Jordanian sign language: aspects of grammar from a cross-linguistic perspective
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Chapter 3: Brief outline of LIU grammar

In this chapter some basic information about the grammar of LIU is given, in order to provide a background for the discussion of specific aspects in later chapters. Although the chapter aims to give a general overview of LIU grammar, the focus will be on cross-linguistically relevant features as well as features that are important for the chapters that follow.

3.1 Phonology

Following Stokoe (1960) most sign language phonologists have considered the handshape, movement, and location of a sign to be its most important phonological parameters. Later, orientation of the hand and non-manual elements, such as mouthings and mouth gestures, were added to the phonological inventory. For an overview of different phonological models that have been proposed for the analysis of sign languages, see Brentari (1998) and Sandler and Lillo-Martin (2006). Since this chapter only gives a brief overview of different aspects of the grammar of LIU, no in-depth analysis of all these different parameters will be given. Rather, I will give a brief description only of the handshapes and mouthings as found in LIU, because these seem to be the most interesting aspects from a cross-linguistic perspective. The parameters of location, orientation and movement in LIU do not seem to differ much from those described for most other national sign languages. For instance, signs are not usually articulated below the waist or behind the signer’s back, except for some name signs that are made on the thigh. Iconic whole body signs, in which, for instance, a kicking movement with the foot is made to express the concept of kicking a ball occur, but usually in less proficient signers like young children. Usually, there is also a manual equivalent, which may or may not be accompanied by the iconic movement. In contrast, the use of a large signing space and of whole-body signs appears to be common in village sign languages and emerging sign languages (cf. Nyst 2007a). Phonologically, then, LIU patterns with the more established national sign languages used by large groups of Deaf people, also referred to as urban sign languages.

3.1.1 Handshapes

About 55 different handshapes occur in LIU. A list of them is presented in Figure 3.1. It has to be noted, however, that no in-depth contrastive phonological analysis has been undertaken as yet. It is possible that some of
these handshapes are not separate phonemes, but rather allophones of the same phoneme. This is particularly likely for handshapes that only differ from each other in the extension of the thumb, or in the aperture between fingers and thumb. A few of these handshapes, like \(g_{179}\) and \(g_{137}\), occur only sporadically and mostly in iconic signs. A more in-depth phonological analysis would have to reveal whether these should be considered phonemes or not. Van der Kooij (2002), for example, explicitly separates iconically and phonetically motivated forms from their underlying phonological specification, proposing a set of 31 phonemic handshapes for NGT.

Based on criteria such as frequency of occurrence (within and across sign languages) and ease of articulation, a set of so-called unmarked handshapes has been identified (Battison 1978). There is some variation in the sets of unmarked handshapes that researchers have proposed, but six handshapes have been included in most sets. In fact, these handshapes occur in every sign language that has been described so far. These six are: \(g_{105}\), \(g_{106}\), \(g_{140}\), \(g_{121}\), \(g_{166}\), and \(g_{161}\).

Although all these handshapes do occur in LIU and most of them are indeed very common, not all of them seem to be among the most common handshapes in LIU. In particular, the last two, that is, the C-hand and the O-hand, are less common than some handshapes which would be considered marked in other sign languages, but are very common in LIU, for instance, \(g_{129}\) and \(g_{170}\).

It is interesting, however, that in two-handed LIU signs in which the hands do not have the same handshape, the shape of the hand that does not move is most often one of the six unmarked forms (though the last one is not common in LIU), in line with Battison’s (1978) Dominance Condition. The Dominance Condition states that if the non-dominant hand does not have the same handshape as the dominant hand, it does not move and can only have a limited number of handshapes (i.e. the unmarked handshapes shown above). It was originally proposed for ASL, but subsequently found to hold true in other sign languages as well (e.g. van der Kooij (2002) for NGT). In LIU there are certain signs with a very marked handshape on the non-dominant hand, which seem to blatantly violate the Dominance Condition, but most of these signs can probably be analyzed as simultaneous compounds (cf. also Section 3.2.3). The same goes for signs that violate Battison’s Symmetry Condition, which states that if both hands are moving, they must be specified for the same handshape and the same movement (symmetrical or in alternation). Signs in which both hands move in different ways or have different handshapes should probably be analyzed as simultaneous compounds, too. Battison’s Symmetry and Dominance Condition, then, only hold true for simple (non-compound) signs in LIU (but cf. also Chapter 6.4), just as in other sign languages studied to date (e.g. van der Kooij 2002).
Handshapes in Jordanian Sign Language

Fists

Flat hands

One or more extended fingers

Round closed shapes

Round open shapes

Thumb opposite other fingers

Remainder

*) May become \[ \begin{array}{c} \text{or} \\ \text{or} \end{array} \]

Figure 3.1: handshapes in LIU
3.1.2 Mouthings

Sign languages are not just produced by the hands. Non-manuals play an important role in the phonology of sign languages. This section focuses on the role of the mouth in LIU. A distinction is made between mouthings, in which the movement of the mouth is derived from a word in the spoken language, and mouth patterns, which are movements of the mouth that are not derived from the spoken language.

In LIU, the mouthing that goes along with a sign is the only part of the phonology of a sign that can be directly linked to the spoken language, Arabic (cf. Section 1.2.1). Mouthing of Arabic words is mainly used when signing to hearing people, but to a lesser extent also occurs when Deaf people are signing to each other. Some signs, like the negative existential (cf. Chapter 4.3.1) are almost always produced with the corresponding Arabic mouthing. For other signs, mouthing appears to be optional. In some cases, there is only one more general sign for several Arabic words and the Arabic mouthing may serve to distinguish between the interrogative signs. For instance, mouthing may distinguish between the question words WHAT, pronounced in Jordanian Arabic as ʃu, and HOW, pronounced kīf, which are expressed by the same manual sign. This sign is the most general question word in LIU and is derived from a well-known Arabic questioning gesture (cf. Section 3.5.2 and Figure 3.34). In many cases, the mouthing of Arabic words is not clearly recognisable for non-signers.

In addition, certain signs are produced with a mouth gesture that seems to be completely unrelated to the Arabic word that the sign corresponds to. An example is the sign for the word YELL (صراخ) pronounced sarax, which is made with the mouth pattern “waa”, as can be seen in Figure 3.2.
It is interesting to note that mouthings derived from Arabic words are exclusively derived from spoken Jordanian Arabic. Modern Standard Arabic (MSA), which is the written language taught in schools, is not reflected in the mouthings at all. MSA and spoken Jordanian Arabic can have very different words for frequently used concepts such as “to see” and “to go”. The 3rd person singular masculine present tense form of “see”, for example, is pronounced bishūf in the Jordanian dialect, whereas its MSA equivalent is pronounced yara (يُرا). Similarly, the form for “he goes” in the local dialect is birūḥ whereas the MSA equivalent is pronounced yaḏhab (يُذهِب). In the corresponding signs, the words from the local dialect are reflected in mouthings like “shūf” and “rūḥ”. The fact that MSA forms are not reflected in the mouthings of Deaf people can be related to the fact that most Deaf people, including those that have been to school, do not know the MSA forms and tend to write (uninflected forms of) words from the spoken dialect in letters or when text-messaging to each other (cf. Chapter 1.1.4). Mouthings like “shūf” and “rūḥ” also show that, although spoken Jordanian Arabic is a highly inflecting language with many different verb forms, the Deaf do not normally inflect their mouthings, but use a general stem-like form to accompany the sign.

