguistic frameworks such as the distinction of verb and noun may have been assumed into sign linguistic research, rather than questioned and investigated. In fact, even in LSM, what constitutes a verb or noun still requires further investigation. From the analysis of the study certain speculations may be made (see Section 5.4.1 below) but these speculations need to be actualised by further studies.

5.2 Signwriting: An IPA for sign languages

This study has also tackled the issue of the need of an IPA for sign languages. A system that can be recognised by all researchers across the globe would help immensely in the development of cross-linguistic study. Signwriting has been used in this study as a transcriptional device and to illustrate in-text examples. The advantages of using Valerie Sutton's (1995) signwriting as an IPA for sign languages are explained in Chapter 2, Section 2.1.2.5 (see also Appendix A).

5.3 Role-play mode vs. stage-play mode

In the Literature Review (Chapter 2, Section 2.8) it has been seen that some researchers have identified that there are two ways of signing the same thing (cf. Supalla, 1982, p. 49). Supalla (ibid.) calls this 'reference frame' and refers to 'abstract' and 'real' reference frames. Supalla's (ibid.) 'real reference frame' and 'abstract reference frame' correspond to what are called 'role-play mode' and 'stage-play mode' in this study.

Role-play mode uses the signing space in a different way to stage-play mode. In role-play mode the signing space refers to real space, and the handshapes used represent the actual imitative grasp/hold shape of the entity being role-played (thus HANDLE classifier handshapes). All movement in role play mode mimics actual movements (imitative movement). There is thus a higher chance of HANDLE classifier handshape being used in role-play mode (see Chapter 4, Section 4.4.5). Schick (1990, p. 32) came to the conclusion that HANDLE classifier handshapes are used in role-play mode in ASL.

In stage-play mode the signing space is used like a stage, where the signer places (hence BE-AT movement; see Chapter 4, Section 4.4.1.3) and moves (hence path movement; see Chapter 4, Section 4.4.1) handshapes that represent whole entity referents (hence either WE or SSS handshapes) on the stage (see Chapter 2, Section 2.8).

However, the results from the analysis of the data indicate that there is also a fuzzy-line between role-play mode and stage-play mode. For instance, in stage-play mode path movements are expected. It would be nice to say that WE and SSS contain path movements and that HANDLE handshape do not. However, the reality is that there is one exception (and two other questionable exceptions) of HANDLE classifiers containing a path movement. Thus perhaps there may be instances where HANDLE classifier handshapes can be used in stage-play mode. This requires further investigation.

Another issue is that of the imitative movement expected in role-play mode. Although almost all HANDLE classifier handshapes contain imitative movement, there are also instances of WE and SSS classifier handshapes containing imitative movement (see Chapter 4, Section 4.4.5). The question being asked here is whether there are instances where WE and SSS classifier handshapes can be used in role-play mode, or rather whether the fundamental problem is the classification of handshapes into WE, SSS and HANDLE. Perhaps the exceptions of WE and SSS containing imitative movement (Chapter 4, Section 4.4.5) should be re-categorised as HANDLE classifier handshapes. This issue of categorisation is pursued in the next section 5.4.

The LSM data analysis points to the possibility that HANDLE classifier handshapes never contain path movements. There is however one exception to the rule (see Chapter 4, Section 4.4.1) and thus further investigation is required to confirm this. If it is the case that HANDLE classifier handshapes never take path movements in LSM, it can be said that LSM HANDLE classifier handshapes function like HANDLE classifier handshapes in other sign languages such as ASL (cf. Supalla, 1990; Schick, 1990). Again the exceptions to this possible rule are interesting and what is asked is whether the handshapes that appear to be exceptions are in fact HANDLE classifier handshapes or perhaps WE or SSS handshapes.

