Chapter 5
Phonological aspects

This chapter is concerned with the sub-lexical structure of YSL. This chapter presents first insights into some selected phonological structures of this language without intending to provide an exhaustive account of YSL phonology.

The chapter is structured around the four selected domains – including i) the parameter of handshape, ii) the parameter of location, iii) the sign types and iv) the use of nonmanual marking. All four domains have been chosen because they are likely to be interesting from a cross-linguistic perspective. Throughout this study, the YSL findings will be compared to what has been observed in other sign language types (DCSLs, emerging, alternate or shared sign languages). Section 5.1 focuses on the major manual parameter of handshape, where the marked and unmarked handshapes are described. YSL patterns with other shared sign languages not only in the number of phonetic handshapes, but also in proliferation of locations and the size of the signing space. In the section on the YSL sign types (see 5.2), I discover a striking feature of YSL, the preference for one-handed signs. The final section (5.3) shows that YSL makes an extensive use of nonmanual marking, such as mouth actions, against the expectations, based on the earlier research on alternate sign languages (Kendon, 1988; Bakker, 2012b).

5.1. Handshapes

Signs are comprised of four major phonological formational categories: hand configuration, location (sometimes also referred to as place of articulation), movement (how the articulators move) and nonmanual markers (what other articulators besides the hands (face, body) are doing). Hand configuration is divided into two main subcategories: handshape and orientation (how the hands are related with respect to location) (Sandler & Lillo-Martin, 2006). Examples below (see Figure 16) exemplify that these categories contain contrastive features. Similar to the minimal pairs found in spoken languages, such as the two English words ‘pin’ and ‘bin’ that differ only in their onset consonant, signs might differ in only one of these aspects of their production (Battison, 1995).

Figure 16 shows the signs MIYAPUNU ‘sea water turtle’ and LATJU ‘young, beautiful, nice’, which are distinguished by two handshapes, and . As
Figure 16. Phonologically distinguished minimal pairs in YSL

MIYAPUNU ‘sea water turtle’ vs. LATJU ‘young, beautiful, nice’
Signs distinguished by handshape feature

WADA ‘talk, speak, say’
DHIDKID ‘think’
Signs distinguished by location feature

MAPURU ‘Mapuru’
NHE ‘you’
Signs distinguished by movement feature

 Bápi ‘snake’
Teacha ‘teacher’
Signs distinguished by nonmanual parameter
location and movement are similar in these two signs, they represent a minimal pair in YSL. Similarly, the YSL signs WADA ‘talk, speak, say’ and DHIDKID ‘think’ (Figure 16) are minimal pairs distinguished by the feature of location (the lower lip vs. the right temple respectively). The third minimal pair of signs DARWIN and NHE ‘you’ is distinguished by movement alone (straight and arc movement respectively), whereas the handshape and location stay the same. The fourth minimal pair is distinguished solely by mouthing of the word bäpi or teacher (see 5.3 for information about the nonmanual parameter), whereas the manual components of the signs are identical.

The preliminary analysis of YSL handshapes identifies the use of at least 33 phonetic handshapes (see Appendix I for illustration of all handshapes identified in the YSL data corpus). It is evident, that the set of phonetic handshapes in YSL is relatively small, if compared to DCSLs such as NGT with 70 phonetic handshapes (van der Kooij, 2002) or Auslan with 62 phonetic handshapes (Johnston & Schembri, 2007). Thus, sign languages may vary with respect to the number of handshapes found in the repertoire, similar to spoken languages varying in number of phones, discrete meaningless elements. Interestingly, all shared sign languages investigated to date such as PROVISL, AdaSL, KK or IUR report a rather small set of phonetic handshapes (Washabaugh, 1986; Nyst, 2007; Marsaja, 2008; Schuit, 2012) (see chapter 12 for a discussion). Kendon (1988) distinguished 41 contrastive handshapes, but not all of these were shared by all of the NCD sign languages he studied. More detailed comparison between YSL and NCDSLs in this respect thus appears to be very useful.

It is quite likely that a set of phonemic handshapes in YSL compiled on the basis of contrastiveness will be considerably smaller than 33 handshapes. Many of the 33 handshapes (see Appendix I) should rather be considered allophones of the same phoneme and not separate phonemes. This is particularly true for handshapes that differ in realization: lax vs. tense realization as shown in Figure 17. However, a more in-depth contrastive phonological analysis remains to be undertaken to reveal whether such handshapes are phonemes of YSL or variant handshapes, which differ non-contrastively from each other.

