

Forces shaping sign multilingualism

Evangelia Adamou, Onno Crasborn, Jenny Webster and Ulrike Zeshan

1 Sign multilingualism in context

Sign multilingualism is a field that concentrates on a range of complex multilingual behaviours in sign language users. Although bilingualism and multilingualism is well-entrenched as a domain in spoken language research, these areas have only recently begun to be studied in relation to sign languages, commonly in applied research. For example, bilingualism research in sign language linguistics has investigated deaf people's competence in one signed and one spoken language, usually in its written form. Such studies have often been connected to bilingual-bicultural deaf education, also known as "sign bilingualism", wherein a sign language is used for instruction in order to build competence in a written language (Wilbur 2000). Earlier work had primarily emphasised sign systems like Signed Exact English (e.g. Wilbur 1979), discussing the language contact phenomena inherent in those without taking a broader perspective of language contact.

Psycholinguists have also studied bilingualism involving a sign language, notably in research on "bimodal bilingualism" with hearing children of deaf parents (e.g. Emmorey et al. 2008). However, there are many other complex instantiations of multilingualism involving sign languages, sometimes in the visual-gestural modality only and sometimes in combination with spoken languages.

The need to illuminate these behaviours led to the study "Multilingual Behaviours in Sign Language Users" (MULTISIGN), funded by the European Research Council between 2011 and 2016. MULTISIGN covered occurrences in various settings of three types of phenomena which had previously been sparsely documented or unrecognised, namely: "cross-signing" (the rapid emergence of improvised inter-languages in situations of sign language contact), "sign-speaking" (the structurally mismatched simultaneous use of signing and speaking), and "sign-switching" (codeswitching between sign languages). The majority of contributions in this volume have arisen from the MULTISIGN project, and this first chapter serves as an introduction to the volume and situates it in a wider context.

In the remaining sections, we look at Sign Multilingualism from several perspectives. Section 1.1 compares various branches of bi- and multilingualism research involving sign languages, and equivalent or related phenomena from research

on spoken languages, in order to place the study in a wider context of bilingualism research. This section also identifies some interesting phenomena from the sign language modality and from bimodal situations. Section 1.2 explores how the chapters in this volume offer a broader perspective on language contact and the communicative behaviour of signers and speakers. This perspective goes beyond a narrow definition of “linguistics”, and includes semiotics, multimodality, translanguageing, and the machinery of multilingual human interaction. Section 2 discusses the main factors that contribute to the communicative settings and outputs described in the volume. These factors include the typological profiles of the languages involved, sociolinguistic norms and social learning, the external linguistic environment, and individual personal factors such as language background and metalinguistic awareness. This section also explores why some of these factors may be facilitative of communication, while others are inhibitive. Finally, section 3 explains how the rest of this volume is structured.

1.1 What sign languages teach us about bilingualism

There is currently a boom in research on sign languages contributing not only to a better understanding of how they work but also to a variety of theoretical discussions in linguistics. Indeed, sign languages present several specificities that allow researchers to take a fresh look at a number of research questions, old and new alike. For example, sign languages are generally new languages — most of them with less than 200 years of use — and as such offer a privileged look into language creation which has been addressed mainly through the study of creoles and pidgins. In particular, the study of homesign languages — created by children who do not have access to *any* input — gives us the rare opportunity to observe the fundamentals of human language (Goldin-Meadow et al. 2014). Sign languages are also of special interest because they rely on the visual-gestural modality and therefore offer a window onto cognition beyond what can be observed through the study of co-speech gesture (cf. Zeshan 2015).

In this section, we aim to draw comparisons between various branches of bi- and multilingualism research involving sign languages, such as those represented in this volume, and equivalent or related phenomena from research on spoken languages. This enables us to situate the current research in the wider context of bilingualism research, and to pinpoint particularly interesting phenomena of bi- and multilingualism, either within the sign language modality or in bimodal settings with both signed and spoken languages.

