Title

Mouthing constructions in 37 signed languages: typology, ecology and ideology

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Abstract

The descriptive contribution of this paper is a typology of mouthing constructions in 37 signed languages and an analysis of the ideologies and resources that affect their documentation. The languages are divided into two categories labelled *deaf* (n=26) and *rural* (n=11), that are defined based on socio-historical/-cultural properties, but which have been problematised for their conflation of multiple linguistic ecologies (Kusters 2009: 200; Nyst 2012; Reed 2019; Safar 2020). The analysis is used to argue that phenomena like mouthing are marginalised in documentation, as opposed to marginal, and that the deaf-rural divide tracks differences that are more related to issues of documentation than contexts of language use and emergence. The Semiotic Repertoires approach (Kusters et al. 2017) is used to motivate the unit of analysis, the mouthing construction, and Uniformitarianism in Creole linguistics (Mufwene 2000; DeGraff 2005) is used as a lens onto signed language typology.

Keywords: typology, mouthing, signed languages, documentation

1. Background

1.1 Introduction

The identification of causal relations between social and linguistic properties is a central issue in the study of language contact and has also been identified as pressing in signed language typology. In the latter, two groups have been distinguished – *deaf* vs. *rural* signed language; however, this binary generalises across multiple different linguistic ecologies and conflates them. Critical to any discussion of causality and typology is language documentation since cross-linguistic generalisations depend on it. Before getting to the point of identifying causal relationships, the state of the literature on deaf and rural signed languages must be assessed. This is done by targeting a marginalised phenomenon in signed languages, *mouthing*. Mouthing is an example of a multimodal contact phenomenon and refers to movements of the mouth that index specific, synchronic spoken language words. Stated more simply, mouthings are mouth movements in signed languages that mimic all or part of the articulation of a spoken word form. Mouthing is particularly illustrative because it is a linguistic feature which has been marginalised in signed language documentation. As such, it lays bare issues around how language ideologies influence documentation.

This paper is organised as follows. Section 1.2 argues that mouthing is part of the language practices of signers identifies the mouthing construction as the unit of analysis using the Semiotic Repertoires approach (Kusters et al. 2017). Section 1.3 discusses language groupings and linguistic structure using the Uniformitarian perspective on Creoles (Mufwene 2000; DeGraff 2005; Aboh 2016; Szeto, Lai & Ansaldo 2019; Smith 2021: 20) as a lens onto signed language typology. Section 1.4 identifies issues in connecting social properties to linguistic ones using top-down categories; Section 2 presents the sample and method; Section 3 defines the 4 mouthing constructions investigated. Section 4 summarises how these constructions are enumerated across signed languages with accompanying examples and data when available. Section 5 situates the numbers in Section 4 in the ideologies and resources involved in documentation. Section 6 discusses Sections 4 and 5 with respect to the deaf-rural divide and identification of causal links and Section 7 concludes the paper.

1.2 Mouthing is part of the language practices of signers

Mouthing refers to movements of the mouth that index specific, synchronic spoken language words. The status of mouthing in signed language grammars is unresolved due to variation in production and ideology across and within signed languages and differences in analysis. On the first point, mouthing varies based on level of exposure to oralist education (Luna 2015), register (Nadolske & Rosenstock 2007), grammatical context (Penner 2013), and word class (Kimmelman 2009; Tkachman & Sandler 2013). Ideologies about their use vary as well. ASL signers are reported to view mouthing in ASL unfavourably while users of Deutsche Gebärdensprache (DGS, German Sign Language)¹, Lingwa tas-Sinjali Maltija (LSM, Maltese Sign Language), norsk tegnspråk (Bokmål)/norsk teiknspråk (Nynorsk) (NTS, Norwegian Sign Language) and Língua Brasileira de Sinais (LSB a.k.a. Libras, Brazilian Sign Language) do not have this perception about mouthing in their respective signed languages (Hoffmann-Dilloway 2013).

Secondly, linguists have analysed mouthing differently. The consensus is that they are linguistic, but what counts as linguistic is measured and defined differently². In Auslan³ and Lingua dei Segni Italiana (LIS, Italian Sign Language), mouthing is described as code-blending⁴ and code-mixing respectively and explicitly placed outside of signed language grammars (Johnston, van Roekel & Schenck 2016; Giustolisi, Mereghetti & Cecchetto 2017). In other studies, mouthing is analysed as part of signed language grammars because they behave like phenomena that are thought to be linguistic (Crasborn et al. 2008; Lin 2019). Lin (2019) shows that mouthing is necessary to identify the exact meaning of interrogatives in Zhōngguó Shǒuyǔ (pinyin) 中國手語 (simplified Chinese)/中國手語 (traditional Chinese) (CSL, Chinese Sign Language). Crasborn et al. (2008) argue that mouthing is linguistic in Nederlandse Gebarentaal (NGT, Sign Language of the Netherlands), British Sign Language (BSL) and STS because they spread across manual signing in a comparable way to mouth gestures which are considered linguistic.

The previous discussion shows some of the variability of mouthing and measures of qualifying as linguistic or part of a grammar that have been applied to mouthing. To do away with the question of whether mouthing belongs to particular languages or not, I adopt the Semiotic Repertoires approach (Kusters et al. 2017). This is a descriptive lens that “departs from the idea that languages are bounded [...] and that repertoires are merely linguistic (they are multimodal and embodied) [and] enables a holistic focus (addressing ideologies, histories, potential and constraints) on action that is both multilingual and multimodal” (Kusters et al. 2017: 220–221). This approach considers all elements that occur during communication to be relevant and is also found in other sub-fields. For example, Exemplar Theoretic approaches that assume storage of social information along with structural (Pierrehumbert 2001), and the Feature Pool approach to Creole formation that proposes competition among linguistic

¹ Sign language names will be handled in the following way: their first introduction in prose will take the following format: Local name (Acronym/Abbreviated name, Name in English) e.g., Svenskt teckenspråk (STS, Swedish Sign Language). After this, they will be referred to by their Acronym/Abbreviated name. Auslan is an exception (see footnote 5). Languages that are not mentioned in the prose e.g., in tables will only be referred to by their acronyms. See the list of Abbreviations for all sign languages mentioned in this paper and their acronyms.

² One caveat is that it is also possible that the observed variation is due to inter-language differences.

³ Auslan is a sign language of Australia. It is not referred to as Australian Sign Language to avoid erasure of other sign languages in Australia, like Yolngu Sign Language (YSL).

⁴ In the visual-gestural modality, the hands and face can operate independently of each other. *Code-blending* refers to language mixing that occurs simultaneously. An example would be using ASL on the hands while producing English words on the mouth (Emmorey, Borinstein & Thompson 2005).

objects from bounded languages (Mufwene 2000). The Feature Pool and Semiotic Repertoire approaches foreground multilingualism, but differ in their objects of analysis: in the Feature Pool approach, traditionally linguistic objects are analysed, e.g., words and affixes, while in the Semiotic Repertoires approach others are considered, e.g., gesture, mouthing, pointing, enactments, eye gaze (Kusters et al. 2017).

The Semiotic Repertoires approach makes it possible to position mouthing as part of the linguistic practices of signed language users, without making a claim about its linguistic status. This opens the possibility of capturing patterns in how semiotic resources combine that would otherwise be masked. The Semiotic Repertoire lens allows for identification of a multimodal unit of analysis, the mouthing construction, which is typically, but not necessarily a pairing of a mouthing and a manual form (see Section 5 for descriptions). “Multimodal”⁵ in this sense refers to potential *indexing* of mouthing with another modality, that of spoken languages since elements of mouthing constructions are not produced in different modalities (compare with multimodality in the sense of co-speech gesture).

1.3 Language groupings and linguistic structure

Language groupings in linguistics are often based on different criteria that differ in how tied they are to structural properties. Classic ways of grouping languages are based on historical relationship or areal spread. These kinds of groupings do not necessarily imply structural similarity among members but are nevertheless associated with it because of the possibility of continuity in temporal relationships and contact in areal relationships. Other approaches like those based on the socio-historical arm of ecolinguistics (see Haugen 1972/2006; Wendel 2005; Steffensen & Fill 2014 for more) also do not have the same continuity and therefore should not come with an assumption of structural identity.

Creoles provide an illustration of how assuming structural similarity based on language grouping can be misleading. They are a well-known grouping made on socio-historical properties (Thomason 1997; Mufwene 2000; DeGraff 2005) and for which there is no *a priori* reason to assume structural homogeneity (cf. McWhorter 1998; McWhorter 2001). This is supported by numerous empirical studies which show that Creoles differ from each other structurally. Another way of stating this is to say that there is no *a priori* reason to assume that languages labelled Creole and non-Creole form separate structural groups or are fundamentally different from each other (DeGraff 2005). This is the Uniformitarian position (Mufwene 2000; DeGraff 2005; Aboh 2016; Szeto, Lai & Ansaldo 2019; Smith 2021) (cf. McWhorter 1998 on the Creole Prototype; Bakker et al. 2011), which will be used as a lens onto signed language typology in this paper. Here I argue that because Creoles and signed languages are both minoritised in linguistics, the treatment of the former can be used as a lens onto the treatment of language groups within signed language typology.