Figure 17. Tense vs. lax realization of two YSL handshapes
As shown in one minimal pair in Figure 16, YSL signs can be distinguished by the handshape feature. Nevertheless, considerable variation in handshape was noticed in different YSL tokens of the same sign used by the same signer. One example is shown in Figure 18. The variant in (a) is articulated with the Ø handshape, the variant in (b) is signed with the Blax (see Figure 17) handshape and the variant in (c) is produced with the ß handshape. Data addtionally show that it is also possible to sign GAPU ‘water’ with the ß handshape, which is not represented in Figure 18.

5.1.1. Basic handshapes

Previous research on sign language phonology (Battison, 1978; Klima & Bellugi, 1979; Sandler & Lillo-Martin, 2006) identifies that certain handshapes are more marked than others. The less marked handshapes in a sign language are referred to as basic or unmarked handshapes, which are found as being:

1. the most frequently occurring of all handshapes across different signs;
2. used by the non-dominant hand in non-symmetrical signs according to the Dominance Condition;
3. the first to be acquired by children;
4. universal, i.e. found in all natural sign languages described so far;
5. “maximally distinct, basic geometrical shapes”;
6. the easiest to articulate (so that aphasics make fewer errors articulating these handshapes) (Battison, 1978).
In the following subsections, I will mainly draw upon the criteria (1)–(2) in order to identify the basic handshapes in YSL. Thus, I focus on the most frequently occurring handshapes in the data and those used by the non-dominant hand in non-symmetrical signs.

5.1.1.1. Token frequency

According to the frequency criterion in (1) above, eight the most frequent handshapes have been identified in the YSL corpus (see Figure 19). These are İş (Index), Blax, (Bopen), (Bcurved), (A), (B), (5) and (V) handshapes. As can be seen in Figure 19, these eight frequent handshapes account together for 98% of tokens (n=3955). Other handshapes occurring in the data account for only 2% of all signed tokens in the YSL data corpus.

According to the results presented in Figure 19, İş is the most frequent handshape accounting for 27% of all YSL tokens in the data. The handshape is consequently the least frequent one occurring in only 2% of all YSL tokens of the collected data.

![Figure 19. Relative frequency of the phonetic handshapes based on tokens (n = 3955)](image-url)
5.1.1.2. Type frequency

The analysis based on the YSL sign types (n=688 signs) shows that the majority of the YSL signs (94%) in the corpus are produced with one of the eight handshapes in the following order: \( \text{Index} \), \( \text{Bopen} \), \( \text{B} \), Blax, \( \text{A} \), \( \text{Bcurved} \), \( \text{5} \) and \( \text{O} \) handshapes.

![Graph showing relative frequency of phonetic handshapes](image)

*Figure 20. Relative frequency of the phonetic handshapes based on types (n=688)*

5.1.1.3. Non-dominant hand frequency

On the basis of the second criterion presented in (2) above (use by the non-dominant hand in non-symmetrical signs according to the Dominance Condition), the seven following handshapes were identified (see Figure 21). The handshapes Blax, \( \text{A} \), \( \text{Bopen} \), \( \text{Index} \), \( \text{5} \), \( \text{C} \) and \( \text{O} \) were used most often by the non-dominant hand in non-symmetrical signs in the YSL data corpus (see 5.2 for the information about the two-handed YSL signs).
No information on the acquisition of YSL is yet available, so criterion (3) as well as further criteria (4)–(6), cannot be applied to YSL in this study for identification of basic handshapes. Thus, based on the first two criteria, the following four handshapes can be regarded as the unmarked or basic ones in YSL: \(\text{Index}\), Blax, \(\text{Bopen}\) and \(\text{A}\).

However, the number of the above proposed four unmarked handshapes in YSL can be further limited to three basic handshapes in YSL (see Figure 22). This follows from the fact that the handshapes \(\text{B}\), Blax and \(\text{Bopen}\) were very difficult to differentiate from each other during the transcription. The analysis suggests that these three handshapes should be rather considered as allophones, i.e. variants of the same handshape rather than three separate handshapes. Various YSL sign tokens of the same type can be found in the data with Blax as well as with \(\text{Bopen}\) or \(\text{B}\) handshape. The distinction between these three handshapes is, therefore, not phonemic but allophonic, i.e. not lexically contrastive as there is no minimal pair in which the three handshapes could contrast. Based on this observation, I conclude
that the following three handshapes shown in Figure 22 can be identified as basic in the available YSL data.