As summarised in Zeshan and Panda (2015), three lines of research can be identified for bilingualism involving a sign language (see Table 1):

- a) Research on *sign bilingualism*, targeting bilinguals who use in parallel a sign language A and a spoken language B in its written form.
- b) Research on *bimodal bilingualism*, examining the hearing individuals who use a sign language A and a spoken language B.
- c) Research on *sign multilingualism*, considering the bilinguals who use more than one sign language.

Table 1. Language contact in sign languages

sign bilingualism	bimodal bilingualism	sign multilingualism
sign language A & spoken language B in writing	sign language A & spoken language B	sign language A & sign language C

The chapters in this volume focus on two of the above-mentioned types of bilingualism, i.e., bimodal bilingualism and sign multilingualism.

1.1.1 Bimodal bilingualism

Bimodal bilinguals use in parallel a sign language, which relies on manual signs and non-manual behaviours (including head positions, body postures, and facial expressions), and a spoken language. Studies on bimodal bilinguals therefore allow us to observe the *simultaneous* articulation of two languages, a co-articulation that is impossible for spoken languages as they both unfold in the same modality. Interestingly, the sequential use of a sign language and a spoken language, similar to codeswitching observed in spoken languages, is rare (e.g., Bank 2015 on NGT). The two ways of language mixing, simultaneous and consecutive, therefore seem to largely depend on language modality: if simultaneous mixing (blending) is possible, this is what happens. According to Emmorey et al. (2008), the fact that bimodal bilinguals prefer using both languages rather than suppressing one of them indicates that this inhibition mechanism is associated with high cognitive costs. Following on from work by these and subsequent authors, the simultaneous use of signs and spoken words by bimodal bilinguals has been called “code-blending”.

Researchers note that the parallel use of a sign language and a spoken language develops naturally among hearing children of deaf parents.¹ Studies show that, despite inter-speaker variation, the spoken language is generally dominant in bimodal bilingual communication among hearing people (see also Müller de Quadros, Lillo-Martin, and Chen Pichler, this volume). The interpretation of this finding is still under debate, with some researchers considering that it is due to the fact that spoken languages are dominant in the broader sociolinguistic context, others suggesting that this preference may reflect a more general human preference for spoken language (Lillo-Martin et al. 2014), and yet others indicating that the focus is likely to depend on the communicative setting. Zeshan and Panda (2017) mention that the bimodal individual may adopt different styles depending on her primary and secondary audiences.

Bimodal bilingual communication should be differentiated from what is termed “sign-supported speech” or “simultaneous communication”, a form of bimodal communication which is used in formal settings, such as meetings and lectures, and explicitly targets the parallel use of signed and spoken languages. Bimodal bilinguals, in contrast, do not explicitly aim at the use of the two languages, but this co-articulation arises spontaneously and often becomes the default mode of communication. This indicates that both languages are active for the bimodal bilinguals, a conclusion that is also supported by experimental data (e.g. Morford et al. 2011), and is in accordance with results from unimodal bilingual studies which indicate that both languages are “on” among bilinguals (see Kroll et al. 2015, for a review of the experimental literature on the parallel activation of the bilingual’s two languages). Similarly to the well-documented capacity of bilinguals to choose the appropriate code from an early age, current studies also demonstrate that bimodal bilinguals are sensitive to the communicative context and to their interlocutors and can suppress one of the two languages when appropriate.

A widely used method for the study of bimodal bilingualism is the corpus-based analysis of semi-spontaneous interactions, and this is the method that prevails in the MULTISIGN project and in the studies of this volume. These studies cover a substantial range of languages and settings, with the following combinations:

- Turkish Sign Language (TİD) with spoken Turkish (Işsever, Ergenc, Dikyuva, and Makaroglu); adult participants; bilingual setting.

¹ The French film *La Famille Bélier* (2014) by Eric Lartigau nicely illustrates such bimodal interactions.

- Brazilian Sign Language (Libras) with Brazilian Portuguese, and American Sign Language with English (Müller de Quadros, Lillo-Martin, and Chen Pichler); young children; two bilingual settings.
- Indian Sign Language (ISL) with Hindi and English (Zeshan and Panda 2017); adult participants; trilingual setting.