1.3.1 Sign language typology

Signed languages are often grouped together in descriptions of various linguistic phenomena based on their shared modality, but should not be expected to be structurally homogenous because of this (Kimmelman & Börstell in press). Within signed languages, two major groups have been defined using a socio-historical/-cultural approach, analogous to the way Creoles and non-Creoles have been grouped. These groupings — *deaf* and *rural* — pick out two contexts of language emergence and acquisition (see Reed 2019 for overview). Note that these terms are labels and not a strict dichotomy; both language types are created and used by deaf people (as opposed to alternate signed languages). Languages labelled *deaf* (also called *urban* and *national* signed languages (Zeshan 2008)) are associated with most deaf children

⁵ “Multi-channel” would be a more accurate term.

being born into primarily hearing non-signing families⁶, urban centres where deaf people congregate at deaf schools or clubs, social minoritisation of deafness due to the presence of a larger non-signing spoken language community, and a deaf identity. In contrast to this, languages labelled *rural* (also called *village*, *shared* or *micro-community signed language* (Braithwaite 2020)) are that they are found in isolated areas of developing countries and, crucially, are associated with high levels of congenital deafness. Due to these factors, deaf children are more likely to grow up in an environment where hearing and deaf people often and can acquire a signed language from other signers from an early age.

The division between languages labelled deaf and rural has been rightly problematised for not accounting for the linguistic ecologies of individual languages (Kusters 2009; Nyst 2012; Reed 2019; Safar 2020) (see de Vos & Pfau (2015: 265) for an overview of 13 rural signed languages that shows their diversity in time depth and population). A similar kind of division is found in the Creole/non-Creole binary and is reflective of a more general pattern in linguistics, in which “the archetypal ‘village’ (as opposed to the ‘city’) has been popularly imagined as linguistically homogenous, [while] in reality small, remote communities may be sites of great diversity and connectedness” (Vaughan 2019: 92).

The labels “deaf” and “rural” are top-down categories that are imposed on certain kinds of languages and are likely to also reflect power and/or capital distribution and/or linguistic ideologies. They can be thought of as corresponding to prototypical ideas of global north vs. south and/or urban vs. rural. That is to say that languages labelled deaf may be typically associated with the global north e.g., American Sign Language (as used in the United States of America⁷), while those labelled rural may be typically associated with the global south e.g., Kata Kolok (KK) (Bali, Indonesia)⁸. These prototypical differences correspond with material differences since signed languages in the global north are likely to be documented more extensively than those in the global south. It is critical to understand these systematic differences in documentation, as they have the potential to confound investigations of the relationships between language groupings and linguistic form.

1.4 Connecting social factors to linguistic structure

Recall from the beginning of Section 1.3 that a guiding insight from the Uniformitarian perspective on creoles is that there is no *a priori* reason to assume that groups made based on socio-historical criteria are structurally homogeneous. This idea may appear to run counter to the finding that social properties do correlate with linguistic form (e.g., Wray & Grace 2007; Lurjan & Dale 2010; Trudgill 2011; Bentz & Winter 2013). In sign linguistics, various correlations have been made at different levels of granularity: languages labelled deaf are said to use base 10 numeral systems while those labelled rural are said to be more diverse (Zeshan et al. 2013), languages labelled rural are said to have smaller sets of colour and kinship terms and use space differently compared to those labelled deaf (de Vos & Pfau 2015). Additionally, the developmental cline approach suggests that languages labelled rural eventually develop the structural properties of languages labelled deaf (cf. Kusters & Hou 2020). The chain of reasoning behind these claims is outlined in Fig. 1.

⁶ Large deaf families e.g., in the US are known to have contributed to the emergence of deaf sign languages. Thank you to an anonymous reviewer for this point.

⁷ Note that varieties of ASL are used outside of the United States. Thank you to an anonymous reviewer for pointing this out.

⁸ Note that the global north-global south divide has to do with location of the signing community and not with level of documentation or affiliation of researchers. Sign languages that are likely to be considered prototypical are documented relatively well and affiliated with global north institutions. For example, research on KK, which is used in Bali, Indonesia in the global south, is conducted by affiliates of global north institutions (e.g., the Netherlands, the United Kingdom).

Figure 1: Schematic of how correlations are made between socio-historical/-cultural properties and signed language groups

The problem with this type of argumentation, as Uniformitarianism points out, is that no direct, causal links are made between the linguistic forms observed and the social conditions under which they are observed. This has already been identified as an important challenge in the study of rural signed languages (de Vos & Pfau 2015) 28/06/2022 11:17:00, but it is a general challenge applying to deaf signed languages too since both groups are heterogeneous. Generally, more research may be available for languages labelled deaf vs. those labelled rural, but that does not mean that they are well-understood⁹.

Mouthing, because of its connection to spoken languages, has been linked to social conditions within particular signed languages. Table 1 shows examples of links that have been made:

Table 1: Links between social contexts and mouthing

Language	Social Context	Outcome	Source
IrSL	Different educational practices in gender segregated schools	Gendered variation in mouthing	(Mohr 2014)
LSQ	In education before 1960, women had more exposure to French than men	Women educated before 1960 mouth more than men	(Luna 2015)
NZSL	Oralism ¹⁰	Presence of mouthing	(McKee 2006)
JSL	Shift to Oralism	Signers <80 mouth more	(Penner 2013)

These observations suggest that variation in use of mouthing is linked to differences in education and specifically name educational and social policies which prioritise oral over signed language as relevant. These studies measure mouthing in two different ways: amount (IrSL, LSQ, JSL) and presence of mouthing (NZSL). Based on this, a potentially relevant social factor associated with the presence of mouthing across signed languages might be deaf education. By extension, languages labelled deaf (as opposed to languages labelled rural) since could be more likely to have mouthing as they are typically associated with language emergence under contexts like deaf education. However, mouthing may also arise in contexts

⁹ An anonymous reviewer notes that it is a misconception that deaf sign languages are well-understood.

¹⁰ A heterogeneous set of practices that aim to teach deaf children spoken language and associated norms at the expense of sign language education.

of languages labelled rural through the simultaneous use of a spoken and signed language (known as *oralization* and *sign-speaking*¹¹): this is reported in Sivia Sign Language (LSSiv) and Al-Sayyid Bedouin Sign Language (ABSL) but not explicitly connected to mouthing in the literature (Kisch 2012; Clark 2017). Presence of mouthing, however, is only one measure. It may be differences in the form and function of mouthing or variety in mouthing constructions is different between languages labelled deaf vs. those labelled rural due to potential differences in contexts of language emergence and use.

To investigate potential connections between language labels and structure, it is necessary to first understand what has been documented about the structures in question and what impacts this documentation. This is because cross-linguistic generalisations are reflections of the data they are based on, and by extension, the documentation practices behind them. Mouthing is a good candidate for laying bare the influence of documentation practices because of its tenuous status in signed language grammars (see Section 1.2). Mouthing constructions are defined and enumerated at two levels of granularity: (i) presence of mouthing constructions and (ii) presence of type of mouthing constructions (Sections 3 and 4). Table 1 shows that previous work has focused on presence and amount of mouthing. The latter would be a useful measure but would require comparable corpora which does not exist for a diverse sample of languages; therefore, measures for which comparison across a broad range of languages is possible are prioritised. The documentation of mouthing is also reported on, specifically ideologies in language documentation and how kinds of documentation practices can elide certain kinds of mouthing constructions (see Section 5 for descriptions). This is done to contextualise the numbers found in Section 4, showing that differences in structural properties could be due to documentation practices and not necessarily differences in social properties.

2. Data and method

2.1 The sample and its limitations

The sample is a convenience sample of 37 signed languages, 26 of which are labelled deaf (70%) and 11 rural (30%) (see Fig. 2). This proportion closely parallels the proportion found in Glottolog 4.4 (Hammarström et al. 2021): 68% ($n=135$) labelled deaf and 32% ($n=56$) rural. Glottolog 4.4's categorisation of individual languages as either deaf or rural is far from perfect but is a useful starting point for this study since re-categorisation is outside of the present scope and expertise of the author — re-categorisation should be done by experts of individual signed languages (e.g., Reed 2019) and submitted to Glottolog. Additionally, and more importantly, since this study is meant to examine the deaf–rural divide as it is currently used, a pre-existing categorisation is more useful.