![Figure 22. Basic handshapes in YSL](image)

Current findings provide evidence for a set of these three basic handshapes in YSL based on such parameters as frequency and the shape of the non-dominant hand in two-handed signs.

For ASL and ISL the following set of unmarked shapes based on the same properties is reported: \( \text{Sandler & Lillo-Martin, 2006, p. 161} \). Battison (1978) additionally considers \( \text{c handshape as an unmarked shape. For BSL the most basic handshapes are } \text{Sutton-Spence & Woll, 1999, p. 162} \). The following six basic handshapes were identified for KK: \( \text{Marsaja, 2008; De Vos, 2012, p. 80} \). As one can see, there is a variation in the quality and quantity of the proposed basic handshapes across various sign languages. One notices however, that \( \text{c (C) and } \text{O) handshapes are relatively infrequent in YSL (see Figure 21) if compared, for example, to ASL or BSL. Similar findings have been reported for AdaSL (Nyst, 2007). These hand configurations are often used in Western DCSLs as initialized handshapes, i.e. handshapes taken from the hand alphabet for letters C and O. Given that many village signing communities lack school education for the deaf (see section 2.3 for the sociolinguistic context of village sign languages), the influence from the written language is less apparent in these sign languages. Thus, the scarcity of manual alphabet handshapes such as \( \text{c (C) and } \text{O) appears to be a structural similarity among many shared sign languages.}

### 5.1.2. Marginal handshapes

The previous section shows that some handshapes in YSL are very frequent in the corpus and, thus, can be considered more basic or unmarked than the others. This section displays some less frequent handshapes. The majority of these handshapes account for 2% of all YSL tokens in the data corpus (see Figure 19). A sample of infrequent handshapes is depicted in Figure 23 below (see Appendix I for more infrequent handshape illustrations).
Some of these handshapes, including handshapes referred to as X, Nyoka, Aopen and Claw occur in less than one percent of all the YSL signs in the data collected for this study. This small percentage reflects the fact that each of these handshapes occurs only in one particular sign in the dataset.

Handshape X, for example, occurs only in the sign **warrnyu** ‘flying fox’ shown in Figure 24.

The handshape Nyoka is used exclusively in **nyoka** ‘crab’ as depicted in Figure 25, the handshape Aopen is only produced in **wäyin** ‘fresh-water-turtle’ and the handshape (Claw) occurs in the sign **dhidga** ‘to die’ (see
Figure 25). These handshapes may be considered marginal or marked but still relevant to the phonological system because they occur in the core lexicon of YSL.

Other infrequent handshapes in the data corpus were only found in number signs. Such number-related handshapes presented in Figure 26 are referred to here as 2, 3, 3reverse, 4, 4open, I and W handshapes.

5.2. Sign types: preference for one-handedness

This section describes the YSL sign types and demonstrates YSL’s adherence to phonological constraints governing two-handed signs (such as Symmetry & Dominance Conditions). Moreover, this section shows that YSL is quite peculiar with regard to the frequency of non-symmetrical two-handed signs.

Signs are distinguished by use of one versus two hands. Compare a one-handed YSL sign MIYALK ‘woman’ with a two-handed sign YOTHU ‘child’ (cf. Figure 27).
Battison’s (1978) typology of sign types was originally based on ASL phonology but it was found to be relevant to the phonologies of other sign languages as well. All four sign types described by Battison (see (1)) were also found in the YSL data.

One-handed signs such as MIYALK ‘woman’ represent Type 0 (Battison, 1978). Whether a one-handed sign is performed with the right or left hand does not appear to have an impact on its intended meaning. The variance from right to left-hand use of Type 0 signs is only dictated by the signer’s preference, and characteristically signed with a dominant hand.