5.3.1 Markers indicating the setting 'role-play' and 'stage play'

If there are two different modes of signing, it must follow that there are specific markers indicating which mode is set. A person receiving a piece of discourse in LSM needs to know whether role-play or stage-play mode is set. If this is not established, an utterance, such as the following, would be ambiguous:

i. FLAT-OBJECT moves forward (WE handshape)

ii. HOLD-OBJECT (pincer grip) and pass/give /move forward[1]

iii. THIN-LINE is traced forward

The markers involved in disambiguating the above example are probably non-manual features, such as facial expressions, eye-gaze, body-shift etc. However a detailed analysis of these markers is required.

5.4 Classifier constructions: What should be categorised?

In Chapter 4, Section 4.2.1, it was seen that during the analysis of the data, problems were encountered in deciding the category membership for certain handshapes. Using the semantics of what the handshape encodes, for the basis of classification, creates overlap, where, for example, all WE handshapes have shape and size meaning incorporated within, so the distinction between WE and SSS handshapes is not always clear-cut. Overlap between the SSS and HANDLE handshapes is also evident. For instance, the sign MAN in LSM may have originated from an SSS handshape specifying the shape of the outer part of a cap, or from the HANDLE handshape that puts the cap on.

[1] This movement of HANDLE handshapes (GIVE/MOVE TO/PASS TO) (cf. Schick, 1990, pp. 30-31) did not emerge from the data and thus was not tackled in this study. This HANDLE classifier handshape movement in LSM requires further investigation.

Besides the practical problem of using the semantics of handshapes for classification discussed above, another question is posed. Using the meanings of WE, HANDLE and SSS for classification, is in a way, using a notional approach to categorisation. Nowadays, no linguist would categorise verbs according to the notional idea of 'action words' and nouns according to the notion of 'concrete words'. Instead words are categorised on the basis of their different forms and syntactic distribution. Thus it is questioned here whether classifier constructions in sign linguistics needs re-structuring. Perhaps a new method of classifier categorisation on the basis of their different forms (different handshape movements, non-manual markers etc.) would be useful.

To push this idea further, the following analogy to spoken language word classification is given. The word BOOK in isolation contains two lexemes: i) BOUNDED-PAPER and ii) RESERVE. However, only when inflected, as in 'the book' or 'he books', can one decide whether BOOK should be classified as a verb or noun. Thus it is not the word BOOK that determines its classification but rather the morphology/syntax.

This can be applied to classifier handshapes. For example, the following B-Hand may have the following meanings stored in the lexicon, i) VEHICLE (WE), ii) FLAT-THIN SURFACE (SSS), iii) PANTOMIMIC POSITION OF HANDS (HANDLE) (as in SWIM/STROKE). Only when the B-hand is in context can it be categorised.

5.5 A rule-based system for classifier constructions in LSM?

On the basis of the results in this study, in LSM if the following rule-based system for classifier handshapes seems to emerge:

i) Imitative movement tends to co-occur with HANDLE classifier handshapes.

ii) Trace movement occurs with SSS classifier handshapes only.

iii) One handed path movement tends to be realised by WE classifier handshapes.

iv) Two handed path movement involves SSS classifier handshapes.

v) HANDLE classifier handshapes generally do not create path movements.

However, further research is required to reinforce a rule-based system such as is suggested above. As previously mentioned, at present a few questionable exceptions to the path and imitative movement rules have been observed in the LSM data (see Chapter 4, Section 4.4.1 and 4.4.5). However, whether these are exceptions or perhaps miscategorisations due to the flaws involved in classifier notional approach of categorisation requires further examination.

5.6 Verbal or Nominal Classifier Constructions

Additionally, the different handshape behaviours may contain part of the verbal and nominal information. For instance, B-Hand palm facing ground in isolation contains nothing 'verbal' or 'nominal' in itself. However, when it is inflected for the different movements, this B-Hand+path movement appears to be verbal, whereas the same B-Hand+trace movement appears to be nominal.