Aside from the investigative goals of this study, sampling from the categories of deaf and rural signed languages is a way of intentionally including under-studied languages. As is evident from Fig. 2, deaf and rural signed languages roughly align with the global north and south in this sample. Cross-linguistic approaches necessitate generalisation which can be particularly harmful to under-studied languages. Linguists should be cognisant of how they represent under-documented language since their representations may be the only impression outsiders have of such languages and can lead to exoticisation (Kusters 2009; Braithwaite 2020) and stereotyping. This is known to occur in linguistics, as exemplified by Creole Exceptionalism (DeGraff 2005). An extreme version of addressing this issue would be to exclude lesser-studied signed languages. However, this would translate into exclusion of many languages labelled rural and signed languages of the global south in comparative

¹¹ Thank you to an anonymous reviewer for mentioning this term.

research, is likely to deepen the divide between languages labelled deaf and rural and contribute to the continued elevation of signed languages associated with the global north in linguistics.

The sample is limited by the availability of descriptions of signed languages that explicitly mention mouthing. The data in this sample is primarily based on online sources written in English and is restricted to sources that explicitly mention mouthing. The type of data that these sources were based on e.g., corpus vs. elicited etc. was not controlled for since the goal was to include as many languages as possible; however, it should be noted that this is likely to produce differences in what structures are produced and reported.

Deaf and rural sign languages in sample

Figure 2: Deaf and rural signed languages in the sample (N=37)

2.2 Method

The search terms “mouth”, “mouthing” and “lip” were used to find potentially relevant sources. If the use of these terms matched the definition of mouthing in Section 1.2, the source was included. This is necessary since other actions of the face can be described using the same search terms. The sample is therefore biased towards those studies of signed languages that explicitly mention mouthing and is *not* representative of all signed language descriptions. While it could be that this method might lead to mouthing being overrepresented in this sample, lack of mouthing could be notable enough to warrant explicit mention, so the effect of this method in biasing the sample in a particular direction is not necessarily clear.

Within the sample, I determined if mouthing was used or not, and in what kinds of constructions it appeared in. These constructions are found in prose descriptions and in glossed examples of signed language use. More than 20 types are identified (see Appendix II). Four of the most common were selected for further investigation. They are relatively coarse-grained and defined such that they can potentially accommodate more specific types, which might be relevant for a particular language, and thus included in a grammar, but may

not be as helpful for a cross-linguistic comparison (see Sections 3.1-3.4 for details). The following coding categories are used: “1” for present, “0” for absent, “In” for inconclusive due to conflicting accounts in the literature and “?” for unreported.

3. Types of mouthing constructions

As mentioned, the presence of mouthing in general, and of four kinds of mouthing constructions: morpho-phonological, morpho-syntactic, congruent, and free (Sections 3.1-3.4), was investigated. Similar constructions and functions have been identified previously, but those studies are typically based on a much smaller number of languages (usually one) (e.g., Schermer 1990; Boyes Braem 2001; McKee 2007; Bank, Crasborn & van Hout 2011; Mohr 2012; 2014; Bank 2014). These categories, like the one in this study, pair mouthing and manual signs and make distinctions based on the phonological and/or semantic relationship(s) between the two. However, the categories for individual signed languages should not be assumed as fully applicable to other signed languages. For example, Mohr (2012: 97) typology of mouthing in IrSL is one of the most fine-grained systems identifying six types of mouthing construction but does not name mouthing constructions that do not involve manual signs, free mouthing, while Bank, Crasborn & van Hout (2011) and Bank (2014) do in their coding for NGT (see Section 3.4 and 4.5). The full definitions of the mouthing constructions in this paper are found in Sections 3.1-3.4 and reference Bank, Crasborn & van Hout (2011) Mohr (2012; 2014) and Bank (2014) where relevant.

3.1 Congruent

In congruent constructions (also called *standard mouthing* (Bank, Crasborn & van Hout 2011)), similar to Type 1 mouthing (Mohr 2012: 97) the mouthing has the same meaning as the manual sign. For example, in RSL, the manual sign, HOUSE, is accompanied by the mouthing corresponding to the Russian word for ‘house’ (1). The same phenomenon is seen in Jakarta Sign Language (BISINDO) (JakSL) in which mouthing of the Indonesian word for ‘cat’ occurs while producing the manual sign CAT (2). This mouthing may be part of the phonological representation of the sign and/or may be contributing to the perception of well-formedness in the signed language. In contrast to morpho-phonological mouthing (Section 3.2), the meaning of congruent mouthing constructions is independent — in other words, congruent mouthing does not get their meaning from being part of a paradigm.

- (1) dom (‘house’)
 CL:HIGH HOUSE CL:HIGH
 ‘There is a high building’ [RSL]
 (Bauer 2018: 12)
- (2) kucing (‘cat’)
 CAT
 ‘cat’ [JakSL]
 (Suwiryo 2013: 35)

3.2 Morpho-phonological

In morpho-phonological constructions (also referred to as *disambiguation* (Kuhn & Wilbur 2006; McKee 2006; Crasborn et al. 2008; Hendriks 2008; Bauer 2014; Lin 2019), similar to Type 2 mouthing (Mohr 2012; 2014), mouthing has a phonological role in differentiating signs that have the same manual form (cf. Ebbinghaus & Hessman 2001). In other words,

these constructions are identified by having group membership. Three kinds of morpho-phonological mouthing were identified: polysemous, initialised and homophonous.

1. *Polysemous mouthing*: the manual sign has a consistent form with a general meaning, with more specific, related meanings identified by mouthing. This kind of construction is, crucially, part of a family of constructions defined by similarity in meaning. The family relationship separates it from congruent, morpho-syntactic, and free mouthing constructions which can be thought of as stand-alone constructions. An example of this is AdaSL colour constructions that are formed by pairing an Akan mouthing for a colour word with a manual sign that has the same form across the class and the meaning of ‘sense’ (Nyst 2007: 93–94).
2. *Initialised mouthing*: the manual form is derived from the manual alphabet and is the first letter of a word from the ambient written language. Mouthing is used with this handshake to identify the exact word e.g. in Auslan, GEOGRAPHY, GENERATION, GARAGE and GOSFORD and HISTORY, HORNSBY and HURSTVILLE have the same (fingerspelled) form, G-G and H-H respectively, that are separated by mouthing (Johnston & Schembri 2007). In these groups of constructions, members share the same first letter and phonological form, but don’t necessarily have similar meanings, as with polysemous mouthing.
3. *Homophonous mouthing*: the manual signs happen to have the same form with the mouthing differentiating them e.g., BATTERY and AUNT in BSL (Perniss, Vinson & Vigliocco 2020). Mouthing of this type does not form families like polysemous mouthing but are phonologically related by chance.

3.3 Morpho-syntactic

In morpho-syntactic constructions (also called *complementation* and *simultaneous compounding* (Vogt-Svendsen 2001; Suwiryo 2013), similar to Type 6a (Mohr 2012)), the manual sign and the mouthing have independent, specific meanings that combine to form a complex morphosyntactic construction with a composite meaning. An example of this from JakSL (BISINDO) is shown in (3). Here, the manual sign CHILDREN is accompanied by the Indonesian mouthing *sama-sama* which corresponds to English *together*. The entire construction means ‘together with the children’. Another kind of morpho-syntactic construction is one in which the mouthing identifies the argument of a verb as in NGT where the sign *eten* (‘to eat’) can be accompanied by mouthing of *brood* (‘bread’) to mean ‘to eat bread’ (see (6)). Morpho-syntactic mouthing resembles Type 6a mouthing in Mohr’s (2012) typology which are defined as not having any semantic relationship with the manual sign but “add[ing] a nuance of meaning” (197); however, mouthing in morpho-syntactic constructions does not just add nuance, but propositional content.

(3) sama-sama (‘together’)

CHILDREN

‘Together with the children’

[JakSL]

(Suwiryo 2013: 135)

3.4 Free

In free mouthing constructions (also called *independent*, *solo* and *added mouthing* (Bank 2014: 91), not represented in Mohr’s (2012) typology), mouthing appears without an accompanying manual sign. Bank (2014) distinguishes between solo mouthing and added mouthing: in solo mouthing, the hands are at rest while in added mouthing the hands are in a transition period. This distinction is not made in this paper because it is unlikely to appear in more general grammatical descriptions. Free mouthing is unlike morpho-phonological and

congruent constructions in that the mouthing options are unlimited — technically any word can be mouthed in a free construction while in morpho-phonological and congruent constructions the mouthing options are limited by the meaning of the associated manual sign. In this sense, free mouthing resembles the mouthing component of morpho-syntactic constructions but is less phonologically constrained (in terms of the manual component) in that it does not co-occur with any manual sign.