For more comparisons between Arabic and LIU, see Section 3.2.2 below.
3.2 Lexical signs and morphological processes in LIU

3.2.1 Iconicity and arbitrariness

Because sign languages are visual languages and are not based on sounds they have a higher potential for iconicity than spoken languages. Still, in sign languages, too, the relationship between a given sign and its meaning is often not completely clear, and in many cases entirely arbitrary. The LIU sign CAT (shown in Figure 3.3), for instance, while not being completely arbitrary (the form shows the stroking of a cat), will still not be immediately understood by people who do not know LIU. Theoretically, the same sign could refer to any other pet.

![Figure 3.3: CAT](image)

Klima and Bellugi (1979) have divided signs into arbitrary and iconic. In arbitrary signs there is no relationship between form and meaning. Iconic signs do show some kind of relationship between form and meaning and can be further subdivided into transparent signs and semi-transparent signs. In transparent signs the relationship between form and meaning is clear, even to those who know nothing about the sign or its history. The sign PRISON (Figure 3.4) is a good example of a transparent sign. It depicts someone who is bound by chains or handcuffs, thus visualizing the concept of a prisoner.

In contrast, in semi-transparent signs, the relationship between form and meaning is not necessarily clear to everyone. Either there was some relationship historically, but phonological changes in the sign have obscured this relationship, or the relationship is not completely unambiguous, as is the case with the LIU sign CAT. The sign TUESDAY (Figure 3.5) is an example of a semi-transparent iconic sign of the former type. I have been told that the meaning of this sign is derived from the sign PRISON as Tuesday was
considered the day for visiting people in prison. This connection, however, is not obvious (especially because Tuesday is no longer known as the day for visiting prison in contemporary Jordan) unless you happen to know the history of the sign and have the necessary cultural background information. The relationship between form and meaning appears to be arbitrary, even to Deaf people, unless they know the history of the sign (cf. Frishberg (1975) for similar developments in ASL).

My own research, based on research by Klima and Bellugi (1979), among a group of sixteen non-signers showed that there is a clear relationship between form and meaning in only a minority of LIU signs. In this experiment only signs in isolation were shown, but the percentage of signs for which the meaning cannot be guessed by non-signers is expected to increase dramatically when the same signs are used by Deaf people in conversation, because of the speed with which they are used and the assimilation and reduction processes that typically take place in connected signing (Klima and Bellugi 1979:9).

The non-signers were shown a video of 100 LIU signs and were asked to write down what they thought their meaning was. On average they correctly guessed the meaning of about 15-20 signs. This percentage is higher than that found by Klima and Bellugi (1979) for ASL, but similar to what Pizzuto and Volterra (2000) report for Italian Sign Language (Lingua dei Segni Italiana, LIS). The difference may lie in the types of words that were shown to the non-signers: nouns only in the studies on ASL, but nouns, verbs and adjectives both in the studies on LIS and in my own study on LIU. In addition, more ASL signs may have lost some of their iconicity over time. The difference may also be due to the fact that Arab culture is a ‘gestural
culture’ and hearing Arabs tend to use more gestures to accompany their speech than hearing Americans. In fact, Pizzuto and Volterra (2000) comment that the difference in scores between ASL and LIS may well be explained by the fact that Italian culture is more ‘gesture-prominent’ than American culture.

The video with signs from LIU was shown to both Arabs (11 persons) and foreigners who were either living in Jordan or visiting Jordan (5 persons). It was interesting to observe that one sign, the general question word WHAT (Figure 3.34), which is derived from a culture-specific gesture, was understood by all the Arabs, but not by the foreigners. Although the difference between the scores of Arabs and non-Arabs was not analyzed in detail, on average the two groups did not seem to vary widely in the percentage of signs they guessed correctly. In contrast, Pizzuto and Volterra (2000) found that for LIS signs the Italian hearing participants performed significantly better than non-Italian hearing participants. This contrast may be explained by the fact that most of the non-Arab participants had been living in Jordan for some time.

In a second test, the same hearing participants were shown the 100 signs again and were given the meaning of these signs. When asked if they understood why a particular sign was used, they were able to indicate the relationship between the sign and its meaning in almost 50% of the cases. It seems, then, that in LIU there is a large number of iconic signs, but a much smaller percentage of signs with a transparent meaning (cf. also Klima and Bellugi 1979 for ASL). For more than 50% of signs, non-signers can neither guess the meaning based on the sign alone, nor indicate the relationship between form and meaning when told the meaning of the sign.

3.2.2 Morphological relations in the lexicon: comparing LIU and Arabic

In this section, I compare the morphology of LIU and Arabic in light of the fact that some researchers have compared the morphology of sign languages, in particular that of ASL, with the morphology of Semitic languages. In contrast to these claims, I will show that there are, in fact, considerable differences between LIU and Arabic on the morphological level. Researchers who have claimed that sign language morphology is similar to the morphology of Semitic languages have stressed the fact that both make use of templatic morphology (e.g. Liddell 1984a; Fernald and Napoli 2000; Sandler and Lillo-Martin 2006). Arabic words, for example, have been analyzed as consisting of consonantal root templates that combine with different vowel melodies (cf. McCarthy 1981). McCarthy represented these word formation patterns using autosegmental phonology and associating
both the root consonants and the vowel melodies to a prosodic template, which specifies the sequence and duration of consonants (Cs) and vowels (Vs), as illustrated in (3.1):

\[
(3.1) \quad \vcenter{\begin{array}{c}
  \text{a} \\
  \text{CVCVCV} \\
  \text{k t b}
\end{array}} \quad \vcenter{\begin{array}{c}
  \text{a} \\
  \text{CVVCVCV} \\
  \text{k t b}
\end{array}}
\]

\[\begin{array}{l}
\text{kataba} \\
\text{“he wrote”}
\end{array} \quad \begin{array}{l}
\text{kaataba} \\
\text{“he corresponded”}
\end{array}\]

In this model, the prosodic template is a morpheme in its own right. In a similar way sign languages (cf. Klima and Bellugi 1979; Brentari 1996 for ASL) can be said to make aspec
tual distinctions by mapping different movement ‘melodies’ to roots consisting of a handshape, location and orientation. Thus, a simple sign like sick in ASL, which has a movement of the dominant hand towards the forehead (Figure 3.6a), can be said to consist of a template with an initial location (x), a straight movement (y), and a final location on the forehead (z). The same sign can also be made, however, with an aspec
tual inflection, making it durational, meaning “to be sick for a long time” (Figure 3.6b).
The difference between these two forms would be represented with a different prosodic template, consisting of locations (L) and movements (M), as shown in (3.2), taken from Sandler and Lillo-Martin (2006).