Having said so, from the data there is evidence that questions whether the movement actually does contain any verbal or nominal information at all. In Chapter 4, Section 4.4.6 and Section 4.4.7 internal movement and frozen signs in LSM were analysed. This phenomenon has been noted by several researchers who claim that the morphemes of movement do not function in these contexts (cf. Supalla, 1982, p. 63; Zwisterlood, 2003). Here a different analysis was attempted.

In the data, there are instances of WE, SSS and HANDLE classifier constructions that contain what is called ‘internal movement’. These are classifier constructions whose handshape movements do not carry the movement meanings. This was noted by Liddell (2003, p. 211) for ASL. He provided the example of a signer who signed CHAIN-SWINGING to refer to the lexical meaning of CHAIN. Here the swinging movement carries no lexical meaning but is a part of the whole lexical sign CHAIN. From the LSM data the following examples can be provided:

Examples of internal movement (possibly part of nominal constructions):

A4a result: PAINTBRUSH

A11b result: ASHTRAY

A39a result: BOOK

A7a  result: FLYING-INSECT

S2a  result: RULER (long thin flat object)

Examples of meaningful movements (possibly part of verbal constructions):

A13a  result: PLANE bounce on GROUND

S15b  result: C-object zigzags to the right

Internal movement is physically identical to meaningful movement. It must therefore be concluded that other markers are involved in distinguishing between the 'internal/insignificant' movement (non-verbal) and the 'meaningful' (verbal) movement. One possibility is that the non-manual component is used as a marker. This suggestion requires further examination; however the data seems to point to the following pattern. The neutral face with eye-contact kept on the audience accompanies classifier constructions with internal movement. Eye-gaze following the movement and other non-manual indicators (such as body moving as in A13a or/and puffed air out of cheeks as in S15b) accompany classifier constructions where movement is meaningful.

This observation leads to the possibility that the verbal - nominal distinction in LSM does not arise from the handshape movements (cf. Supalla, 1982), but rather from other non-manuals involved in classifier construction.

Another possible marker is the syntactic distribution of the classifier construction. However, this will not be tackled in this study. It is simply being questioned in terms of whether it is a determining factor or not.

5.7 Conclusion

This chapter discusses the issues that are tackled in the study. The first part of the chapter questions whether spoken language frameworks have been assumed without prior investigation, and the strong need for an IPA in sign linguistic research for the development of research and more accurate cross-linguistic comparison. The second part of the chapter discusses some of the results that emerge from the analysis of the data: whether a rule-based system for classifier constructions for LSM can be concluded or whether a new method of classification for classifier constructions is required prior to this.

Chapter 6: Conclusion

This dissertation has been an attempt to analyse classifier constructions in LSM. Focus has been made on the manual component of these constructions. A separate study is required to investigate the non-manuals and other possibly significant aspects of classifier constructions.

6.1 Main findings

Throughout the analysis of the data, classifying different handshapes according to what they encode semantically proved to be problematic (see Chapter 4, Section 4.2.1). This is due to the fact that there is overlap between the different notions of WE, SSS, and HANDLE handshapes. It was later argued (see Chapter 5, Section 5.4) that perhaps a different method of categorisation of classifier handshapes is required; one that relies on the form of the construction rather than on the notion of what the handshape entails.

A rule-based system for classifier construction does seem to emerge from the analysis of the data (see Chapter 5, Section 5.5). This appears to be as follows:

i. Imitative movement tends to occur with HANDLE classifier handshapes.

ii. Trace movement is realised by SSS classifier handshapes only.

iii. One handed path movement involves WE handshapes.

iv. Two handed path movement involves SSS classifier handshapes.

v. HANDLE classifier handshapes generally do not co-occur with path movements.

However, there are a few exceptions for all the above behaviours, except trace movement, in this rule-based system (see Chapter 4, Section 4.4.1 and 4.4.5). It was argued in Chapter 5, Section 5.5, that these exceptions may be due to the flaws in the categorisation of classifier handshapes on the basis of their notions. To determine whether this is so requires further rigorous analysis.