Since the early days of the sign language research (Stokoe, 2005 [1960]), the two-handed signs were considered more complex. Three types of two-handed signs are distinguished in the sign languages literature based on the Symmetry and Dominance constraints formulated by Battison (1978):

The Symmetry Condition states that (a) if both hands of a sign move independently during its articulation, then (b) both hands must be specified for the same handshape, the same movement (whether performed simultaneously or in alternation), and the specifications for orientation must be either symmetrical or identical.

The Dominance Condition states that (a) if the hands of a two-handed sign do not share the same specification for handshape (i.e., they are different), then (b) one hand must be passive while the active hand articulates the movement and (c) the specification of the passive handshape is restricted to be one of a small set: A, S, B, G, C, O.

(Battison, 1978, pp. 33–35)
As listed in (1) below, the two-handed signs are organized into three types according to their complexity.

(1) Battison’s four types of signs

Type 0: one-handed signs – e.g. MIYALK ‘woman’

Type 1: two active hands with the same handshape performing the same movement – e.g. YOTHU ‘child’

Type 2: two-handed signs with one dominant and one non-dominant hand, both with the same handshape – e.g. GUṉḏA ‘rock, stone’

Type 3: two-handed signs with a dominant and non-dominant hand, each having a different handshape (according to the Domi-
nance condition) – e.g. RRUPIYA ‘money’

In Type 1 as in sign YOTHU ‘child’ (see Figure 27) both hands are active and equally dominant. I call these signs here symmetrical signs. Type 2 and Type 3 signs as shown in Figure 28, in which only the dominant hand functions as articulator, are referred to as non-symmetrical signs here (see Figure 29). Thus, for preliminary examination of YSL sign types, I chose to focus on two types: symmetrical and non-symmetrical ones (see Figure 29 below).

Figure 28. Two-handed signs in YSL

The finding worth highlighting is the uneven distribution of one-handed vs. two-handed signs in the YSL data corpus. As can be seen in Figure 29, the majority of all YSL signs (66%) were articulated with one hand (Type 0 signs), while approximately only a third of all YSL signs (34%) were
performed with both hands (i.e. Type 1, Type 2 and Type 3). The preponderance of one-handedness was also noticed by Kendon (1988) as he studied NCDSLs.

A propensity toward one-handed signs in YSL is striking as compared to Deaf community sign languages. The recent survey of BSL lexicon reveals, for example, that “there are many more two-handed signs than there are one-handed signs” (Sutton-Spence & Kaneko, 2007, p. 290). While in YSL, 66% of all signs are one-handed and 34% of all signs are two-handed signs (see Table 6 for comparison), in BSL lexicon, the researchers observed percentages, which present the mirror image of this YSL finding: one-handed signs – 37%, two-handed signs – 62%.

Table 6. The percentage of one vs. two-handed signs in YSL and BSL

<table>
<thead>
<tr>
<th></th>
<th>YSL</th>
<th>BSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-handed</td>
<td>66%</td>
<td>37%</td>
</tr>
<tr>
<td>Two-handed</td>
<td>34%</td>
<td>62%</td>
</tr>
</tbody>
</table>

In my analysis of the YSL data, the majority of the two-handed signs (91%) were symmetrical signs as in the example YOTHU ‘child’ (see Figure 27). Only 9% of all two-handed YSL signs were identified as non-symmetrical. A comparison shown in Table 7 reveals that while in BSL only the half of the analyzed signs are symmetrical, in YSL symmetrical signs clearly outnumber the non-symmetrical ones.
Table 7. The percentage of symmetrical two-handed signs in YSL and BSL

<table>
<thead>
<tr>
<th></th>
<th>YSL</th>
<th>BSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symmetrical</td>
<td>91%</td>
<td>53%</td>
</tr>
<tr>
<td>Non-symmetrical</td>
<td>9%</td>
<td>34%</td>
</tr>
</tbody>
</table>

It is worth mentioning that in 90% of all non-symmetrical two-handed signs in YSL (cf. Figure 29), the non-dominant hand functions as a place of articulation as in rrupiya ‘money’ (cf. Figure 28). There is only a handful of two-handed signs in which the non-dominant hand does not function as the place of articulation as in the sign OPEN-CL:BOTTLE in Figure 30. Such signs are all polymorphemic, where both hands appear to articulate signs independently. Similar signs have been found in other sign languages and have been termed elsewhere as two-hand complexes (Schmaling, 2000).