The privileged use of corpora for the study of bimodal bilingualism might be due to the fact that many sign languages are not yet well-described, which means that priority is given to the description of the language before turning to the use of other methods, such as grammaticality judgments and experiments. These methodological concerns are similar to those that dominate the study of lesser-described languages more generally.

Analyses of a variety of naturalistic corpora, especially in this volume, indicate that bimodal bilinguals do not *continuously* use the two languages, i.e., the spoken language and the sign language, jointly alongside each other. This may be due to restrictions related to the cognitive load involved in the use of two languages in a single interaction, much like what has been experimentally shown for spoken language alternation. However, we would like to suggest that the systematic use of a sign language and a spoken language in daily communication, as practised by highly proficient bilinguals, most likely attenuates processing costs, in the same way as demonstrated in a study involving bilingual speakers who frequently codeswitch in everyday life (Adamou and Shen 2017). Thus Panda (Chapter 9, this volume) describes a community of highly proficient individuals in India who have developed specific bimodal bilingual skills in the context of a school for deaf children. Such frequent parallel use of the signed and spoken language is reminiscent of the greater cognitive ease that professional interpreters demonstrate with language alternations (Ibáñez, Macizo and Bajo 2010). Memory and processing limitations could therefore be considered as biases, but not necessarily as decisive factors within this bilingual behaviour.

Since parallel use of a sign language and a spoken language is partial, the contexts in which parallel use does occur are of great interest for linguists. For example, while most studies show that there is generally a semantic congruence between the signed and the spoken language, i.e., the same meaning is expressed in the signed and spoken components, it appears that structural congruence is not required. Again, when comparing this with the literature on codeswitching, recent studies show that although structural congruence is a facilitating factor, it is definitely not a prerequisite for codeswitching (Torres Cacoullos and Travis 2015; Adamou 2016). It is of course widely documented for spoken languages that structural congruence can be obtained through calques, and indeed calques are encountered in the bimodal data as well. We present

in (1) an example from Müller de Quadros, Lillo-Martin, and Chen Pichler (this volume) that illustrates, on the one hand, the semantic congruence of the two languages, and on the other hand, a syntactic calque in a bimodal utterance where the spoken component, here English, follows the word order of the signed component, in this case ASL.

- | | | | | |
|-----|------------------|-------|--|-----------|
| (1) | MOTHER | WHERE | | [ASL] |
| | Mommy | Where | | [English] |
| | ‘Where’s Mommy?’ | | | |

Müller de Quadros, Lillo-Martin, and Chen Pichler (this volume) suggest that the observed semantic congruence in bimodal bilingual interactions indicates that bimodal bilinguals form a single proposition (following Emmorey et al. 2008).

These authors further argue that bimodal bilinguals use a single derivation; i.e., the mental linguistic computational system incorporates elements from the two languages into a single derivation. The study by İşsever, Ergenc, Dikyuva and Makarolu (this volume) supports this approach. The authors show that the elements from the spoken language, Turkish, are not only partly mirrored in the sign language, but that there is a common verb phrase to which the two languages contribute lexically. This can be seen at the level of the verb phrase where ‘watch’ is expressed in Turkish and ‘movie’ in TİD, as illustrated in example (2).

- | | | | | | |
|-----|--|-----|---------|--------------------|-----------|
| (2) | Ben | de | gid-ip | izle-me-di-m | [TURKISH] |
| | I | too | go-CONJ | watch-NEG-PAST-1SG | |
| | I | | GO | MOVIE NOT | [TİD] |
| | ‘I didn’t go to watch the movie either.’ | | | | |

However, Zeshan and Panda (2017) provide counter-evidence from Indian Sign Language and Hindi (with minimal English), showing that 48 % of the signed and spoken output features syntactic and/or semantic mismatches. What the authors find is that the two propositions share the same communicative intent. To account for the different character of these bimodal bilingual utterances, the authors refer to their data as “sign-speaking”. Such differences are reminiscent of the differences between patterns described in “classic codeswitching” (see Myers-Scotton and Jake 2017) and atypical phenomena encountered in mixed languages and in their early stages of formation (Meakins 2013; Adamou and Granqvist 2015; Adamou and Shen 2017).