Another question asked in this study is whether the movement in classifier constructions really contains any verbal movement as suggested by many authors (cf. Supalla, 1982; Supalla, 2003; Zwisterlood, 2003). There is evidence from the data that the insignificant movement in frozen signs (see Chapter 4, Sections 4.4.6 and 4.4.7) is physically identical to the meaningful movement in other classifier constructions. Thus what distinguishes frozen signs (which are perhaps nominal) from the remaining classifier constructions where movement is meaningful (and makes up part of a verbal construction) is marked by a different aspect of signing, perhaps the non-manual component or syntactic behaviour (see Section 5.6). This issue requires further investigation.

6.2 Suggestions for further research

As has been previously mentioned above in Section 6.1, further investigation is required to examine whether a new method is needed for the categorisation of classifier constructions; perhaps a method that relies on the different forms of classifier constructions rather than on the semantics of classifier handshapes.

Other areas that require further investigation are: i) the function of non-manuals in LSM classifier constructions, and ii) what exactly constitutes a verb or noun in LSM, i.e. what aspects of the signing results in the difference between verbal and nominal constructions. It has been suggested in Chapter 5, Section 5.6 that non-manuals may play a significant role in this manner, but this needs to be examined further.

Another issue debated in classifier construction research, not tackled in this study, but that deserves a separate investigation, is the nature of classifier constructions; whether they are linguistic, gestural or a blend of both (cf. Liddell, 2001, Liddell 2003; Schembri, 2001; Schembri, 2003; Schembri et al., 2005).

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CLASSIFIER CONSTRUCTIONS IN MALTESE SIGN LANGUAGE (LSM): AN ANALYSIS

Appendices

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2006

Appendix: A

Signwriting: A Guideline

Appendix: A

Signwriting: A guideline

The function of this appendix is to give an idea of what signwriting is about and a few keys on how to decipher basic signwriting. Reading this section will not enable someone new to signwriting to fully understand all the different symbols used. As Sutton-Spence & Woll (1999, p. xi) note, it takes a very long time to learn a transcriptional system, and this applies to signwriting as well. Signwriting may be a little easier to pick up because of its pictographic nature (Chapter 2, Section 2.1.2.5.1). In fact, when carrying out a Workshop on signwriting to Deaf signers, they picked up a substantial amount in a very short time (Chapter 2, Section 2.1.2.5.8). For more information on signwriting visit the website (Sutton, 2006) www.signwriting.org, where there are online lessons and other teaching aids.

Signwriting consists of symbols to represent handshapes, hand movement, contact, facial expressions, and body movement. The orientation of the handshape is incorporated in the symbol, as will be seen below.

i. Expressive viewpoint

All symbols represent signs from an 'Expressive viewpoint'. This means that the reader interprets the symbols from his/her own point of view, as though he/she is signing to someone else. In the following symbol, representing a B-Handshape, the different shading of the symbol represents the different orientation of the palm.

Reader can see his/her palm.

Reader can see the side of his/her palm. The white area represents the palm and the black side the back of the hand.

Reader can see the back of his/her hand. Black represents the back of the hand.

ii. Palm orientation

Besides the above mentioned orientation, the palm may also be positioned on a vertical or horizontal plane. As explained by Sutton (1995) the hand can be parallel to the wall or to the floor. When the hand is parallel to the floor the symbol has a space at the knuckle joint. A few examples are given below:

Parallel to the Wall	Parallel to the Floor
	
	
	

iii. Handshapes

Sutton (1995) establishes ten different categories of handshapes. These handshapes represent the numbers in ASL from 1-10. Having all these handshapes available does not imply that a given language will use all the different handshapes. However, the full repertoire is available to choose different handshapes depending on the language in question. Every handshape can be written at an angle. The ten categories of hands are not given here, for more detail see Sutton, 1995, p. 25 or visit http://signwriting.org/lessons (Sutton, 2006).

iv. Contact symbols

When a hand comes in contact with another hand or part of the body, different symbols represent different types of contact.