(3.2)  

\[
\begin{array}{ccc}
L & M & L \\
\mid & \mid & \mid \\
x & y & z \\
\end{array}
\quad
\begin{array}{ccc}
L & M & L_{\text{redup}} \\
\mid & \mid & \mid \\
x & [\text{arc}] & z \\
\end{array}
\]

SICK  
SICK:\text{DURATIONAL}

Although this way of representing words and signs makes sign languages look similar to Semitic languages like Arabic, Fernald and Napoli (2000:15) observe that there is an important difference:

“Nevertheless, we must recognize an important distinction. Classical Arabic verb roots consist of only a series of consonants that do not constitute a well-formed word in the absence of a vowel melody…..[ASL] on the other hand, map[s] onto the template a root that is already a fully-formed sign.”

Another difference between Arabic morphology on the one hand and sign language morphology on the other hand, is that templatic morphology is a feature of the Arabic lexicon in general, whereas in sign languages only some phenomena (notably aspectual modulations) can be described using templates.

Thus, similarities between sign language morphology and the morphology of Arabic are greater at face value than when considered in depth. In fact, with respect to morphology, the lexicon of LIU is structured very differently from and independently of the coexisting spoken Arabic dialect, as well as written MSA. This is evident in a number of basic lexical domains, such as pronouns, numbers, colour, and kinship terms, which I will briefly discuss below (cf. Table 3.1 for a summary).

With respect to pronouns (cf. Chapters 5 and 6), for instance, there is considerable difference between Arabic (both the spoken dialect and MSA) and LIU, as shown in Table 3.1. Just as in other sign languages (cf. Bos (1990) on NGT; Engberg-Pedersen (1993) on Danish Sign Language (DSL); Meier (1990), Liddell (2000, 2003); Sandler and Lillo-Martin (2006) on ASL), personal pronouns in LIU are made by pointing to a referent when this referent is present and by associating a non-present referent with an (often arbitrary) location in the signing space. Moreover, there are several plural forms of the personal pronoun. In fact, in terms of number marking on pronouns, LIU has more possibilities than Arabic, which only distinguishes
between a dual and a plural. In contrast, in LIU it is possible to distinguish between “two of us” and “three of us”, etc. (Figure 3.7). When a signer does not want to be specific about the number of referents, or when the number of people referred to is greater than five, a pointing sign with sweeping movement can be used (Figure 3.8).

Apart from a variety of personal pronouns, LIU also has a more emphatic pronoun that can be used with possessive and emphatic-reflexive meaning, sometimes in combination with the personal pronoun (cf. Chapter 5.3.1 for a detailed description of the use of this sign). Different forms of the emphatic/possessive pronoun are shown in Figures 3.9 to 3.11. A comparable pronoun is not attested in Arabic. Instead, possessive pronouns take the form of suffixes which are attached to the noun.

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8 This form can also be made with the palm up. For the quintuple the palm has to be up, otherwise this form would be confused with the sign ALL.
As far as numbers are concerned, both Arabic and LIU derive multiples of ten morphologically from numbers below ten, but they use different morphological processes. In Arabic, multiples of ten are derived by adding a suffix, whereas in LIU they are derived by the addition of a side-to-side movement. Thus, Arabic combines morphemes sequentially, whereas LIU uses simultaneous morphology. Other differences occur at the level of individual numbers. The Arabic word for ‘twenty’ (٢عشرون), for example, is derived from the word for ‘ten’ (٠عشر) to which a dual suffix is added, whereas the LIU sign TWENTY is derived from the sign for TWO combined with a side-to-side movement.

Another area in which Arabic and LIU differ is that of colour terms. Whereas colour terms in Arabic mostly have the same prosodic template (‘aCCaC), LIU uses no systematic morphological template for colour terms. Instead, it tends to create colour terms from nouns. Thus, the sign GREEN is
derived from the sign TREE and the sign for YELLOW is the same as the sign for LEMON.

A final example of the way in which Arabic and LIU differ as far as the morphology of certain classes of lexical items is concerned, is the area of kinship terms. In Arabic, most kinship terms have a basic masculine form from which the feminine form is derived by adding a suffix (e.g. xaal “uncle”, xaala “aunt”). In contrast, in LIU the kinship terms tend to be gender neutral and both the masculine and the feminine are created by means of compounding. For example, the gender-neutral sign SIBLING can be combined with the sign for BOY or GIRL to create the signs BROTHER and SISTER.

The table below summarizes the morphological differences between pronouns, numbers, colour terms and kinship terms in Arabic and LIU.\(^9\)

<table>
<thead>
<tr>
<th>Category</th>
<th>Spoken Arabic</th>
<th>LIU</th>
</tr>
</thead>
<tbody>
<tr>
<td>pronouns</td>
<td>paradigms of free personal pronouns and relative pronouns, suffixing for possessive pronouns</td>
<td>paradigms of free personal and emphatic/reflexive/possessive pronouns, no relative pronouns, no suffixing</td>
</tr>
<tr>
<td></td>
<td>number distinctions: singular, dual, plural</td>
<td>number distinctions: singular, dual, trial, quadruple, quintuple, plural</td>
</tr>
<tr>
<td></td>
<td>gender distinctions: masculine and feminine</td>
<td>gender distinctions: none</td>
</tr>
<tr>
<td>numbers</td>
<td>multiples of 10 are morphologically derived by adding a suffix (sequential morphology)</td>
<td>most multiples of 10 are morphologically derived by adding a side-to-side movement (simultaneous morphology)</td>
</tr>
<tr>
<td></td>
<td>special dual forms with the dual suffix for 20, 200, 2000</td>
<td>no special dual forms</td>
</tr>
<tr>
<td>colour</td>
<td>most colour words have the same morphological template</td>
<td>no morphological relationship between colour words</td>
</tr>
<tr>
<td>kinship</td>
<td>no gender-neutral kinship terms, but several pairs of a basic masculine term and a derived feminine term with a suffix</td>
<td>gender-neutral terms for most kinship relationships, compounded with a sign for the gender (e.g. GIRL SIBLING “sister”)</td>
</tr>
</tbody>
</table>

Table 3.1: morphological comparison in different lexical domains between spoken Arabic and LIU

\(^9\) This table has been taken from Hendriks and Zeshan (in press).
It may be clear from this section that there is no relationship between the lexicons of LIU and Arabic with respect to morphological structure and morphological relations in the lexicon. On the one hand, similarities that have been pointed out in the literature between sign language morphology and Arabic are less significant than they appear to be at first sight; on the other hand, there are many differences in the way the lexicon of the two languages is structured. Arabic, then, does not appear to have influenced LIU in structural terms.