In summary, more than a half of the YSL signs are performed with one hand (66%). If the sign is two-handed, it is very likely to be a symmetrical sign, in which the non-dominant hand has the same handshape as the dominant hand and moves either in similar (as in YOTHU ‘child’ in Figure 27) or in alternating pattern (as in the sign WARRNYU ‘flying fox’ in which both hands move up and down in alternating manner, Figure 31). In case of non-symmetrical two-handed signs, the non-dominant hand in YSL is most likely to serve as a place of articulation only as, for example, in the sign RRUPIYA ‘money’ (see Figure 28).
In his analysis of NCD sign languages, Kendon (1988, p. 113) states that over 80% of all signs are one-handed. Based on this unimanual character of these sign languages, he puts these alternate sign languages in stark contrast to DCSLs exemplified by ASL, in which the distribution of one vs. two-handed signs is balanced. The findings from YSL presented here (cf. Figure 29) do show a tendency towards one-handed signs, as compared with other sign languages documented so far. In BSL, as already discussed, more two-handed than one-handed signs were observed accounting for 62% of all lexical signs in the dictionary (Sutton-Spence & Kaneko, 2007). In AdaSL and NGT one vs. two-handed signs are distributed equally: 52% - one-handed vs. 47% two-handed in AdaSL; 54% one-handed vs. 46% two-handed in NGT (Nyst, 2007, p. 68). Although the picture is not as clear as the one presented by Kendon (1988), the results of my analysis display a general preference of YSL towards one-handed signs and symmetry in sign types. Few cases of Weak Drop, one-handed realization of a two-handed sign (Padden & Perlmutter, 1987; Brentari, 2007), were observed in the available YSL data and if counted do not change the numbers based on the tokens presented above in a significant way. An example of a Weak Drop in YSL is shown in Figure 32. The underlying form of the sign YOTHU ‘child’ is two-handed, as shown in Figure 27. Only 4% of the tokens of this type in the data were articulated with one hand due to the assimilation to a one-handed environment or due to some extra-linguistic reasons73.

![Figure 32. An example of a weak drop in YOTHU ‘child’](image)
Hence, the data shows a clear preference of YSL towards one-handed signs. At this stage of research, no well-developed theoretical arguments can be offered to explain why this appears to be the case. It is interesting to note that YSL patterns with other alternate sign languages such as NCDSLs (Kendon, 1988) and Ts’ixa Hunting Sign Language observed in Africa (Fehn & Mohr, 2012), in which more than 80% of analyzed signs are one-handed.

5.3. Nonmanual markers

Nonmanual markers in sign languages are by definition any actions produced by a wide range of articulators other than hands: the head and the upper part of the body, the face including the mouth actions, the eyes, the eyebrows, the cheeks, the head and the shoulders (Herrmann & Steinbach, 2011). Recent sign language research shows that the nonmanual components in sign languages express a wide range of functions on the following linguistic levels: phonological, prosodic, lexical, morphosyntactic, semantic, pragmatic and discourse levels (Boyes-Braem & Sutton-Spence, 2001; Neidle, et al., 2000; Zeshan, 2004ab; Crasborn, et al., 2008; Dachkovsky & Sandler, 2009; Pfau & Quer, 2010; Herrmann & Steinbach, 2011, among many others). Nonmanuals may mark adverbial modification, sentence types (declarative, interrogative, imperative or conditional), reported speech, negation, indicate structural units such as topic and focus, and express agreement or modify a noun. There is a general agreement in the sign language literature that nonmanual markers represent an integral part of the grammatical system of signed languages and some of them can be compared to intonation in spoken languages (Dachkovsky & Sandler, 2009; Pfau & Quer, 2010).

The use of nonmanuals in YSL is especially interesting since other elaborate alternate sign languages have been claimed to make little or almost no use of nonmanual parameter (see Kendon, 1988, pp. 97, 100, ff. for NCDSLs and Bakker, 2012ab for PISL). This section examines a few examples of the range of nonmanuals that are available to the YSL signers and shows that they play an important role in sign production. I will focus on the lexical and grammatical functions of nonmanual markers in YSL.