*	Touch
#	Strike
+	Grasp
⊙	Brush
|*|	In-Between
@	Rub

v. Hand movement

Arrows represent hand movement. A double lined arrow represents UP/DOWN movement, and a one lined arrow represents FORWARD/BACK movement. Besides the given examples of straight movement, symbols may also be curved or zigzag. Long arrows represent long movements whereas shorter arrows represent shorter movement.

Dark arrows represent movement of the right hand and white arrow represent movement of the left hands:

DOWN and UP movement (right hands)

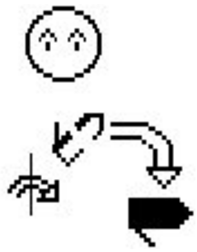
FORWARD (right hand) and BACK (left hand) movement

Shorter double-UP movement (left hand: white arrows)

vi. Axial movement

There are also symbols available to represent movement of the arms or wrists. A common example that comes up in the LSM data is the FALL movement where axial movement occurs in the changing of the orientation of the palm. For example:

Arm rotates as in S24c



CL-B FALLS

Wrist moves down as in S57c

CL-C UPRIGHT TIPS OVER

vii. Facial activity

Signwriting has many symbols to transcribe the different facial expressions and facial movement that occurs during signing. A circle symbolises the head, and symbols inside this head represent the facial activity. For instance:

Face with eyebrows raised

Face and puffing air out of mouth

Face with a smile

viii. Spatial references

Signwriting is transcribed in columns. When there is location reference, the face is transcribed in the middle of the column and the hand transcribed at the right or left hand side. When this location is re-used, for example another sign moves to the location, the arrows are transcribed pointing to this location (right or left). For example S14, where the BOOK classifier is signed to the left and then the VEHICLE classifier moves to the left hand side of the column.

S14c 

S14d 

Appendix B

List of Stimuli of VMP Test Video

Appendix B: List of Stimuli of VMP Test Video

Taken from Supalla et al. (in press).

Item No.	Stimulus Description
Demonstration session for first part in either AB or AB orders:	
Demo1	A chicken jumps from a fence.
Demo 2	An airplane flies over a tree.
Demo 3	An airplane crashes into a wood block.
Demonstration session for second part in either AB or B orders:	
Demo 1	A chicken jumps from a fence.
Practice session only in the first part:	
A	Doors open in the roof of a barn.
B	A girl walks around the edge of a roll of masking tape.
C	An airplane flies around a tree.
D	A cow falls off a moving pick-up truck.
Test session for 'A' series	
1	A loop moves diagonally upwards.
2	A ruler moves across a lawn.
3	A girl jumps into a plumbing nut.
4	A cylinder falls off a swing.
5	A baby wanders across the floor.
6	A white pipe cleaner jumps from a cactus.
7	A porcupine walks, turns and walks again.
8	An airplane flies through a plastic T-pipe.
9	A Christmas tree jumps up onto a box.
10	A wreath falls down from above a fireplace.
11	An ashtray zigzags across a lawn.
12	An airplane moves, turns, and moves.
13	An airplane hops in a straight line.