3.2.3 Sequential and Simultaneous Morphology

All sign languages that have been documented so far display a preference for a particular type of morphological organization that is significantly different from that of spoken languages. In spoken languages, the predominant type of morphology is sequential (or concatenative) in nature, including compounding, cliticization and, most commonly, affixation (by means of prefixes, suffixes and infixes). Templatic morphology, such as that used in Semitic languages (see Section 3.2.2) is relatively uncommon. Sign languages show exactly the opposite pattern. Fernald and Napoli (2000:12) state that sign languages in general appear to have “a strong resistance to sequential morphology of the concatenative affixation type”. According to Sandler and Lillo-Martin (2006:51) “[i]t is the templatic type of non-concatenative morphology that is so abundant in sign languages.” Aronoff, Meir and Sandler (2005:301) attribute the lack of concatenative morphology in sign languages to the relative youth of most sign languages because “sequential patterns can be traced to normal historic development”. In contrast, the much more common simultaneous morphology of sign languages is grounded in spatiotemporal cognition and therefore not entirely arbitrary. According to Aronoff et al. this property makes sign language morphology relatively easy to learn and quick to develop. They point out that affixes in sign languages are uncommon, confined to derivational processes and relatively simple. LIU is typical in this respect in that there is little evidence for sequential derivational morphology other than a negative affix (Figure 3.12, cf. also Chapter 4) and a limited amount of compounding. In line with the generalization made by Aronoff et al. (2005), there does not appear to be any sequential inflectional morphology at all.

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10 Parts of this section have been adapted from Hendriks and Zeshan (in press).
Chapter 3: Brief outline of LIU grammar

Compounding in LIU can make use of either sequential or simultaneous processes. Sequential compounds combine two signs in a more linear way, like compounds in spoken languages. In these compounds two regular signs follow each other, although characteristic assimilation and deletion processes may apply: the movement of one or both may be shortened, repetitions may be deleted, and often the place in which one or both of the signs is normally made or the handshape of one or both of the signs changes to reduce the transition between the two signs. An example in LIU is the sign for COLOURS, which is made up out of the sign RED (the index making a left-to-right movement under the lower lip) and the sign for ETCETERA (index and middle finger making a repeated twisting movement away from the body in neutral space). In the compound COLOURS the movement of the sign for RED is left out and the sign ETCETERA assimilates in place, starting at the lower lip (Figure 3.13). It is typical for compounds to undergo this kind of reduction. If sequential compound signs are frequently used, the parts tend to assimilate over time to the extent that they may no longer be recognisable as compounds. Klima and Bellugi (1979) found that in ASL the duration of a compound is about the same as the duration of an average single sign.

Another example of a sequential compound in LIU is the sign for BELIEVE which is made up of the sign for MIND followed by the sign for TRUE, since “to believe” means to know in your mind that something is true (Figure 3.14).
Apart from sequential compounding and the negative affix shown in Figure 3.12, however, LIU, like other sign languages, mostly uses simultaneous morphology. The signs in Figures 3.15a,b are instances of numeral incorporation, a morphological process that is common in most sign languages (cf. Liddell 1997). The sign combines a base sign indicating a unit of quantification, such as time concepts (year, week, minute) or monetary units, with a handshape indicating a number. Both elements are produced simultaneously, forming a single complex sign.
Another important process is found in the domain of aspect marking. Like most sign languages, LIU has no grammatical category of tense. Time is indicated by individual time adverbials at the beginning of a discourse paragraph, and a spatial metaphor (‘time line’) is used in this sub-system (cf. also Brennan (1983) for BSL; Schermer and Koolhof (1990) for NGT; Zucchi (2006) for LIS). The time line is an imaginary line running through the signer’s body from back to front. In LIU the past is located behind the signer and the future is located in front (Figure 3.16).
Aspect marking, on the other hand, involves morphologically complex forms. A basic sign can occur with a number of different movement patterns to indicate, for example, durational aspect or intensive aspect (Figures 3.17 and 3.18). These different movement patterns are usually accompanied by a change in facial expression. (For an overview of aspechual modulations, cf. Klima and Bellugi (1979); Rathmann (2006) on ASL; Sutton-Spence and Woll (1999) on BSL.) Although this process is in some ways akin to the templatic morphology commonly found in Semitic languages, as explained in Section 3.2.2, the expression of tense and aspect in LIU is in itself not at all similar to any variety of Arabic.

Movement patterns are also an important clue for differentiating between derivationally related pairs of signs in LIU where the first sign has a verbal
and the second sign a nominal reading (cf. also Supalla and Newport (1978) for ASL; Johnston (2001) for Auslan; Hunger (2006) for Austrian Sign Language (Österreichische Gebärdensprache, ÖGS)). In these pairs, the nominal signs are usually characterized by restrained movement, sometimes with repetition of movement. Semantically, in such pairs the noun most commonly refers to an object and the verb to an action involving that object, e.g. “light” – “turn on light”, “boat” – “go by boat”, “medicine” – “take medicine”, etc.\footnote{In some cases, noun-verb pairs can be distinguished by the absence or presence of the non-dominant hand, although it is not clear how productive this kind of morphological process is. For examples, cf. Hendriks (2004:29-30).}

Simultaneous compounds are made up of two signs that are produced simultaneously by the two hands. An example in LIU is the sign HELICOPTER, which combines the handshape for PLANE on the non-dominant hand with the sign for FAN (or ROTOR) on the dominant hand (Figure 3.19). Another example is the sign ADDRESS which is made by the non-dominant hand taking the shape of the classifier for flat objects (cf. Section 3.3.2), in this case a piece of paper, and the dominant hand making the sign STREET (which is normally made with both hands), as shown in Figure 3.20.

Simultaneous compounding is a fairly productive morphological process and is one of the more common ways in which new signs are formed in LIU. For a detailed description of compounding processes in ASL, see Klima and Bellugi (1979). For a segmental analysis of compounds, see Liddell and Johnson (1986). LIU, then, like other known sign languages, uses both sequential and simultaneous morphology, although the latter is much more common.
Sequential morphology is attested most commonly in compounding, as is also true for other sign languages. Likewise, simultaneous morphology is found in the same areas as other sign languages. In summary, as far as its morphological structure is concerned, LIU does not show any significant differences compared to other sign languages.

### 3.3 Using the signing space

Sign languages being visual languages, they make extensive use of space, not just phonologically (the location of a sign being a component of sign formation) but also referentially in the pronominal system and in the verb agreement system (cf. Baker and Cokely 1980; Meier 1990; Padden 1990; Liddell 1990; Meir 2002; Sandler and Lillo-Martin 2006). Space can even be used to express time (cf. Figure 3.14). The general area in front of the signer’s body in which signs are made is called the signing space. As already briefly shown in Section 3.2.2, pointing signs in LIU can target a certain position in the signing space to indicate a specific person, animal, place or object. If these persons, animals or objects are present in the vicinity of the signer, they will be pointed at directly. If they are absent, however, they will be assigned a certain point in the signing space and can be referred to by pointing to that particular spot or ‘locus’.