4 Reporting of mouthing constructions across signed languages

4.1 Overview

Mouthing is reported in 36/37¹² languages in the sample. It is reported as absent in Idioma de Señas de Nicaragua (ISN, Nicaraguan Sign Language), KK and ABSL; however, note that there are conflicting reports about presence of mouthing in KK and ABSL. Based on the overall numbers, presence of mouthing does not appear to be fine-grained enough to show differences between languages labelled deaf and rural. Therefore, qualitative analysis of four kinds of constructions — morpho-phonological, congruent, morpho-syntactic, and free — is conducted (Sections 4.2-4.5). These sections show the number of signed languages for which each construction is present, absent, or unreported (see Tables 2, 3, 5 and 6) and the names of these signed languages, as well as any additional examples and details found in the literature.

4.2 Congruent mouthing

Table 2: Sign languages with congruent mouthing constructions

Type	Present	Inconclusive	Absent	(unreported)
Deaf	14 (ASL, BSL, DTS, IrSL, JakSL (BISINDO), KSL, LIS, RSL, NGT, NTS, NZSL, STS, TlD, YogSL (BISINDO))	1 (KK)	—	12 (Auslan, CSL, DGS, FinSL, HZJ, ISL, JSL, LIU, LSQ, MJNY, NZSL, TTSL)
Rural	2 (Adabi, LER)	—	—	7 (ABSL, BKSL, Konchri Sain, LSSiv, PISL, YMSL, YSL)
Total	16	1	—	19

In three languages (BSL, IrSL, LIS), congruent mouthing is reported to be the most common type of mouthing (Fontana 2008; Sutton-Spence 2007; Mohr 2014; Perniss, Vinson & Vigliocco 2020). In BSL 68% of manual signs are in congruent mouthing constructions (Perniss, Vinson & Vigliocco 2020: 4) and in NGT, the mean percentage of congruent mouthing for the 20 most frequent signs in the Corpus NGT is 72.9% (Bank, Crasborn & van Hout 2011: 257).

4.3 Morpho-phonological

Table 3: Sign languages with morpho-phonological mouthing constructions

¹² Two languages labelled rural with conflicting data, marked as In (*inconclusive*) in Appendix I, are marked as having mouthing.

Type	Present	Inconclusive	Absent	(unreported)
Deaf	21 (ASL, Auslan, BSL, CSL, DGS, DTS, FinSL, HZJ, ISL, JSL, KSL, LIS, LIU, LSQ, MJNY, NGT, NTS, NZSL, STS, TìD, TTSL)	—	—	3 (IrSL, JakSL (BISINDO), YogSL (BISINDO))
Rural	4 (AdaSL, Konchri Sain, LSSiv, YSL)	—	—	8 (ABSL, BSL, IUR, KaiSL, KK, RSL, YMSLs)
Total	25	—	—	11

Table 4 shows reporting of the three types of morpho-phonological constructions. The most prevalent by far was the polysemous type, which accounted for 88% ($n=22$) of the languages reporting morpho-phonological constructions.

Table 4: Distribution of types of morpho-phonological constructions in the sample

Type	Polysemous	Initialised	Homophones
Deaf	BSL, CSL, DGS, DTS, FinSL, HZJ, ISL, JSL, KSL, LIS, LIU, LSQ, NGT, NTS, NZSL, STS, TìD, TTSL	Auslan	ASL, BSL
Rural	AdaSL, Konchri Sain, LSSiv, YSL	—	—

The most reported lexical groups in which morpho-phonological constructions were reported are kinship terms ($n=6$: Auslan, BSL, DGS, ISL, LSSiv, NGT, STS) and *wh*-words ($n=9$: CSL, HZJ, ISL, JSL, LIU, NZSL, TìD, TTSL, YSL). Morpho-phonological constructions were also found in colour terms ($n=3$: AdaSL, Konchri Sain and NZSL) and kinds of animals.

4.4 Morpho-syntactic

Table 5: Sign languages with morpho-syntactic mouthing constructions

Type	Present	Inconclusive	Absent	(unreported)
Deaf	9 (BSL, FinSL, IrSL, ISL, JakSL (BISINDO), JSL, NGT, NTS, STS)	—	—	17 (ASL, Auslan, CSL, DGS, DTS, HZJ, IUR, KSL, LIS, LIU, LSQ, MJNY, NZSL, RSL, TìD, TTSL, YogSL (BISINDO))

Rural	1	—	—	9
	(AdaSL)			(ABSL, BKS�, KaiSL, Konchri Sain, KK, LSSiv, PISL, YMSLs, YSL)
Total	10	—	—	26

Thirteen instances of morpho-syntactic mouthing appeared in the literature and were analysed; illustrative examples are shown in (4-7). Note that a single example was defined as a pairing of a single mouthing and a single manual sign; therefore (5) counts as four instances of morpho-syntactic mouthing. In all but four of the examples collected, mouthing functions as a modifier of the manual sign it was being articulated with — either an adverb or an adjective (4, 5).

- (4) rød ('red')
 GENSER ('pullover')
 'red pullover'
 [NTS]
 (Vogel-Sørensen 2001: 22)

In the four other cases, the mouthing functioned as a participle (4), noun, verb (6) and object (7).

- (5) guardian frightened boy push
 ANGEL FEEL LITTLE BOAT
 Guardian feel frightened little boy push the boat [BSL]
 angel
 (Sutton-Spence 2007: 157)

- (6) brood ('bread')
 ETEN ('to eat')
 'eat bread'
 [NGT]
 (Crasborn et al. 2008: 48)

A similar example to (4), is found in AdaSL (7). In both cases, the mouthing is of a colour; however, in the AdaSL example, the meaning of the resulting construction is not additive as in (4) but is a metaphoric extension of "white hair".

- (7) white
 HAIR
 'old'
 [AdaSL]
 (Nyst 2007: 54)

4.5 Free

Table 6: Sign languages with free mouthing constructions

Type	Present	Inconclusive	Absent	(unreported)
------	---------	--------------	--------	--------------

Deaf	6 (Auslan, CSL, BSL, LIU, NGT, STS)	NTS	TiD	17 (ASL, DGS, DTS, FinSL, HZJ, IrSL, ISL, JakSL (BISINDO), JSL, KSL, LIS, LSQ, MJNY, NZSL, RSL, TTSL, YogSL (BISINDO))
Rural	2 (LSSiv, PISL)	—	—	9 (ABSL, AdaSL, BKSL, KK, KaiSL, Konchrisin, TUR, YMSLs, YSL)
Total	8	1	1	26

Free mouthing is generally unreported and when it is, it is infrequent in corpora. For example, in 358 minutes of Auslan, 20 different free mouthings are observed compared with 1314 lexical signs (Johnston et al. 2016: 19–21). In BSL, which is part of the same family as Auslan, approximately 1% of all mouthings are free (Sutton-Spence & Day 2001). In the unrelated NGT, free mouthing is reported in fewer than 12% of the 2,066 sentences examined (Bank 2014: 94–95).

Twenty-three concrete examples of free mouthing were found (see Table 7). In addition to these individual instances, Bank (2014) records examples of strings of free mouthing in NGT, as shown in (8).

- (8) *ja* ('yes') *klopt* ('right') *mooi* ('nice') *weer* ('weather')
- --- --- ---
- 'Yes, that's right, the weather was good' [NGT]
- (Bank 2014: 97)

These mouthings perform different functions: in Auslan, they are used to maintain cohesiveness and to disambiguate, while in NGT they are used to backchannel and to confirm propositions (Bank 2014: 96–97). Free mouthing is also reported as a fallback strategy when the hands are occupied in CSL and NTS, but in NGT it is also used when the hands are free (Bank 2014: 96–97; Lin 2019: 51). However, in NTS, the free mouthing that is used while the hands are occupied e.g., *vente* ('wait') while carrying bags, *hvem* ('who') and *fanden* ('damned') are not considered to be "acceptable signs" (Vogt-Svendsen 2001: 23). In contrast to this, in TiD "mouthing cannot be produced alone" (Dikyuva, Makaroğlu & Arik 2017: 111).

Table 7: Examples of free mouthing constructions in 6 signed languages ($N=23$)

Sign language	Free mouthing constructions	Reference
Auslan ($n=9$)	<i>but, for, just, maybe, I don't know, I think, no, yes, not true</i>	(Johnston et al. 2016: 22)
CSL ($n=1$)	为什么 (<i>wèi-shén-me</i>) ('why')	(Lin 2019: 51)

LIU (<i>n</i> =1)	existential <i>fi</i>	(Hendriks 2008: 65)
LSSiv (<i>n</i> =2)	mother, let's go ¹³	(Clark 2017: 139)
NGT (<i>n</i> =5)	<i>ja</i> ('yes'), <i>nee</i> ('no'), <i>december</i> ('December'), <i>nodig</i> ('necessary'), <i>woon</i> ('live-in'), <i>maar</i> ('but')	(Bank 2014: 98)
PISL (<i>n</i> =5)	<i>lie, bad, coffee, home, mango, mama, abuela</i> ('grandmother'), names	(Washabaugh, Woodward & DeSantis 1998: 98; Omardeen 2022: 96)

4.6 Summary

Figures 3 and 4 summarise reporting of presence of mouthing and presence of the four mouthing constructions under investigation. Figure 3 shows reporting for each signed language while Figure 4 summarises by language label. The prevalence of the four constructions, in descending order, is as follows: morpho-phonological (25/35) > congruent (16/35) > morpho-syntactic (10/35) > free mouthing (7/35) (Figure 4). Languages labelled deaf contribute more to these numbers than those labelled *franc*. they account for 75% of all mouthing constructions, 88% of congruent mouthing, 84% of morpho-phonological mouthing, 90% of morpho-syntactic mouthing, and 71% of free mouthing.