14 A tractor moves backward, and turns toward a book.

15 A barrel hops downhill.

16 A loop jumps over a tree.

17 A chick flies diagonally up to a wood rod.

18 A tricycle moves toward a mail truck, and turns to avoid it.

19 A man rolls across a lawn.

20 A dart with a suction cup flies and hits the wall of a building.

21 A green locomotive moves, turns, and moves.

22 A yellow towel zigzags across a lawn.

23 An upright wood bar falls over.

24 A tail wing falls off a Leggo airplane.

25 A duck walks past a thin loop.

26 A bed moves around a prone man.

27 A broom sweeps slowly and randomly across the floor.

28 A toilet moves across the floor.

29 A tree hops in a straight line.

30 A hen hops uphill.

31 A cup jumps onto the head of a frog.

32 A missile jumps backward on top of another missile.

33 A tree moves in a straight line.

34 A metal washer jumps out of an ashtray.

35 A paper glider flies up and down through the air.

36 A lawnmower moves toward a palm tree, and turns to avoid it.

37 A roll of paper jumps through a roll of tape.

38 A dog jumps backward over a bed.

39 An upright phonebook falls down.

40 A green creature flies through the air in a spiral fashion.

Test session for ‘B series

41 A brick jumps down off of another brick.

42 A cylinder rolls across a lawn.

43 A balsa wood glider moves, turns, and moves again.

44 A q-tip flies through a metal washer.

45 A knife moves, turns, and moves.

46	A VW bug falls off of a thick loop.
47	A band-aid moves, turns, and moves.
48	A palm tree flies through the air in a spiral fashion.
49	A pick-up truck hits a tree.
50	A woman walks backward past a dog.
51	An airplane takes off from the back of a tugboat.
52	An airplane flies through the air in a spiral fashion.
53	A fire hydrant moves, turns, and moves again.
54	A thin oil paint brush flies backward in a spiral fashion.
55	A hollow log jumps over a stump.
56	A fat yellow bee wanders across the floor.
57	An upright roll of duct tape falls over.
58	A farmer falls from the branch of a tree.
59	A movie reel rolls diagonally upward.
60	A soup can falls off of an upright dart.
61	A rabbit hops slowly downhill.
62	A motorcycle moves, turns, and moves.
63	A cactus falls over.
64	A green jeep pulls out of a hollow log.
65	A doll jumps down from the head of another doll.
66	A doll walks by an airplane, and turns to it.
67	A barrel-half tips over.
68	A floor lamp moves toward a table and turns to avoid it.
69	A piece of bone falls over.
70	An egg flies up and down through the air.
71	A thick paint brush moves backward into an empty tin can.
72	A rescue truck zizags uphill.
73	An evergreen falls down off of a red pole.
74	A tugboat moves backward from a yellow pole.
75	A turtle walks backward and turns toward a tree.
76	A motorcycle hops slowly downhill.
77	A robot walks and turns toward a motorcycle.
78	A wood bar spins slowly downhill.
79	A rabbit falls backwards from the back of a zebra.

80 A pencil moves backward from a yardstick.

INSTRUCTIONS FOR FIRST HALF (1-40) (signed in ASL)

“Now you’ll see film clips that show many different toys moving around by themselves. Our task is to describe what these strange toys are doing. I’ll show you some examples.”

Film title: DEMO 1
Stimulus action on film: a hen jumps off a fence
Response by model: FENCE CHICKNE LEGS-JUMP-OFF-FENCE

Film title: DEMO 2
Stimulus action on film: an airplane flies over a tree
Response by model: TREE AIRPLANE AIRPLANE-FLY-OVER-TREE

Film title: DEMO 3
Stimulus action on film: an airplane crashes into a board
Response by model: WOOD VERTICAL-RECTAGLE-SHAPE AIRPLANE-CRASH-INTO-BOARD

“That’s the idea. Now you try it.”

INSTRUCTIONS FOR SECOND HALF (41-80) (signed in ASL)

“Remember the film clips with the different toys moving by themselves? Well, now you’ll see more of them, but with different toys. I’d better repeat one of the examples for you.”

Film title: DEMO 1
Stimulus action on film: a hen jumps off a fence
Response by model: FENCE CHICKNE LEGS-JUMP-OFF-FENCE

“Remember how it works? Now try the rest of them yourself.”