Assigning someone or something a locus in the signing space is called localization (cf. Liddell (1990) who points out that there is a relationship of equality between the locus and the referent). Localization can be realized by articulating the sign for the particular noun followed by pointing to a certain position, or by articulating the sign itself at a certain location. Localization can even be achieved by means of eye-gaze towards a locus (cf. Rathmann and Mathur 2002). It seems that, when phonologically possible, LIU has a preference for producing signs in a certain place in the signing space when localizing a referent for the first time. Pointing is also used to refer back to the previously established referent, but according to my observation pointing is not used as frequently as has been reported for Western sign languages (cf. Chapter 7.5.1). A cross-linguistic comparison using naturalistic data from different sign languages would be interesting. Once a noun is assigned a position in the signing space, it keeps that position unless it is explicitly moved (e.g. when talking about a person who walks from one spot to another). Verbs associated with a localized noun may either be articulated at that location or move towards that same location. In this way complex spatial lay-outs can be created which are used to keep track of discourse referents. For a more detailed description of how these spatial lay-outs are created see Chapter 7.5.
3.3.1 Agreement verbs

One of the most important uses of the signing space is the expression of subject-object relationships in agreement verbs. These are morphologically complex verbs that change movement direction and/or hand orientation to show who is doing what to whom. These signs usually begin at the subject location and move towards the object location (as in Figures 3.21a,b), although there are also some verbs that move from object to subject. These latter verbs are called ‘backward verbs’ by Meir (1998). An example of an agreement moving from subject to object in LIU is the verb TELL (Figures 3.21a,b).

![Figure 3.21a: 1TELL2 “I tell you”](image1)  ![Figure 3.21b: 2TELL1 “you tell me”](image2)

In many cases the palm and/or the fingers of the hand are oriented towards the object (referred to as ‘facing’ by Meir (1998)), and the back of the hand towards the subject, and in some cases palm or finger orientation alone expresses agreement (cf. Padden 1988; Meir 1998, 2002; Rathmann and Mathur 2002). For a non-exhaustive list of agreement verbs in LIU, see Hendriks (2004:48). Most of these are regular agreement verbs, although a few backward agreement verbs also occur. The grammatical mechanism of agreement closely interacts with the more general principle of localization, since it depends on the association of discourse referents with locations in the signing space. The spatial agreement with subject and object observed in sign languages parallels multiple person marking on verbs in spoken languages where bound pronouns represent subject and object (cf. Arabic ya-\textit{s}’\textit{alu-ni} “he-ask-me”).
According to Padden (1990) some verbs in ASL do not just show subject and object agreement, but can also be inflected for number agreement. Again, LIU behaves like ASL and other sign languages in this respect. An example of a verb in LIU which can be inflected for number agreement (also referred to as distributional quantification) is the verb GIVE, which can be directed towards a single object referent or towards multiple object referents. In the latter case, there are different ways in which the sign can be made. The inflection can be multiple, indicating that the meaning expressed by the sign applies to a whole group (Figure 3.22a), or exhaustive, indicating that it applies to individuals in an orderly fashion (Figure 3.22b). Yet another inflection expresses that the action of giving does not take place in a systematic and orderly fashion, but rather in a more random fashion to many individuals all over the place. It is made with a repeated circular movement of both hands.

Figure 3.22a: GIVE:MULTIPLE

Figure 3.22b: GIVE:EXHAUSTIVE
For a more in-depth look at agreement verbs and the way they contribute to establishing spatial lay-outs in LIU, cf. Chapter 7.5.

### 3.3.2 Classifiers

According to Zwitserlood (2003:1)

“Many natural languages have elements called classifiers. Typically, these elements are morphemes that denote a salient characteristic of an entity, for instance, the characteristic of being human, being an animal, or having a particular shape. Classifiers are used in combination with nouns to refer to entities.”

Most sign languages appear to make use of classifiers, although some make far less use of certain types of classifiers than others (cf. Nyst 2007a). In sign languages, verbs of motion and location (Supalla 1986) commonly combine with certain handshapes that are strongly associated with the shape or function of a referent (e.g., people, vehicles, animals, cf. Figures 3.23 and 3.24). Because such handshapes can represent a whole class of objects that have more or less the same shape, they are called classifiers. For an overview of classifiers in LIU, cf. Van Dijken (2004).

As can be seen from Figure 3.24, the shape of a classifier does not necessarily need to be transparent or iconic. The vehicle classifier as used in LIU (Figure 3.24) has a rather abstract shape and does not straightforwardly represent the shape of a vehicle. It is normally used for four-wheeled vehicles, like cars, buses and pick-up trucks. The classifiers in Figures 3.23
and 3.24 represent an entity directly – the hand is the entity – and have therefore been referred to as ‘entity classifiers’ (cf. Schembri 2003). Entity classifiers are usually part of (intransitive) verbs of motion or location. LIU also has handling classifiers, whereby the classifier handshape does not represent the entity itself, but the way an entity is held or handled by an agent. Handling classifiers are normally part of transitive verb constructions and can usually be spatially directed. Two examples of handling classifiers are given in Figures 3.25 and 3.26.

Classifiers, and particularly entity classifiers, often occur in complex spatial constructions. While the classifier handshape represents a referent, the movement and location of the classifier represents the movement or location of the referent in real space. Classifier constructions\(^\text{12}\) are therefore highly flexible and productive and can be very complex, especially if both hands are involved. As can be seen in Figure 3.27, classifier constructions can be two-handed, with both hands simultaneously expressing classifiers which refer to different entities. In this way, the location or movement of two referents with respect to each other can be expressed. The third picture of Figure 3.27 shows a complex classifier construction in which the dominant hand represents a falling pen and the non-dominant hand represents the table on which the pen was lying. In Chapter 6.5 more complex simultaneous constructions involving classifiers will be discussed.

\(^{12}\) Classifier constructions have been given various names in the sign language literature, like ‘verbs of motion and location’, ‘polymorphic predicates’, ‘spatial-locative predicates’ etc. For an overview cf. Schembri (2003).
Apart from two-handed constructions in which both hands function as an entity classifier, signers can also make use of what has been called ‘refferent projections’ or ‘body classifiers’. In this case, the referent or entity is mapped onto the signer’s body. According to Engberg-Pederson (1993:293-294) this use of the signer’s head and body resembles mime, but with important differences.

“When the signer’s head and body are used to express a referent projection, the head and body of the signer represents one entity while at the same time the hand may represent another entity as the manual articulator of the verb. The simultaneous use of the signer’s head and body for one referent and the hand in a verb for another referent is impossible in mime.”