5.3.1. Mouth gestures

Nonmanual components are recognized as an integral, formative part of certain signs in sign language. In such cases, a nonmanual is a part of the
sign’s phonological description just as other phonological formational categories of hand configuration, location and movement (see section 5.1 for explanation) (Pfau & Quer, 2010, p. 2). In the Israeli Sign Language example in Figure 33, a nonmanual marker is phonologically significant: the sign AWESOME is accompanied by the obligatory facial expression (furrowed/squinted eyes and pursed lips).

Similarly, a number of YSL signs are obligatorily accompanied by a nonmanual marker. For example, the YSL sign MÄNA ‘shark’ as shown in Figure 34 is always accompanied by a repetitive headshake and a protruded tongue.
YSL signs that never occur without a particular nonmanual are for example the ones shown in Figure 35.

Signs shown in Figure 35 are articulated with accompanying mouth actions, commonly referred to as mouth gestures (Boyes-Braem & Sutton-Spence, 2001). Mouth gestures are considered to be unrelated to the surrounding spoken language and are organized into three subtypes according to their properties such as: adverbials, echo phonology and enaction (Crasborn, et al., 2008; Woll, 2009).

In previously studied alternate sign languages no use of mouth gestures has been reported. In NCDSLs, this has to do with the immobilization of the mouth (Kendon, 1988). A Warlpiri woman observing the speech taboo does, however, accompany her signing with characteristic kind of “grunting”, which seems to imitate certain emphasis uses of voicing in speaking. A kind of grunted or “hummed” prosody may be heard while signing.

In YSL, mouth gestures are used quite frequently. An example of an adverbial mouth gesture in YSL is shown in Figure 36. The mouth expression
specifies adverbial information (manner and degree) to indicate that the object is small.

Examples of an enacting mouth gesture in YSL are an open mouth in the sign DATHA ‘food’ or blowing of air in GURTHA ‘fire’ (see Figure 35), where the mouth actions perform the ‘eating’ and ‘air blowing’ actions respectively. In echo phonology, the mouth gesture echoes the hand actions “in terms of onset and offset, dynamic characteristics and direction and type of movement” (Woll, 2009, p. 210). No such mouth gesture has been identified in the YSL dataset. Consider a frequently cited BSL sign DISAPPEAR in Figure 37 for an example of an echo phonology mouth gesture.
In this case (cf. Figure 37), the “manual components of the sign (a closing movement and abrupt final stop) are echoed on the mouth by an inter-dental fricative followed by a bilabial stop” (Crasborn, et al., 2008, p. 49).

5.3.2. Mouthings

Mouthings are the second type of mouth actions, which has its origin in the surrounding spoken language (Boyes-Braem & Sutton-Spence, 2001). Mouthings are the movements of the mouth corresponding to the spoken word of the surrounding language. For example, consider the DGS sign BRUDER ‘brother’ shown in Figure 38, which is accompanied by a silent or voiced articulation of the German word Bruder. In this example, mouthing disambiguates this sign from the manually identical sign SCHWESTER ‘sister’.

In YSL mouthings also possess an important disambiguation function. The sign for ‘snake’ and ‘Balanda’ have identical manual components and are distinguished from each other only by the mouthing bēpi and balanda respectively (see Figure 16).

Mouthings in YSL appear to substitute lexical variation in Wh-questions (see 6.2 for information about Wh-questions in YSL). YSL has a minimal question word paradigm with a single general question sign similar to IPSL (Aboh, Pfau, & Zeshan, 2005). Various wh-question words in YSL are distinguished by mouthings (see also Meir (2004) for the same function of mouthings in ISL).

There is considerable variation in the use of mouthings between different signers of a particular sign language and different sign languages in general. In
Nonmanual markers

IPSL, women are said to generate more voiced mouthings than men (Zeshan, 2000, p. 43). Pfau and Quer (2010) attribute the frequency of mouthings to a subject’s exposure to the spoken language. Their claim is supported by my analysis of the YSL data. Hearing YSL signers tend to use much more (voiced) mouthings than deaf signers. One deaf signer (10 year-old boy), who participated in this study, used almost no mouthing in his signing. As he has just started going to school, this observation implies that education has a significant impact on the use of mouthings (Pfau & Quer, 2010). An obvious difference between hearing and deaf YSL signers is the use of the inflected mouthings by the former participants of the study. As shown in (1) during the sign production, spoken words are produced with their own morphology, i.e. case suffixes.