¹³ Text reads: "Independent mouthing is most frequently observed as a non-manual version of or LET'S.GO. MOTHER" (Clark 2017: 139).

	Mouthing	Congruent	Morpho- phonological	Morpho- syntactic	Free
ABSL	—	○	○	○	○
AdaSL	✓	✓	✓	✓	○
ASL	✓	✓	✓	○	○
Auslan	✓	○	✓	○	✓
BKSL	✓	○	○	○	○
BSL	✓	✓	✓	✓	✓
CSL	✓	○	✓	○	✓
DGS	✓	○	✓	○	○
DTS	✓	✓	✓	○	○
FinSL	✓	○	✓	✓	○
HZJ	✓	○	✓	○	○
IrSL	✓	✓	○	✓	○
ISL	✓	○	✓	✓	○
ISN	✗	○	○	○	○
IUR	✓	✓	○	○	○
JakSL	✓	✓	○	✓	○
JSL	✓	○	✓	✓	○
KaiSL	—	○	○	○	○
KK	—	—	○	○	○
Konchri Sain	✓	○	✓	○	○
KSL	✓	✓	✓	○	○
LIS	✓	✓	✓	○	○
LIU	✓	○	✓	○	✓
LSQ	✓	○	✓	○	○
LSSiv	✓	○	✓	○	✓
MJNY	✓	○	✓	○	○
NGT	✓	✓	✓	✓	✓
NTS	✓	✓	✓	✓	—
NZSL	✓	✓	✓	○	○
PISL	✓	✓	○	○	✓
RSL	✓	✓	○	○	○
STS	✓	✓	✓	✓	✓
TiD	✓	✓	✓	○	✗
TTSL	✓	✓	✓	○	○
YMSL	✓	○	○	○	○
YogSL	✓	✓	○	○	○
YSL	✓	○	✓	○	○

Figure 3: Reporting of presence of mouthing, and presence of 4 different mouthing construction types in the sample. Green tick = present, red cross = absent, yellow bar = inconclusive, grey circle = unreported.

Presence and functions of mouthings

Figure 4: Summary of reporting of presence of mouthing and presence of four mouthing constructions in languages labelled deaf vs. rural in the sample. Note that the y-axes are different on the deaf vs. rural plot.

5. Description of mouthing is influenced by ideologies and resources

As mentioned, cross-linguistic studies and sociolinguistic typology depend on language documentation, which is necessarily influenced by the ideologies of linguists and the language users being observed, the context of documentation, and documentation resources. These factors are directly related to the construction of language types and the association of structural properties with types. Each factor, as it relates to mouthing and the numbers shown in Section 4, is discussed separately for the sake of presentation, but are all connected and feed into each other. This discussion should not be read as assuming that all four of the investigated mouthing constructions would be found in all signed languages were it not for documentation practices. Rather, it is meant to concretely show how certain kinds of constructions may be more or less likely to be explicitly reported on. The organisation takes the following shape. In Section 5.1, ideologies are discussed: sections 5.1.1-5.1.3 are about the ideologies of linguists while Section 5.1.4 discusses the ideologies of language users. Section 5.2 discusses how global resource inequality can influence language documentation and introduces the concept of *de facto* prototypes.

5.1 Ideologies and documentation

Linguists unavoidably bring their ideologies to language documentation and analysis, and signed language linguists are no exception (Kusters et al. 2020). These ideologies may derive

from the history of linguistics and/or generally accepted concepts, conventions for representing language etc. Regardless of the origin, these ideologies are revealed by the choices made in all aspects of language documentation and reflect the power that linguists have in representing languages. In this section, sources of language ideology are discussed and connected to the presence of mouthing enumerated in Section 4 and the likelihood of various kinds of mouthing constructions to be documented.

5.1.1 Ideologies stemming from linguistics

Recall that mouthing has ideological baggage attached to it due to its indexation with spoken language (Section 1.2). These ideologies are linked to a long history of purism and fear of monolingualism in linguistics going back to at least the 19th century and the rise of the European nation-state. It is manifested in multiple ways across sub-fields, but Creoles can again provide a useful lens for understanding the dynamics at play. A relevant representative example is the description of Creoles as “broken” versions of their European ancestors and their exclusion from language family trees due to their emergence out of contact (see DeGraff (2005) on Creole Exceptionalism). Additionally, the dominance of spoken languages made it necessary for early sign linguists to strategically essentialise signed languages as being separate from spoken languages, i.e., to minimise attributing linguistic forms to language contact between the modalities, to legitimise signed languages. These two ideological pressures are reflected in analysis of mouthing in languages like ASL in which it is “considered solely a contact phenomenon and discounted as part of ‘real’ ASL, where ‘real’ ASL refers to natural conversations where only Deaf participants are present” (Nadolske & Rosenstock 2007: 37). This was not necessarily the case across the world, since there were reportedly more positive attitudes to mouthing in European signed languages (Trude Schermer, personal communication, May 23rd, 2021). However, the view of mouthing coming from ASL studies is not trivial due to the far-reaching influence of North American linguistics (Peterson 2020).

Linguistics has its own kind of prescriptivism that favours documentation of structures that are obligatory, predictable and/or produce a meaning difference. Obligatoriness in particular has also been used to define belonging in a language (Lehmann 2015). This can account for the relatively high prevalence of morpho-phonological constructions (68% of the sample) and the relatively lower occurrence of congruent (51%) and free (19%) constructions. In morpho-phonological constructions, the mouthing is typically described as having a “disambiguating” or “contrastive” function, which aligns it with longstanding theoretical concepts like the phoneme. This can lead linguists to make explicit mention of morpho-phonological constructions, but not congruent ones, because in the latter the mouthing does not obviously discriminate between manual signs or add propositional content. Variation in the presence of congruent mouthing also runs counter to the idea of obligatoriness. Tangible evidence of this ideology in documentation (excluding inter-language variation) is the choice to exclude congruent mouthing from glosses and signed language resources e.g., ASL SignBank, Auslan SignBank, BSL SignBank (examples of dictionaries that do include mouthing are the Online Dictionary of NZSL, Svenskt teckenspråklexikon (STS dictionary) and Suvi (FinSL Dictionary) (Johnston 2004; Fenlon et al. 2014; Hochgesang, Crasborn & Lillo-Martin 2017; Sehyr et al. 2021; Svenskt teckensprakslexikon 2020). There may be good reasons for excluding congruent mouthing from these resources, such as convenience in the DTS dictionary (Kristoffersen & Niemelä

¹⁴ Interestingly, one legitimisation strategy was to compare sign languages to Creoles, which had already been established as languages.

2008); however, not representing mouthing is a choice made by linguists that does not necessarily represent language use.

Relatedly, what is thought to be natural in a field is partially a product of age — older concepts or ideas are likely to be thought of as more natural or basic than younger ones (Lewin 1994; Spike 2020); therefore, since criteria like obligatoriness, predictability, and meaning difference have historically been used to identify linguistic features, then we can expect them to be used in future documentation. This can create a compounding effect in the literature when linguists explicitly and implicitly draw on previous literature to inform their own documentation and could account for the relative representations of specific kinds of mouthing constructions like morpho-phonological and free mouthing respectively.

The same factors affecting the reporting of congruent mouthing can also account for the lower prevalence of free mouthing; however, the impact is expected to be even greater with free mouthing, which the data supports. This is because free mouthing may be perceived as a product of deaf people being in “spoken language mode” or accommodating to spoken language users. It is also associated with back-channelling which, as it does not add new propositional content, could result in lack of explicit mention. Contrary to this line of thought is the relatively lower prevalence of morpho-syntactic mouthing which does add propositional content. However, these kinds of constructions may exist alongside other constructions that perform the same function but do not involve mouthing, making them preferable. For example, in NGT there are two basic constituent orders, SOV and SVO (Klomp 2021); therefore, a morpho-syntactic mouthing construction would be in competition with constructions with dedicated *sequential* positions for object signs. Example (6) (repeated below as (9)) shows a mouthing construction in which the mouthing is the object (‘bread’) of a manual sign expressing a verb (‘to eat’). Example (10) shows a construction that expresses the object of the verb ‘to eat’ using a manual sign following the verb (‘caterpillar’), as opposed to mouthing.