Van Dijken (2004) shows that referent projections are very common in LIU. Chapter 7 will deal in more depth with the mapping of referents on the signer’s body.

### 3.4 Word order

#### 3.4.1 Basic word order patterns in LIU

Languages are often classified according to their basic word order pattern. This is usually done by looking at the order of the basic sentence elements subject (S), verb (V), and object (O) or by considering the information-structure status that elements have in a sentence (e.g. topic vs. focus). Languages differ from each other in the amount of freedom they allow with regards to the ordering of grammatical elements, but many languages do
have a ‘basic’ or ‘preferred’ pattern. Thus, although MSA allows for quite a lot of flexibility in word order, the basic word order is VSO. In contrast, spoken Jordanian Arabic has SVO word-order. Research has shown that over 75% of the world’s spoken languages have basic SVO or SOV word order. Some sign languages, such as ASL, have been analyzed as having SVO word order (cf. Fischer 1975; Liddell 1980; Neidle et al. 2000), while other sign languages, such as DGS and NGT, have been claimed to have SOV word order (cf. Glück and Pfau (1998) for DGS; Coerts (1994) for NGT). Although no extensive research has been done into the basic word order of most sign languages, some cross-linguistic generalizations can be made. In general, sign languages have been classified as topic-focus languages, which means that information known by both signer and addressee (the topic) is mentioned first and then new information about the topic (the focus) is presented. LIU is no exception to this generalization. Also, it seems that sign languages generally are quite flexible in their word order. This is probably due to the fact that syntactic relationships can not only be expressed by word-order but also in alternative ways, for instance, by means of directional verbs and classifiers. Sign languages also seem to rely heavily on context and knowledge of the real world. The fact that sign languages can express a considerable amount of information simultaneously also makes it harder to establish a basic word-order. LIU makes frequent use of simultaneous constructions whereby both hands express different information (cf. Chapter 6). In addition, it is also possible to express syntactic information non-manually, cf. Section 3.5.

Having said this, however, LIU does have word order rules, or at least tendencies. Word order is not completely free, and consequently certain sentences are judged ungrammatical by native signers. Although no complete overview of word order in LIU can be given yet, some general comments can be made about its basic word order.

In LIU, the subject tends to precede the predicate. The predicate may be verbal, but it does not have to contain a verb, in contrast to many European spoken languages like English. In this respect, LIU resembles other sign languages as well as Arabic (and many other non-Western spoken languages), in which, due to the lack of a copula verb, a predicate may also be non-verbal. Predicates in LIU can consist of verbs, adjectives, nouns or classifier constructions.\footnote{Classifier constructions have often been analyzed as (polymorphemic) verbs, but a straightforward analysis is difficult because of their complexity. For this reason they have been named separately here.} Within the verb phrase both the order object-verb (OV) and verb-object (VO) are attested. The order OV is especially frequent for verbs that are performed on the object or which incorporate the shape of the object by means of a handling classifier. An example of a verb
performed on its object is the verb \textit{CLEAN}. The location in which this verb is made may vary according to the location of its object in space. The verb may also change its orientation depending on its object, as shown in Figures 3.28 and 3.29\textsuperscript{14}.

\textbf{Figure 3.28: TABLE}_i \textit{CLEAN}_i

\textbf{Figure 3.29: WINDOW}_j \textit{CLEAN}_j

Thus, when the location or handshape of a verb is determined by the location or shape of its object, the object generally precedes the verb. When there is no such agreement between the verb and its object, both orders (OV and VO) occur. In some cases an object does not to be specified apart from the verb,

\textsuperscript{14} Remember that the subscripts represent the location of the object in space, and show that the verb and object agree with respect to this location, that is, they are articulated at the same location.
because it is already an inherent part of the verb. Examples are the verbs WASH-CLOTHES and OPEN-DOOR (Figures 3.30 and 3.31).15

![Figure 3.30: WASH-CLOTHES](image)

![Figure 3.31: OPEN-DOOR](image)

### 3.4.2 Word order with pronouns

Although the basic word order in LIU is subject-predicate when the subject is a noun, several other patterns are possible with pronominal subjects. Just like most other sign languages (cf. Lillo-Martin (1986, 1991); Neidle et al. (2000) for ASL; Bos (1993) for NGT) and also spoken languages like Spanish and Arabic, LIU allows for pro-drop under certain circumstances. As was explained in Section 3.2.2, pronouns in LIU and other sign languages differ from spoken language pronouns in that they do not have a fixed form but are made by pointing to a certain position in the signing space. Because an infinite number of positions is available in the signing space, there is, in principle, an infinite number of possible pronouns. There is considerable discussion about the status and number of pronouns in sign languages (cf. Friedman 1975; Meier 1990; Lillo-Martin and Klima 1990; Liddell 2003). Following Meier (1990) many sign language researchers have adopted the view that pronouns in sign languages only show a distinction between first and non-first person. Unlike pronouns in many spoken languages, pronouns in sign language neither specify in their form whether they refer to a male referent, a female referent or an object, nor whether they are second or third

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15 In the case of Figure 3.31, the phonological form of the noun DOOR is very similar to the form of the verb OPEN-DOOR, but has a repeated and restrained opening and closing movement, cf. Section 3.2.3 where such verb-noun pairs have been analyzed as examples of simultaneous morphology.
person. It is the position that the pronoun points to rather than any information inherent in the form of the pronoun that determines the referent. Because of this, there is even some doubt as to whether pronouns in sign languages are purely linguistic elements. Some scholars argue that pronouns also contain a gestural component (cf. Liddell 2003). In general, it seems that pronouns can be dropped more easily in sign languages than in spoken languages. In spoken languages pronouns can, generally speaking, only be dropped when features of the subject pronoun can be recovered by means of agreement information on the verb. There are only a few spoken languages, such as Chinese and Japanese, which permit null pronouns (i.e. pronouns that are not overtly expressed) in the absence of verb agreement. In LIU, too, subject pronouns can be left unexpressed even when the verb does not include information about the subject, that is, when the verb does not show agreement.

Because agreement verbs (cf. Section 3.3.1) generally involve a movement from the subject locus towards the object locus, the starting point of the verb identifies the position of the subject. The starting point of the verb thus gives the same information as an overt pronoun, because pronouns in LIU only point to a position but do not give any extra information about the subject. In this way LIU is similar to Arabic, where prefixes and suffixes on the verb express the same information as pronouns; hence, no separate pronouns are needed. What is more unexpected, however, is that subject pronouns can also be left unexpressed with verbs that do not show agreement, the so-called ‘plain’ verbs. This is true not only for LIU, but also for other sign languages (e.g. Bos (1993) for NGT; Lillo-Martin (1986, 1991) for ASL). Because these verbs do not contain any information about the position of the subject, it would be expected that the subject pronoun needs to be present. In a way these plain verbs resemble English verbs, which do not contain enough agreement information to unambiguously identify features of the subject pronoun. In English this means the pronoun has to be expressed separately. However, unlike the English sentence in (3.3) the LIU sentence in (3.4) is grammatical:

(3.3) *live in Amman
(3.4) LIVE AMMAN
“I live in Amman.”