Appendix C

Transcriptions of Stan and Amy

In Sequence: 1-80

Appendix D

Transcriptions of Stan and Amy

Utterances Grouped Together According to Classifier Handshape Category:

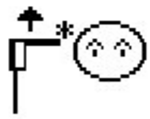
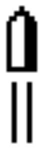
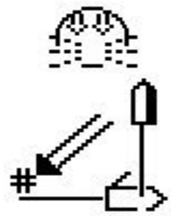
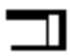
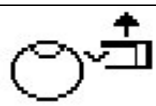
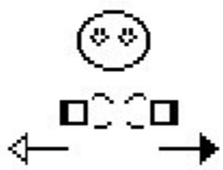
HANDLE - SSS - WE

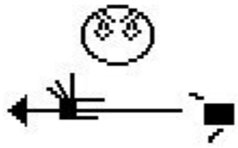
Appendix E

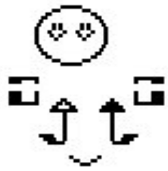
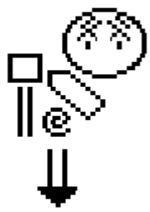
Classifier Handshapes found in the LSM data - Signwritten

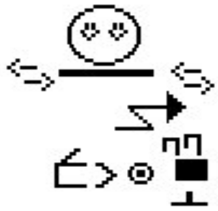
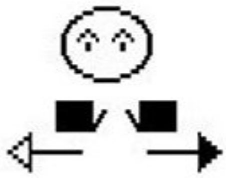
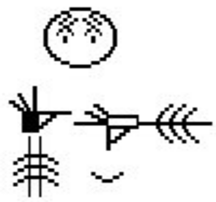
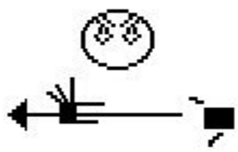
Appendix: E

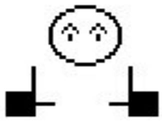
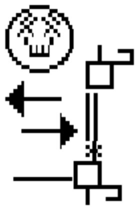
Classifier Handshapes found in the LSM data - Signwritten

	Signwriting	Example from Data (Appendix C)
B		 S14b
B BENT		 S20a
B+ARM		 S23b
C		 S15b
C FORWARD		 S19a
BABY C		 A2a

BABY C FORWARD / BABY C FORWARD CLOSED		 S40c
OPEN C		 S53a
Y		 A8b
INDEX		 A3a
INDEX+ARM		 A60b
INDEX BENT / T		
5+ARM		 A9b
5		 A1a

5 FORWARD		 A10b
5 FORWARD+ARM		 S74a
5 BENT		 A6a
S		 A4b
S+ARM (WINGS)		 S55a
4 (PORCUPINE / 5 hand may used instead)		 S7a
V		 S11a

H		 A26b
V BENT / H BENT		 A5c
8 BENT		 S53b
O		 S73a
A		 S47a
F		S35a 
OPEN F		 A8b

L		 S59a
G+ARM		 A72b
W		 S79b
DISCONTINUOUS 4		 S79b

Appendix F

Sample Letter of Informed Consent

19, Triq il-Ballut,
B'Kara, Malta
BZN 10

10/06/04

Għeżież sinjuri White,

Jiena studenta ta' MA Lingwistiska fi ħdan l-Institut tal-Lingwistika fl-Universita' ta' Malta. Kif tafu interessata ħafna fil-Lingwa tas-Sinjali Maltija u għalhekk se nagħmel teżi ohra fuq dan is-sugett. Għal darb'ohra dan l-istudju jinvolvi l-għajnuna tal-persuni neqsin mis-smigħ u għalhekk nixtieq nitlob għal permess tagħkom biex Amy/Stan j/tipparteċipa f'dan l-istudju. Dan jinvolvi t-tiġbid ta' film tat-tifel/tifla tagħkom fejn i/tkun qed tuża l-Lingwa tas-sinjali Maltija.

Mill-ġdid nirringrazzjakom,

Maria Galea (nee Azzopardi)

Aħna, li qegħdin niffirmaw hawn taħt, nagħtu permess lil Maria Galea biex tirrekordja lit-tifel/tifla tagħna u tanalizza il-Lingwa tas-Sinjali tiegħu/tagħha għar-riċerka li se tintuża għat teżi tal-MA Lingwistika.

____________________ ____________________

Is-Sur White Is-Sinjura White