Based on their bimodal bilingual data, Müller de Quadros, Lillo-Martin, and Chen Pichler (this volume) elaborate the Language Synthesis model and suggest that it can account for all bilingual competence, bimodal and unimodal alike.

More specifically, the Language Synthesis model is a late lexical insertion model; i.e., abstract roots first enter into the computation of a sentence and Vocabulary Insertion takes place once the Syntactic Derivation is accomplished. In contrast, MacSwan (2014) has adapted an early lexical insertion model to account for code-switching; i.e., a Select function draws the Lexical Items from the two lexicons of the bilingual into the Lexical Array, at which stage, Word Order follows the Lexical Items' properties. Then Merge and other operations lead to the Spell Out in the Phonological Component and the Covert Component. Alternative accounts are derived from the psycholinguistic model of speech production in Levelt (1989). This model served as a basis for the Matrix Language Frame model and the 4-M model, which was posited for bilinguals and monolinguals (see Myers-Scotton and Jake 2017, for an updated version), and the model elaborated by Emmorey et al. (2008) for bimodal bilinguals. In future work, the challenge for any model of language production will be to account successfully for both the unimodal bilingual data and the bimodal bilingual data.

1.1.2 Complex multilingual settings

A number of interesting findings come from the studies on sign multilingualism, that is, the use of more than one sign language in interactions. Chapters 3 (Panda and Zeshan) and 8 (Panda) report on a study that documents the process of constituting a small bilingual community using two unrelated sign languages, Burundi Sign Language (BuSL) and Indian Sign Language (ISL). It appears that the bilingual signers develop an unmarked way of communicating in a shared mixed variety, independently of the duration of their stay in India and their length of exposure to ISL. This result brings to mind the data from small bilingual communities of spoken languages, which also appear to have patterns of mixing in terms of proportions independent of exposure to the dominant language (Adamou 2016).

In terms of proportions of signs in this Burundi-Indian community, Zeshan and Panda (2015: 112) show that each of the two contributes between 25% and 35%; in other words, 50–70 signs could be clearly identified as being from Burundi or from India. This proportion is more balanced than that found in most bilingual corpora from small communities, in which one language is clearly numerically-dominant and the other at best contributes up to 35% of the word-tokens (Adamou 2016). A possible interpretation of the result from the Burundi-Indian community could be due to the remaining 30–50% of similar signs in the corpus. Indeed, Zeshan and Panda (2015: 111) report that for 40% of the signs used by these signers, the researchers were not able to categorise them as belonging to either BuSL or ISL.

More generally, unrelated sign languages are known to share a relatively large proportion of signs (cf. Meier, Cormier, and Quinto-Pozos 2002; Zeshan and Panda 2015). The shared vocabulary observed in such cases is mainly due to the iconicity of the manual modality, allowing for signs to be understood without prior knowledge of the language. This feature is much less prevalent in spoken languages and constitutes a major difference between the languages that rely on the manual modality and those that rely on the spoken modality.

The Burundi-Indian contact situation exhibits additional complexity due to the presence of shared signs and secondary language contact. The studies in this volume present a particularly rich array of settings, some of which involve more than two languages in contact. Thus, Zeshan and Panda (2017) report that, in a trilingual setting, ISL and Hindi are frequently used in combination in a typologically rare manner, characterised by frequent syntactic and semantic mismatches, whereas English insertions are rarer and follow the more typical patterns of bimodal bilingual communication. This differential treatment in trilingual settings is also found in the interactions of Roma from Greece who exhibit a typologically-rare Romani-Turkish mixing whereas insertions from Greek, the state's official language, follow classic codeswitching patterns (Adamou and Granqvist 2015).