See, however, Berenz (2002) and Alibašić Ciciliani and Wilbur (2006) for the distinction between second and third person on the basis of non-manuals, particularly eye-gaze.
Although the verb in this sentence does not contain the information needed to determine who the subject is, pro-drop can still take place if the subject can be inferred from the context. In statements like the one in (3.4) the subject is assumed to be the signer (first person singular) unless the context makes it clear that there is a different referent. In questions, on the other hand, the subject will be assumed to be the addressee, unless the context specifies otherwise. Thus, the only difference between (3.4) and (3.5) is in the facial expression (cf. Section 3.5.2) but the subject of (3.5) would normally be interpreted as “you” rather than “I”:

(3.5) LIVE AMMAN
    “Do you live in Amman?”

Subject pronouns can also be left unexpressed when the subject is a third person referred to in the context. Thus, if a signer is talking about a third person and the addressee asks the question in (3.5) the null pronoun will be interpreted as that particular third person. Likewise, if the signer relating a story about a certain person and utters the statement in (3.4), the null pronoun will not normally be interpreted as referring to the signer himself but to the person he is talking about. Thus, in a sequence of sentences which share the same subject, that subject does not need to be repeated in the form of a pronoun, as it does in English and other languages with little or no verbal agreement morphology. There appears to be a rule that when a verb does not have an overt subject in LIU, it will automatically be linked to the most recent overt subject in the discourse. When there is no overt subject at all, the subject is understood to be first person singular in statements and second person singular in questions on pragmatic grounds. This rule does not only apply within sentences, but also in strings of sentences. In this way LIU resembles languages like Chinese and Japanese which have been described as discourse-oriented languages (cf. Sandler and Lillo-Martin 2006:390-393).

So far, only the fact that pronouns may be dropped from their normal subject position has been discussed. When an overt pronoun does occur, however, it can also be more freely placed in the sentence than a nominal subject. As mentioned before, the most common position for a subject is at the beginning of the sentence, before the predicate. In contrast, pronouns may also follow the predicate. Moreover, a pronoun may be copied and occur both before and after the predicate. Thus, a sentence like “I am ill” can be signed in 4 ways:
Chapter 3: Brief outline of LIU grammar

(3.6a) ILL
(3.6b) INDEX₁ ILL
(3.6c) INDEX₁ ILL INDEX₁
(3.6d) ILL INDEX₁

“I am ill.”

Although there are no regular word order differences that distinguish questions from statements in LIU, pronouns tend to appear in sentence-final position when the sentence is a question (cf. Section 3.5.2 for the non-manual markers). Thus, the question “Are you ill?” will most often be signed as illustrated in (3.7):

(3.7) ILL INDEX₂

“Are you ill?”

Object pronouns differ from subject pronouns in LIU in that they do not have to be expressed separately with agreement verbs, but they are normally expressed with non-agreeing verbs. This is probably due to the fact that objects are more likely to change reference in the course of a conversation, or even within a sentence, than subjects.

3.4.3 Word order within noun phrases

Generally, in LIU the head of a (noun) phrase comes at the beginning of the phrase. That which is felt to be the most important element is signed first and anything that modifies the head follows it. Consequently, both adjectives and numbers generally follow the noun. This contrasts with Arabic, where adjectives also follow the noun, but numbers normally precede the noun. Because word order in LIU is fairly flexible and because signing (especially between deaf and non-deaf people) is often influenced by Arabic word order, there are exceptions to the general pattern. Nevertheless it seems to be a very basic principle of LIU grammar that the most important element in a phrase should come first. Thus the phrase “three deaf boys” in LIU would be signed BOY DEAF THREE.

Research on ASL has shown that this language has two kinds of adjectives (cf. Valli and Lucas 1995:120-121). Some adjectives can precede and follow the noun while others can only follow the noun. According to the analysis by Valli and Lucas (1995), attributive adjectives always precede the noun in ASL. Consequently, adjectives that cannot precede the noun cannot
be used in attributive position. This appears to be true for adjectives that
describe physiological, psychological and emotional states (all temporary
situations). These adjectives can only be used in predicative position,
following the noun. Thus, the sequence in (3.8a) is grammatical in ASL, but
the sequence in (3.8b) is not.

(3.8a) TALL BOY
“a tall boy”
(3.8b) *HAPPY BOY
“a happy boy”

Like ASL, LIU appears to have adjectives that can be used both attributively
and predicatively as well as adjectives that can only be used predicatively.
However, because in LIU (unlike ASL, but like Arabic) all adjectives
generally come after the noun, it is harder to see whether an adjective occurs
in attributive or predicative position. One way to find out is to use adjectives
in combinations with numerals and with other adjectives and see whether
they all behave the same way. It turns out that LIU also has two classes of
adjectives: those that describe a permanent state (often related to physical
features, like TALL, THIN, DEAF etc.) and adjectives that describe a temporary
situation, often related to emotional or physiological states (ILL, UPSET,
HAPPY). These classes more or less correspond to the ones in ASL. The
difference between the two classes can be seen in noun phrases that have
both an adjective and a number. Adjectives that describe permanent states
can occur both before and after the number, as in (3.9):

(3.9a) BOY TALL THREE
“three tall boys”
(3.9b) BOY THREE TALL
“The three boys are tall.”

Adjectives that describe temporary situations, on the other hand, cannot
come before the number, cf. (3.10):

(3.10) *BOY SICK THREE
“three sick boys”

The distinction between permanent states and temporary situations appears to be
the more general one. The fact that this corresponds to physical features as opposed
to emotional states appears to be less relevant. DEAF, for instance is a physiological
state, rather than a physical feature, but it is grouped together with adjectives like
TALL and THIN because it is considered permanent.
Chapter 3: Brief outline of LIU grammar

This indicates that, as in ASL, adjectives that describe temporary situations are used only as predicates, and cannot be part of the subject (or any other noun phrase).

The same pattern shows up when permanent and temporary adjectives are used together. Thus, a signer may sign (3.11a), but (3.11b) is judged as incorrect:

(3.11a) BOY TALL SICK
“The tall boy is sick.”

(3.11b) *BOY SICK TALL
“The sick boy is tall.”

Note, however, that even in English the sentence in (3.11b) is a bit strange, even though it is not technically speaking ungrammatical. It would seem that in general people are more likely to describe a person by giving a description of their physical characteristics than by describing a temporary situation. The difference between English and both ASL and LIU is that in English temporary adjectives can be used attributively while in both sign languages they cannot.