- (9) brood (‘bread’)
ETEN (‘to eat’)
‘eat bread’ [NGT]
(Crasborn et al. 2008: 48)
- (10) MUST IX₁ Q₁ A LONG IX₁ ADAPT EAT CATERPILLAR
‘I would have been obliged to adapt and eat the caterpillar’ [NGT]
(Klomp 2021: 188)

5.2 Ideologies of absence

Differences in reporting of mouthing for the same language (excluding the possibility of dialectal differences for now) shows that individual linguists differ in how they define absence¹⁵. This can be exemplified in KK and ABSL. The official story about KK is that mouthing is absent (Marsaja 2008; de Vos 2012; Lutzenberger 2018); however, Lutzenberger (2022) reports the use of mouthing by one signer and connects this usage to language contact. Similarly, in ABSL mouthing is said to be absent by Tkachman & Sandler (2013); however, Meir et al. (2010: 275) describes them as “very rare in both hearing and deaf signers, especially in the older generations,” and a personal communication from Mark Aronoff says that “Bedouin signers of Al Sayyid Sign Language do not exhibit as much mouthing as the signers using Israeli Sign Language” (Weisenberg 2009: 2–3). It may be that claiming a

¹⁵ Note that differences may also arise because of language change, which is not discussed in this paper.

marginal form is absent in a language is a proxy for saying that it does not appear to be widespread or that it is not interpreted as being linguistic or not included in an analysis. However, this cannot be known from claims of absence, only speculated upon. The pervasive idiosyncrasy of linguists' reporting practices can thus contribute to the erasure of signers' linguistic practices.

5.1.3 Ideologies in recording language

The recording and coding of language data is also affected by ideologies; however, note that this also intersects with financial and time constraints that are not discussed here.

First, “the tyranny of glossing” in sign linguistics routinely erases the phonological content of signs and excludes non-manuals (Hochgesang 2019). For instance, most examples in the present paper are not pictures because the sources they were collected from did not include them. In theory, it should be possible to collect information about mouthing and other non-manuals from any kind of signed language example. However, since non-manuals often go unmarked unless they are the topic of a paper or are viewed as performing a grammatical role, e.g., marking interrogatives, the possibilities are significantly reduced. They may also be excluded if they are considered to be typical. For example, in the Global SignBank data for NGT and KK, mouthing is coded in KK but not NGT because mouthing is considered exceptional in KK but not NGT (Lutzenberger 2022).

Second, any kind of documentation, even that derived from fieldwork, is not truly naturalistic since signers are aware that their language use is being observed (the Observer's Paradox), particularly when being recorded in organized sessions. This can negatively impact the production of constructions that can index spoken language and would affect all mouthing constructions, especially free mouthing. Free mouthing is also often reported as a fallback strategy when the hands are occupied (cf. Bani (2014) on NGT) — in planned recording sessions, the hands are unlikely to be occupied, making free mouthing less likely to be observed.

5.1.4 Ideologies of language users

Language users also have language ideologies that must be accounted for in documentation, but which may not be consistently reflected in language production. This puts linguists in a tricky position, as documentation should be based on insights from language users but should also represent language use. The case of NTS is particularly illustrative as examples of free mouthing that occur when the hands are occupied are given in the literature, but it is claimed that these are “unacceptable signs” (Vogt-Svendsen 2001). Similarly, in KaiSL mouthing is reported but not considered to be characteristic of “fluent” signing (Reed & Rumsey 2020: 147). The use of the term “fluent” is indicative of a language ideology since it points to ideas about variation in language quality or aesthetics within languages (cf. Henner & Robinson 2021). Finally, in ISN, mouthing is reported in a pidgin variety used between deaf and hearing signers, El Pidgin de Señas Nicaragüense (PSN). When deaf and hearing signers use PSN they consider themselves to be using Spanish and Mímic (gestural communication like homesign) respectively; however, a deaf person using PSN with a hearing person considers the latter to be using Spanish and if the roles are reversed the hearing person perceives the deaf one as using signed language. This situation is complex, but it seems clear that ideologies about language naming and boundaries are involved. These cases illustrate potentially negative ideologies toward mouthing and free mouthing that may discourage linguists from documenting these phenomena.

5.2 Resources

The global north-global south divide picks out differences in resource availability across the world. This can directly impact the contexts under which languages emerge and documentation. In this sample, there is a rough alignment between languages labelled deaf and rural with the global north and global south respectively (see Fig. 2). The global north is associated with more capital and so is better positioned to (i) create the conditions under which a deaf signed language could emerge and (ii) to establish long term documentation partnerships with deaf signed language communities. Documentation is also more extensive for signed languages labelled deaf than rural. For example, the majority of languages in the Sign Language Dataset Compendium, which catalogues linguistic resources for 76 signed languages, would be labelled as deaf (Kopf, Schulder & Hanke 2022). Regarding mouthing, some of the most detailed investigations of mouthing are based on corpora, which have (predictably) been done with global north signed languages like Auslan, NCT and STS. In contrast to this, languages labelled rural in the global south are often documented through fieldwork by transient¹⁶ researchers based in the global north (Braithwaite 2020). This means that priority may be given to aspects of languages that are viewed as “core”, leaving products of language contact, such as mouthing, out. Such an approach does not facilitate the faithful representation of signed language use in context.

5.2.2 Resources and prototypes: introducing the notion of *de facto* prototypes

The global north-global south divide also has historical reflexes that relate to which languages are treated as normative in research. The development of categories and how they are used in a field is directly related to the order in which languages and phenomena have been studied (Lewin 1994; Spike 2020). Two notions of prototype category have been identified: the best-exemplar notion in which members have a family resemblance (Rosch 1973) and the first specimen notion in which languages that are studied first and/or most are taken to be the best exemplar (Maffione 2000: 65). I name the latter *de facto* prototypes and define them as languages that are often cited and/or commonly used as exemplars of a group and are likely to be those that were studied first and/or associated with power.

In early sign linguistics (1960s and 70s), languages from the global north were being studied e.g., ASL, and European signed languages like Langue des Signes Française (LSF, French Sign Language), DGS, BSL, STS, and Dansk tegnsprog (DTS, Danish Sign Language) (Perniss, Pfau & Steinbach 2007; Pfau 2012). No explicit claims about a deaf or rural signed language prototype have been made; however, potential candidates are the signed languages that tend to be used in comparison and referenced inside and outside of sign linguistics e.g., ASL, ISN, KK, AdaSL and ABSL, which also tend to be those that are studied by global north researchers. In the present sample, ASL, ISN, AdaSL and KK are universal. ASL is exceptional in that ideologies about mouthing in ASL and the ideologies of ASL researchers are expected to influence the practices of researchers of other signed languages due to status of the United States as an imperial power in the world (Peterson 2020). Stated differently, negative ideologies about mouthing in ASL that can affect documentation can leak into the documentation of other signed languages. ISN, KK and ABSL are exceptional in that they are the only languages for which claims of complete absence are made (recall though that there are conflicting reports for KK and ABSL). KK, in particular, is often cited as an example of a signed language that does not use mouthing (e.g. Kimmelman 2009; Zeshan 2010; Bank, Crasborn & Van Hout 2016). That most languages in the present sample do report mouthing suggests that that explicit or implicit extrapolation

¹⁶ Transience is not necessarily a product of being a global north researcher, but arises from being an outsider with limited possibilities of long-term presence in a language community

from *de facto* prototype candidates like ASL and KK can produce an inaccurate picture of signed languages as a whole. This makes comparative work crucial; cross-linguistic perspectives can actively work against the potentially outsize impact of *de facto* prototypes on sign linguistics.

6. Discussion

The enumeration of mouthing constructions (Section 4) and analysis of potential influences on documentation of these constructions (Section 5) shows (some of the) issues involved and choices made in the documentation of linguistic forms. This is done to link to the problem of associating top-down groupings like deaf and rural signed language with structural properties since cross-linguistic studies depend on language documentation. The Semiotic Repertoires approach (Section 1.2) and Uniformitarianism as it is applied to Creoles (Section 1.3) are applied to the numerical results (Section 4) and analysis of documentation around mouthing (Section 5) to discuss the deaf-rural signed language divide in this section.

The numerical results clearly show that there is no difference in presence of mouthing between languages labelled deaf and rural. If we ignore the *a priori* reasons to reject this dichotomy, these results indicate that both ecological contexts that these labels pick out lead to mouthing i.e., that there are at least two causal chains to mouthing. More specifically, it shows that language emergence under institutionalised education is not the only route to mouthing. However, there is good evidence that the labels deaf and rural conflate multiple different ecologies (e.g. Reed 2019), so it is more likely that there are multiple social contexts that produce mouthing that should be identified. This aligns with Uniformitarian idea that socio-historical/-cultural groupings should not be assumed to translate into structural groupings, as languages categorised as being part of different groups can have the same structures. These results also naturally align with a Semiotic Repertoires perspective since signed languages across the world are minoritised by spoken languages and exist in contact with them. Under this approach, mouthing is simply a result of signed language users harnessing the multilingual multimodal resources present in the linguistic ecology.