(1) \[ \text{yothu} \quad galkirrin \quad \text{mutikanjur} \quad \text{[YSL]} \]
\text{YOTHU} \quad GALKIRRI \quad MUTIKA
\text{child} \quad \text{fall-down} \quad \text{car}

‘A child fell from the car’.

The use of inflected mouthing is reportedly not infrequent in DCSLs such as ASL (Emmorey, Borinstein, & Thompson, 2005). Such bimodal utterances, i.e. utterances including both speech and signing, frequently appear in the YSL corpus. A high proportion of such ‘composite utterances’ has also been observed in other alternate sign languages (Kendon, 1988, p. 298, ff.; Green, Woods, & Foley, 2011, p. 78). At the same time, (voiced) mouthings accompanying YSL signs are not necessarily words from the surrounding spoken language with the corresponding meaning. As shown in (2), in many instances mouthings of words balanya or bitja are produced, which appear to emphasize the use of a particular sign to the interlocutor. They are referred to here as emphasis mouthings. Consider the example in (2).

(2) \[ \text{nhe} \quad \text{bitjan} \quad \text{balanya} \quad \text{unjnhu} \quad \text{[YSL]} \]
\text{IX.PRO\textsubscript{2}} \quad \text{RIRRIKTHU} \quad \text{MÄRI} \quad \text{IX.PRO\textsubscript{2}}
\text{2SG} \quad \text{sick} \quad \text{mother’s mother} \quad \text{2SG}

‘Your grandmother is sick’.

In (2) the sign RIRRIKTHU ‘to be sick’ is accompanied by the voiced mouthing of a verbal determiner bitja- ‘do, be thus’ with an appropriate
verbal inflection. This emphasis mouthing appears to have two functions: (i) to attract the attention of the addressee to the manual sign itself (in case of hearing YSL users) and (ii) to determine a word class in an utterance. Consider the next sign MÄRI ‘mother’s mother’ which is accompanied by the voiced mouthing of a general nominal determiner balanya ‘such, this’. Mouthing of the nominal determiner balanya occurs with nominal signs such as kin terms, places, food etc. and mouthing of bitja usually accompanies various verbs such as sit, stand, go and so on.

The frequency of mouthings in the dataset was not quantified for this study. Overall, the proportion of the bimodal utterances in YSL appears very high.

5.3.3. Head movements

This section examines the use of other phonological or lexical nonmanual markers in addition to the mouth actions (i.e. mouth gestures and mouthings described in the previous sections), which are specified in the lexical entry of a YSL sign. In particular, I will focus here on the head movements in the lexical sign with the meaning ‘to sleep, exist, stay’ and two negative particles found in the YSL data.

5.3.3.1. SLEEP vs. EXIST

An interesting case of lexically or phonologically specified head movements is attested in one YSL sign, which can mean both ‘to sleep’ and ‘to exist/lie down’. The sign was originally glossed using Djambarrpuyuŋu as ĐORRA in the corpus. The manual articulation of sign (see Figure 39) is accompanied by the nonmanual head tilt towards the palm of the hand(s). This sign can be articulated with one or two hands, although this sign with the meaning ‘to sleep’ was produced with two hands more often than the same sign with the meaning ‘to exist, stay’.

The nonmanual marker occurring with this sign is very similar to the one reported for other sign languages in the sign for SLEEP: one hand is brought to the side of the head as if supporting it (Pfau & Quer, 2010) (cf. Figure 39). What is interesting in the case of YSL is that the intensity and the angle of the head tilt may define a minimal pair. Upon further analysis, it became clear that the nonmanual marker is specified in the lexical entry of this sign and, thus, differentiates between the two meanings. As a result, the verbs were
glossed as exception in English as SLEEP and EXIST, because Djambarrpuyŋu does not make this difference. Figure 39 shows the sign SLEEP, in which the YSL signer notably and slowly tilts the head towards the shoulder as if showing the position of the head while sleeping (see example in (3)).

\[
\text{Figure 39. YSL sign SLEEP}
\]

(3) \( \text{DIRRAMU} \quad \underline{\text{SLEEP}} \quad \text{IX.PRO}_{3\text{a}} \quad \text{DIRRAMU} \quad [YSL] \)

\[
\text{man} \quad \text{sleep} \quad 3\text{SG} \quad \text{man}
\]

‘The man is sleeping’

Sequence8_13JUL_E2_2010.mpg

Figure 40 illustrates the minimal head tilt, which always accompanies the sign EXIST. In (4), for example, the YSL signer’s head is slightly tilted to his right shoulder in a quick and unnoticeable manner.

\[
\text{Figure 40. YSL sign EXIST}
\]

(4) \( \text{DALL.EXC} \quad \underline{\text{EXIST}}_{3\text{a}} \quad [YSL] \)

\[
\text{DU.EXC} \quad \text{stay-here}
\]

‘We (he and I) are staying here.’