3.5 Non-manual aspects of grammar

Sign languages do not only use the hands to encode linguistic information. Non-manual aspects of signing also contribute significantly to sign language grammar, with head movements and facial expressions being the most important features. Non-manual information has been compared to intonation in spoken languages (cf. Sandler 1999b). Like intonation, non-manual information can contain both linguistic and non-linguistic information, such as emotions. Also, like intonational contours, non-manuals can co-occur with more than one sign and can therefore be said to be suprasegmental. Non-manual information is important at different levels of sign language grammar. At the phonological level, certain facial expressions and mouth patterns can constitute part of the lexical features of certain signs (see Section 3.1.2). At the morphological level, certain facial expressions may add adverbial information (Section 3.5.1). At the syntactic level, different facial expressions can be used to distinguish between different sentence types (Section 3.5.2) and can mark topicalization. Given that to date no systematic research into topicalization in LIU has been conducted, this latter function of facial expression will not be discussed.
3.5.1 Non-manual adverbial marking

Non-manual markings are not just used to express sentence type, but can also contain adverbial information (cf. Baker and Cokely (1980); Liddell (1980) for ASL; Sutton-Spence and Woll (1999) for BSL; Meir and Sandler (2008) for Israeli Sign Language (ISL)). Thus, certain non-manuals can occur with adjectives or verbs to mark, among other things, intensity, unpleasantness, boredom, tiredness or inevitability. The adjectival signs FAR or TALL, for instance, can occur with a facial expression with the mouth rounded and the eyebrows lowered (Figure 3.32a) which expresses the same meaning as the English adverbial “very”, for example, “very tall” or “very far” (Figure 3.32b). The same facial expression can also be used with verbs, like the verb WORK. The resulting construction can be translated as “to work hard” or “to work a lot”.

![Figure 3.32a: non-manual intensifier](image1) ![Figure 3.32b: VERY FAR](image2)

In this way, many meanings that are expressed by means of adverbs in English can be expressed by means of facial expression alone in sign languages. Because a facial expression can be articulated simultaneously with a sign, it often takes much less time to describe a particular situation in sign than it would take to describe the same situation in words. Sometimes a situation that requires quite a long description in spoken languages can be expressed by a single sign combined with the appropriate facial expression in sign language. This is a way of expressing adverbs that is unique to visual languages.
3.5.2 Sentence types

As in other sign languages (cf. Baker and Cokely (1980); Liddell (1980) on ASL; Sutton-Spence and Woll (1999) on BSL; Meir (2004) on ISL; Zeshan (2006a) on a range of sign languages), various syntactic constructions are marked by particular non-manual configurations in LIU. These include various types of questions, negation, imperatives, and conditional clauses, a few of which are discussed briefly below.

Cross-linguistically, there are three common strategies for marking questions: the use of question particles, changes in word order, and intonation. LIU does not have a yes/no question particle, and does not change its word order to form yes/no questions (although subject pronouns are more likely to occur at the end of the sentence in yes/no questions, cf. Section 3.4.2). Non-manual information alone usually marks a sentence as a yes/no question, as does intonation in many spoken languages. The non-manual for these questions consists of a head-tilt forward, raising of the eyebrows and wide open eyes, as shown in Figure 3.33. In contrast, content questions are generally produced with the head tilted slightly backward or to the side and eyebrows lowered, although the facial expression is more variable than that accompanying yes/no questions. A very slight headshake may also be observed. Content questions do contain question signs. The most general one, glossed as WHAT, is shown in Figure 3.34. The same sign is also used (with a different mouthing) with the meaning “how”. Moreover, it can be used to express the meanings “who”, “where”, “when” or “why”, although more specialized question signs also exist for those meanings. In some dialects, however, the sign in Figure 3.34 seems to be the only question sign available.

Figure 3.33: Non-manual marking for a yes/no question

Figure 3.34: WHAT
Different non-manuals, like a headshake, a head-turn and a backward head-tilt are attested in negative sentences, and normally accompany a manual negator. An in-depth description of negation in LIU as well as a comparison to other sign languages is the topic of Chapter 4.

Conditional sentences are marked by a non-manual configuration that is quite similar to the marking for yes/no questions, but with the head tilted more to the side. This marking spreads over the conditional part of the sentence with a clear intonational break after the condition. A conditional particle IF exists, but this sign is optional, and the non-manual alone is sufficient to mark the condition, as shown in Figure 3.35.

![Figure 3.35: TOMORROW RAIN TRIP NEG-EXIST](image)

“If it rains tomorrow, will there be no trip?”

The examples show that non-manual marking plays an important role in the syntax of LIU, as it does in other sign languages, sometimes being the sole means by which different clause types are distinguished.

### 3.6 Summary

In this chapter I have given a short introduction to some aspects of LIU grammar, in particular phonology, morphological marking, use of space, word order and non-manual marking. I have not attempted to provide more than a basic sketch of these different areas of LIU grammar. Each of these areas deserves further research and description, but this is beyond the scope of this dissertation. Some aspects of LIU grammar, however, will be described in more detail and from a cross-linguistic perspective in the next four chapters. In particular, negation (Chapter 4), possession (Chapter 5), manual simultaneity (Chapter 6) and the use of perspective (Chapter 7) will be discussed.

Apart from discussing differences and similarities between LIU and other sign languages, this chapter also offered some comparisons between the grammar of Arabic and that of LIU, where appropriate. Because visual
and oral languages are so different in structure, it is not always easy to compare the two. There is no Arabic equivalent, for instance, for the use of space or for non-manual marking in LIU. Some comparisons have been made, however, in areas such as word order or lexical classes. Although there are some similarities between Arabic and LIU, particularly in word order (both Arabic and LIU can leave pronouns unexpressed and can have non-verbal predicates), these similarities do not seem to be caused by influence of Arabic on LIU. Instead, they reflect features that sign languages from around the world tend to have in common. Moreover, there are also considerable differences between Arabic and LIU as far as morphology and word order are concerned. There may be some influence of the basic word order of spoken Jordanian Arabic on LIU, but a similar influence is harder to detect in other areas of word order. Although adjectives in LIU follow the noun, like in Arabic, both definite and indefinite numbers also follow the noun, unlike Arabic. Moreover, pronouns, kinship terms, colours, and numbers have different morphological patterns in LIU and Arabic. More research is necessary to determine exactly how much influence the grammar of Arabic has on LIU. The only area in which Arabic has clearly had an influence on LIU is on the phonological level, where mouthings have been borrowed from spoken Jordanian Arabic.

It is interesting to note that where there is a possible influence from Arabic on LIU, this influence comes only from the dialect that is spoken in Jordan and not from Modern Standard Arabic, which is the written form of the language. This seems counter-intuitive, because MSA is taught in all schools, including schools for the Deaf. However, this lack of MSA influence on LIU corresponds to the low level of functional literacy among the Deaf, as was explained in Chapter 1.1.4.