As discussed in this section, the studies that investigate bilingual communication involving sign languages shed new light on the theoretical questions that are at the centre of attention in contemporary linguistics and cognitive science. There is no doubt that this is a research field that will continue to grow and contribute to our understanding of the bilingual mind and the use of two or more languages in society.

1.2 Linguistic repertoires of deaf signers

For a long time, one of the central questions in the study of sign languages has been what the effect of the different modality on language structure may be (Klima and Bellugi 1979; Meier 2002; Sandler and Lillo-Martin 2006). Does the fact that sign languages are produced by a different set of articulators, and are perceived visually, impact their structure? If so, how? Which properties of human language transcend modality and can truly be called universal, holding for both spoken and signed languages?

Essentially, these are mono-modal questions: they concern the visual modality in which sign language is produced and perceived, in contrast to the primarily auditory perception of hearing-seeing speakers. But more recently, the field of linguistics has been developing into a multimodal undertaking, accepting that there

are many interactions between “verbal” (or spoken) and “nonverbal” (or visual) aspects of communication. For instance, Özyürek et al. (2005) showed that the form of spatial description gestures is influenced by the grammar of the spoken language. Many studies have shown that in perception, people do not just process speech but relate it to information in the speaker’s visual behaviour. Swerts and Kraemer (2008) and Kraemer and Swerts (2009) showed that the speech signal has more visual corollaries in the facial behaviour than in the visual perception of the speech articulators (“speech-reading”). Studies on sign languages have started to explore to what extent they also make use of additional, “gestural”, components in utterances or even at the level of the sign (Liddell 2003; Hodge and Johnston 2014).

The chapters in this volume demonstrate that unimodality in the sense of a single visual perceptual channel still enables two types of multilingualism: the use of a sign language with a spoken language and the use of two sign languages. There are many ways in which spoken languages impact sign language usage in the visual modality: through visual-manual representations of scripts (fingerspelling, e.g. Branson et al. 1994 on Auslan, and Padden 2002 on ASL); mouthings in sign languages (Boyes Braem and Sutton-Spence 2001); and various forms of more extended code-mixing at the grammatical level, as in sign-supported speech or artificially constructed codes (Wilbur 1979, 1990). All three of these have been extensively studied in the last 50 years. Among them, mouthings have received the most attention. In most sign languages, they appear to be very prominent, especially where signers attend schools that place an important focus on spoken language. Bank (2015) found in a corpus study that in Sign Language of the Netherlands (NGT), mouthings are used in almost every sentence, leading to the conclusion that the “pure” use of NGT or any monolingual concept of what NGT is, is a fiction (Crasborn 2016).

1.2.1 Challenging the narrow perspective of linguistics

Some scholars would argue that while it is a positive development that linguists are looking into signed and spoken languages in their multimodal and/or multilingual contexts, there are many more aspects to human interaction. Kusters et al. (2017) phrases this as the need to look not just at the *linguistic* resources that two interlocutors bring to bear, but at the wider semiotic resources that signers or speakers bring to an interaction. This includes not just the interlocutors’ knowledge of language, but also the physical environment (Shohamy 2015), for instance. Some of the studies on international interactions between signers, including those in Bradford, Michaelis, and Zeshan in this volume, illustrate how participants

make use of nearby objects (such as a signer's T-shirt), and Zeshan (2015: 229) likewise mentions the use of "exophoric pointing to objects and other referents in the vicinity". Pointing to objects or locations visible to interlocutors, however, is often neatly integrated with the rest of the utterance. Liddell (2003) refers to the term "real space" to distinguish it from an imagined or "surrogate" space, and the use of real and surrogate space shows a similar integration of pointing signs in ASL syntax. The fact that "[t]he boundaries between different sign and spoken languages and modalities become fuzzy in sign language contexts" (Kusters et al. 2017: 6) does not relieve us from the task of teasing apart the contributions from the different languages at play and from other non-linguistic resources.