It is possible though that simply cataloguing the presence of mouthing is too broad a measure to show a difference between languages labelled deaf and rural. The more fine-grained analysis of presence of types of mouthing construction does not support there being differences between these labels either, though this conclusion is not based on statistical difference due to the size of the sample. Under-documentation is a perennial problem for minoritised languages, so other approaches must be taken until there is sufficient, comparable documentation of enough signed languages. If anything, the results strongly suggest that more is unknown about presence of mouthing constructions than known. Qualitative analysis of the literature in which the numerical results are based shows that there are multiple reasons why mouthing may not be explicitly reported on, namely (i) ideologies of linguists and language users, (ii) conventions around documentation, and (iii) distribution of resources. The broader implication is that phenomena that are considered marginal, may in fact be marginalised via documentation practices (see also Dingemanse (2018) on ideophones). The Semiotic Repertoires approach is useful in this sense because it motivates the analysis of multimodal phenomena that would otherwise be marginalised.

This study provides a crucial lesson for sociolinguistic typology, that reasons (i)-(iii) are separate from the social context of the language being documented (apart from ideologies of language users) and have to do with the documentation process itself. As argued in Section 1.3, groupings like deaf vs. rural may be tracking differences between languages that are more related to documentation than social contexts of emergence and use, of which the latter is of interest to typologists and the field of language contact. Uniformitarians make a similar

point in arguing that the typological separation of Creoles from non-Creoles is not made on linguistic grounds, but on colonial ones (DeGraff 2005; Meakins 2022).

6.1 Recommendations and future work

Altogether, the findings and analysis show the study of language contact phenomena can illuminate issues in language documentation and sociolinguistic typology. They support an emergent approach to language grouping, as opposed to the use of top-down categories, like deaf and rural signed language. The individual ecological contexts of signed language use and language ideologies should be documented in addition to structural properties.

Ecologically aware approaches will also include products of language contact in description. Eliding them is an offshoot of linguistic purism and monolingual ideology that does not represent linguistic ecologies accurately given the known minoritisation of deaf languages. Furthermore, choosing to scrub linguistic practices associated with language contact may be harmful to deaf people who may have been forced to acquire such practices to gain access to the privileges of the hearing world. An integrated approach to data collection that considers multiple kinds of data should be taken since no one type of data is without drawbacks. One possible pairing that has already been discussed is combining corpus data with ethnographic data (see Hodge & Goico 2022 and references within).

This work demonstrates the importance of specifying the causal chains connecting social properties to linguistic ones (cf. Thomason (2008)), and the need for more explicit theories of causal models in language contact. One approach to doing this collaboratively comes from the field of language evolution, the Causal Hypotheses in Evolutionary Linguistics Database (CHIELD) (Roberts et al. 2020). Such a resource allows for the identification of multiple causal chains that can then be tested empirically. Additionally, it can be used to compare theories to find points of convergence that can be used to develop a socially informed model of contact induced change or contact-influenced cross-linguistic variation. For example, a hypothetical causal chain could be: oralist education → negative ideology to mouthing → no/lower prevalence mouthing. Open questions include the level of granularity at which causal chains should be developed, and how to connect causal chains at the individual level to the group level.

Finally, use of gradient measures may be more appropriate for comparing mouthing across languages. In this paper binary coding was used, which does not mark qualitative differences within and among languages, and so inflates anecdotal evidence. This is a problem because of the wide variation in use associated with mouthing. This suggests that a token-based approach, measuring how much they are used by individuals within communities may be more appropriate. Consideration of how to use individual usage data to generalise across populations and how to make that data comparable across different language groupings is also needed. For more nuance to be incorporated, detailed descriptions of the use of mouthing in natural settings are necessary. This is especially important for signed languages in the global south, which, apart from a few cases, receive shallower treatment. If sign linguistics is committed to understand diversity across signed languages, responsible, long-term relationships to global south communities of the kind outlined in Braithwaite (2020) are necessary.

7. Conclusion

Linguistics, and typology in particular, is founded and dependent on language documentation; however, documentation is not neutral. It is impacted by systemic features of academic research and by language ideologies. Any typological generalisations that are made about groups of languages are only as good as the documentation supporting them. In signed language typology, two categories have been named based on socio-historical/-cultural

properties, *deaf* and *rural* signed language. However, they are problematic because they dichotomise multiple ecological contexts and, due to their link with language documentation, reflect power distribution and/or linguistic ideologies that are outside of their actual definitions. In other words, they may represent differences other than what they claim to. Additionally, these groupings are implicitly and explicitly associated with certain structural properties without direct causal links between social and structural properties being identified.

Language contact phenomena can lay bare issues in documentation due to their non-normative position in linguistics. This paper discusses how one structural property, mouthing, is reported on across 37 signed languages. Two levels of granularity are employed, presence of mouthing and presence of four kinds of mouthing constructions, and reasons why various forms may or may not be documented are identified. A convenience sample of 37 deaf and rural signed languages showed that the deaf-rural divide roughly correlates with the global north-global south divide. Across these languages, mouthing is reported in 26/37 and all four mouthing construction types are reported in both groups with no impressionistic differences based on language type. Differences in reporting of constructions are analysed as arising out of language ideologies and resource differences. This is used to argue that phenomena that are considered marginal, may in fact be marginalised in documentation, and that groupings like deaf vs. rural may be tracking differences between languages that are more related to documentation than social contexts of emergence and use. The implication for signed language typology is that an emergent approach to grouping, as opposed to the use of top-down categories like deaf and rural signed languages, should be used. The suggested approach is to identify causal links between social and structural properties à la those found in the Causal Hypotheses in Evolutionary Linguistics Database (CHIELD) (Roberts et al. 2020) and to triangulate among them to develop a sociolinguistic typology of signed languages.

Apart from, but related to the main argument, this paper introduces the concept of *de facto* prototypes based on Mufwene's (2000: 63) insight that Creoles that are studied first and/or most are taken to represent all Creoles. The *de facto* prototype concept expands this to all languages, and identifies languages associated with global north research (not necessarily languages in the global north) to be candidates. In signed language linguistics, ASL is a likely candidate. This paper argues that cross-linguistic comparison, done carefully and with awareness and foregrounding of its limitations, is a means of mitigating the effects of *de facto* prototypes in linguistics research. This kind of comparison should not be taken as telling the entire story about labels or correlations between grouping and form but should be used as part of explanations that use multiple sources of data. A guiding idea behind this paper is that no one source of data is inherently better than any other — there are advantages and disadvantages of all approaches. Integrated approaches to documentation like combining corpus data and ethnography (Hodge & Goico 2022) should be the goal.

Finally, two lenses are used: the Semiotic Repertoires approach to motivate the mouthing construction as a unit of analysis and Uniformitarianism applied to signed language typology. The Semiotic Repertoires approach motivates analysis of non-traditional units like mouthing constructions. The prevalence of constructions like morpho-phonological mouthing across signed languages shows that this lens can be fruitful. Regarding typology, it is an open question how it can be compatible with Semiotic Repertoires since the latter does not assume language boundaries while the former must. It is possible that a typology guided by Semiotic Repertoires could result in groupings that are based on social groupings as opposed to national ones. The application of ideas from Creole linguistics to signed language typology is motivated by the shared minoritisation of these languages in linguistics. Multiple points of convergence in the underpinnings and use of groups like Creole, deaf and rural signed

language are identified, showing that the two sub-fields have much to share with each other theoretically.

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Appendix I

D = deaf, R = rural, 1 = present, 0 = absent, ? = unreported if present or absent, In = inconclusive because of conflicting data, N/A = not applicable

Acronym	Reference	Type	Mouthing	Congruent	Morpho-phonological (Polysemous, Initialised, Homophones)	Morpho- syntactic	Free
ABSL	(Weisenberg 2009; Meir et al. 2010; Kisch 2012; Tkachman & Sandler 2013)	R	In	?	? (?,?,?)	?	?
AdaSL	(Nyst 2007; Edward 2015; Tano & Nyst 2018)	R	1	1	1 (?,?)	1	?
ASL	(Davis 1989; Lucas & Valli 1992; Liddell 2003; 200; Nadolske & Rosenstock 2007; Udoff 2014; Benitez-Quiroz et al. 2014; Neidle & Nash 2015; Sehyr, Giezen & Emmorey 2018)	D	1	1	1 (?,?,1)	?	?
Auslan	(Schembri et al. 2000; Johnston & Schembri 2007; Johnston et al. 2015; Johnston, van Roekel & Schembri 2016; Hodge, Ferrara & Anible 2019)	D	1	?	1 (?,1,?)	?	1
BKSL	(Nonaka 2010)	R	1	?	? (?,?,?)	?	?
BSL	(Sutton-Spence & Day 2007; Sutton-Spence 2007; Wilkinson 2009; Crasborn et al. 2008; Vinson et al. 2010; Stamp 2016; Perniss, Vinson & Vigliocco 2020)	D	1	1	1 (1,?,1)	1	1
CSL	(Yang & Fischer 2002; Lin 2019)	D	1	?	1 (1,?,?)	?	1
DGS	(Ebbinghaus & Hessman 2001; Perniss, Pfau & Steinbach 2007; Wilkinson 2009; Engelhardt 2018)	D	1	?	1 (1,?,?)	?	?