Sequence05_10JUL_Mapuru3_2010.mpg

A detailed analysis of all occurrences (n=53) of this manual sign in the YSL data confirms the distinction between different head tilts: extensive head tilt always accompanies the sign SLEEP and the slight head tilt always occurs on
the sign *exist*. These examples support the assumption that this nonmanual marker has phonological significance. Notice that the endpoints of the verb *exist* may be spatially modified, i.e. it can be moved and/or oriented towards various locations as shown in (4) (see 9 for an extensive discussion of the optional spatial modification of YSL verbs), whereas the verb *sleep* is never modified in space. This finding further validates the distinction of these two lexical signs.

5.3.3.2. **BÄYDU vs. YAKA**

Another interesting example of nonmanuals belonging to the phonological description of the YSL signs is found in two negative particles BÄYDU and YAKA (for description of negation in YSL see chapter 6.1). This section is focused on the different head movements, which accompany the negative particles in YSL.

Head movements have been generally reported to accompany negative particles in various sign language documented to date (Pfau & Quer, 2010; Zeshan, 2004a). Two different head movements are attested in the YSL data occurring on the two negative particles BÄYDU and YAKA with a combination of facial expressions such as lowered eyebrows, nose wrinkling, pulling down the corners of the mouth and mouthing. These are (i) a repeated side-to-side head movement (see Figure 41), (ii) a single sideward head tilt (see Figure 42).

![Figure 41. YSL negative particle yaka](image-url)
A careful examination of 93 instances of negative particles in the YSL data remarkably reveals that they are lexically specified for these two kinds of head movements. My preliminary analysis suggests that the negative particle YAKA is accompanied by the repeated side-to-side headshake (hs) in 76% of all instances in the corpus (n=47). As can be seen in Figure 41, the side-to-side headshake is usually combined with the lowered or furrowed eyebrows (le) and nose wrinkling.

The negative particle BÃYDU, which includes two hands rotated from palm down to palm up as shown in Figure 42, is accompanied by the single sideward head tilt (ht) in 78% of all instances in the corpus (n=46), a distinctive mouth gesture (corners of the mouth are down) and mouthing.

There is not enough information in the data to conclude whether the facial expressions described above must accompany negative particles in YSL. However, there is evidence to support the use of the described nonmanual markers paired with the corresponding negative particle. Thus, YAKA appears to be accompanied by the side-to-side headshake, whereas BÃYDU is never used with this nonmanual in the data, but is rather accompanied by the single sideward head tilt with the corners of the mouth being pulled down (see Figure 42). Due to the combination of nonmanual markers occurring with the negation BÃYDU, this sign is easily distinguished from the general Wh-question sign, which has the same manual components but never appears with the corners of the mouth pulled down (see 6.2.3 for an example and more information about nonmanual marking in YSL interrogatives).
5.4. Summary

The primary findings on YSL phonology highlight the relatively small set of phonetic handshapes, which is similar to the handshape sets found in other documented shared (Nyst, 2012) and alternate sign languages (Kendon, 1988). With respect to the handshape formation, considerable variation has been identified in the data set, which has also been reported for other rural signing varieties (Israel & Sandler, 2009). Furthermore, as discussed earlier, the YSL signs tend to be one handed; two-handed signs are relatively rare in the data similar to certain other alternate sign languages (Kendon, 1988). Notably, it has been shown that nonmanual markers play an important role in YSL. Mouthings are found to have various significant functions, such as disambiguation and emphasis. Potentially YSL signing exhibits a great amount of (voiced) mouthings making the utterances multimodal, i.e. including both speech and sign. Finally, different facial expressions have been observed in YSL to compliment various negative particles. This finding suggests that nonmanual markers play an important role in Yolngu Sign Language.