DTS	(Kristoffersen & Niemelä 2008; Wilkinson 2009; McGregor, Niemelä & Jepsen 2015)	D	1	1	1 (1,?,?)	?	?
FinSL	(Rainò 2001; Savolainen 2006; Takkinen, Jantunen & Ahonen 2015)	D	1	?	1 (1,?,?)	1	?
HZJ	(Ciciliani & Wilbur 2006: 20; Kuhn & Wilbur 2006; Kuhn, Ciciliani & Wilbur 2006)	D	1	?	1 (1,?,?)	?	?
IrSL	(Mohr 2012; 2014)	D	1	1	? (?,?,?)	1	?
ISL	(Meir 1999; Sandler 1999; Meir 2004; Tkachman & Sandler 2013)	D	1	?	1 (1,?,?)	1	?
IUR	(Schuit 2012)	R	1	1	? (?,?,?)	?	?
Jakarta SL (BISINDO)	(Suwiryono 2013)	D	1	1	? (?,?,?)	1	?
JSL	(Morgan 2006; Penner 2013; Bono et al. 2014)	D	1	?	1 (1,?,?)	1	?
KaiSL	(Reed & Rumsey 2020)	R	In	?	? (?,?,?)	?	?
KK	(Marsaja 2008; de Vos 2012; Lutzenberger 2018; Lutzenberger 2022)	R	In	In	? (?,?,?)	?	?
Konchri Sain	(Adone et al. 2012)	R	1	?	1 (1,?,?)	?	?
KSL	(Mweri 2009; Morgan et al. 2015; Morgan 2017)	D	1	1	1 (1,?,?)	?	?
LIS	(Azzaro, Marzoni & Vitellai 2001; Fontana 2008; Branchini 2014; Geraci et al. 2015)	D	1	1	1 (1,?,?)	?	?
LIU	(Hendriks, Farajin & Khreysat 2004; Hendriks 2008)	D	1	?	1 (1,?,?)	?	1
ISN	(Kegl, Senghas & Coppola 1999; Senghas 2005)	D	0	N/A	N/A	N/A	N/A
LSQ	(Miller 2001; Voghel 2005; Luna 2015)	D	1	?	1 (1,?,?)	?	?

LSSiv	(Clark 2017)	R	1	?	1 (1,?,?)	?	1
MJNY	(Engelhardt 2018)	D	1	?	1 (?,?,?)	?	?
NGT	(Schermer 2001; Crasborn et al. 2008; Wilkinson 2009; Bank, Crasborn & van Hout 2011; Bank 2014; Bank, Crasborn & van Hout 2015; Bank, Crasborn & Van Hout 2016)	D	1	1	1 (1,?,?)	1	1
NTS	(Vogt-Svendsen 2001; Greftegreff, Handberg & Schröder 2015)	D	1	1	1 (1,?,?)		In
NZSL	(McKee 2006; McKee 2007)	D	1	1	1 (1,?,?)	?	?
PISL	(Washabaugh, Woodward & DeSantis 1978; Washabaugh 1980; Omardeen 2022)	R	1	1	?	?	1
RSL	(Kimmelman 2009; Bauer 2018)	D	1	1	?	?	?
STS	(Vogt-Svendsen 2001; Crasborn et al. 2008; Börstell 2011; Bagga-Gupta 2012; Öqvist, Riemer Kankkonen & Mesch 2020; Mesch, Schönström & Embacher 2021; Mesch & Wallin 2021)	D	1		1 (1,?,1)	1	1
TİD	(Zeshan 2006; Makroğlu Bekar & Arik 2010; Dikyuva, Makroğlu & Arik 2016; Arik 2016; Arik 2016; Saral & Telep 2020)	D	1	1	1 (1,?,?)	?	0
TTSL	(Bisnath 2018; Bisnath 2020)	D	1	?	1 (1,?,?)	?	?
YMS	(Safar 2020)	R	1	?	?	?	?
YogSL (BISINDO)	(Suwiryo 2013)	D	1	1	?	?	?
YSL	(Adone et al. 2012; Bauer 2014)	R	1	?	1 (1,?,?)	?	?
Total	1		33	17	25 (22,1,3)	10	8
	0		1	0	0 (0,0,0)	0	1

?	0	18	11 (14,35,34)	26	26
In	3	1	0 (0,0,0)	0	1

Appendix II

Morphology

1. Reduplication e.g., STS, NGT (Börstell 2011; Börstell 2017; van Boven & Oomen 2021)
2. Case marking e.g., HZJ (Kuhn & Wilbur 2006)
3. Marking tense e.g., LIS (Fontana 2008)
4. Distinguishing nouns and verbs in noun-verb pairs e.g., LIS, TlD (Öskul 2011; Branchini 2014)
5. Marking word boundaries e.g., KSL (Mweri 2009)
6. Inclusive-exclusive distinction e.g., YSL (Bauer 2014)

Syntax

1. Negation e.g., ISL, JSL (Meir 2004; Morgan 2006)
2. Question marking e.g., TlD, CSL (Zeshan 2006; Lin 2019)
3. Topic marking e.g., CSL (Lin 2019)
4. Quantifiers e.g., TlD (Sara! & Kelepir 2020)
5. Relative clause marking e.g., TlD (Kubus 2006)
6. Inflection e.g., RSL (Bauer 2018)
7. Linking arguments e.g., IrSL (Mohr 2014)

Discourse

1. Reference tracking e.g., BSL, LIS (Fontana & Fabbretti 2000)
2. Metalinguistic commentary e.g., RSL (Mohr 2014)
3. Emphasis e.g., JSL, YSL (Grimo et al. 2014)
4. Clarification
5. Supporting understanding e.g., CSL (Lin 2019)
6. Exclamations e.g., YSL (Mweri 2009)
7. Contrast e.g., NGT (Bank 2014)
8. Repair e.g., NTS (Skedsmo 2020)

Abbreviations

ABSL	Al-Sayyid Bedouin Sign Language
AdasL	Adamorobe Sign Language
ASL	American Sign Language
Auslan	Auslan
BKSL	Ban Khor Sign Language
BSL	British Sign Language
CSL	Zhōngguó Shǒuyǔ (Chinese Sign Language)
DGS	Deutsche Gebärdensprache (German Sign Language)
DTS	Dansk tegnsprog (Danish Sign Language)
FinSL	suomalainen viittomakieli (Finnish Sign Language)
HZJ	Hrvatski znakovni jezik (Croatian Sign Language)
IrSL	Teanga Chomharthaíochta na hÉireann (Irish Sign Language)
ISL	śfāt ha-simaním ha-yiśre'elít (Israeli Sign Language)
ISN	Idioma de Señas de Nicaragua (Nicaraguan Sign Language)

IUR	Uukturausingit (Inuit Sign Language)
JakSL	Jakarta Sign Language (BISINDO)
JSL	Nihon Shuwa (Japanese Sign Language)
KaiSL	Kailge Sign Language
KK	Kata Kolok
Konchri Sain	Jamaican Country Sign Language
KSL	Kenyan Sign Language
LIS	Lingua dei Segni Italiana (Italian Sign Language)
LSB/Libras	Língua Brasileira de Sinais (Brazilian Sign Language)
LSM	Lingwa tas-Sinjali Maltija (Maltese Sign Language)
LSQ	Langue des Signes Québécois (Québec Sign Language)
LSSiv	Sivia Sign Language
MJNY	Magyar jelnyelv (Hungarian Sign Language)
NGT	Nederlandse Gebarentaal (Sign Language of the Netherlands)
NTS	norsk tegnspråk (Norwegian Sign Language)
NZSL	New Zealand Sign Language
PISL	Providence Island Sign Language
RSL	Russkii Zhestovyi Yazyk (Russian Sign Language)
STS	Svenskt teckenspråk (Swedish Sign Language)
TİD	Türk İşaret Dili (Turkish Sign Language)
TTSL	Trinidad and Tobago Sign Language
YMSLs	Yucatec Maya Sign Language
YogSL	Yogyakarta Sign Language (BISINDO)
YSL	Yolngu Sign Language

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