The studies on cross-signing in this volume are especially interesting in this respect. When there are fewer shared linguistic resources to build on, one might expect an intensive use of extra-linguistic resources. In the data analysis for the chapter by Bradford, Michaelis, and Zeshan, the category SPACE is used for 'real space', for instance pointing to objects in the area around the interlocutors. Although not the focus of the study, the examples that are presented do not show a prominent use of real space at all. The authors in addition remark that in the data, this category appears infrequently: in the two rounds of the game that participants played, SPACE accounts for under 4% of all signs. Rather, the interlocutors intensively exploit the part-lexical and non-lexical constructions that are available in each of their sign languages. These include size-and-shape specifiers, classifier constructions, gestures, and constructed action.

Chapter 2 (Byun, de Vos, Zeshan and Levinson) investigates errors in the communication flow, where the addressee signals that he or she has not understood something, i.e. "other-initiated repairs". The cross-signers in this study come from all over the world, all with different language backgrounds. Among the total number of 87 cases of repair identified in the data sets, the large majority (78) consisted of a lexical item that was not understood by the other party. The ways in which these non-understandings were resolved all involved strategies that are also found in regular signed discourse, such as producing a synonym, explaining a concept, giving an example, using constructed action, or articulating complex signs like classifier constructions. The use of (finger-spelled) spoken language also formed part of the strategies, even though this was relatively unsuccessful. The main observation here is that the strategies harnessed by cross-signers are all known methods used by same-language signers, and are amenable to linguistic analysis.

1.2.2 Languageing or using language?

Studies on language contact over the last ten years have argued that the purely linguistic take on communication in multilingual contexts is too narrow. There is no sense in which two discrete systems come into contact and “mix” (as in Muysken 2000) to yield multilingual utterances. Garcia and Wei (2015), for example, argue that what children are doing in multilingual settings like a New York school is more a form of “(trans)languageing” than using a rigidly defined language in the traditional sense. Garcia and Cole (2014) discuss the same issue in the context of deaf bilinguals’ language use. This especially pertains to the case of the cross-signing interactions like those explored in this volume. The “linguistic repertoires” (Busch 2012) of the people involved are super-diverse, yet they manage to have fruitful interactions based almost exclusively on their regular linguistic competence as multilingual users of primarily signed but also spoken languages.

Nonetheless, in order to understand the way in which signers from different areas combine their native language with forms learned from their interlocutor or newly negotiated forms, we have to assume that there is a way in which we can characterise the communicative patterns a signer would use in his/her native environment, however fluid or variable these patterns might be, both within and across speakers and signers. The fact that “language structure emerges from language use” (Tomasello 2003: 5, as quoted in Zeshan 2015) does not imply that there is no language structure, and this holds as much for monolingual interactions as multilingual interactions.

The need signalled in Kusters et al. (2017) to integrate the multilingual with the multimodal perspective is widely felt in linguistics. Phonetic studies of the type mentioned earlier highlight that we are only beginning to understand how our so-called “non-verbal” behaviour is integrated with our “verbal” behaviour. However, many would argue that it is integrated. In his investigation of multimodal interaction among hearing people, Enfield (2009) argues that what he calls a “composite utterance” is in fact an utterance: a unit of multimodal linguistic expression that can be analysed with the tools of linguistics.

The chapters in this volume contribute to a broad view on language contact situations and the communicative behaviour of signers/speakers in such contexts. The studies illustrate that the questions and methodologies are fundamentally linguistic: they concern the units of language(s) and related part-lexical and non-lexical expressions, and how these are combined. Although many additional questions on the use of contextual information could also be posed, the detailed studies in this volume present new findings and taken together contribute substantially to our understanding of the multilingual behaviour of signers.

2 Forces shaping multilingual behaviours in sign language users

As mentioned above, when investigating the various bi- and multilingual behaviours that sign language users engage in, it is appropriate to go beyond a narrowly framed linguistic account and include considerations such as other semi-otic resources, as well as social and cognitive factors. In fact, the various case studies assembled in this volume show evidence of a range of factors that shape people's communicative behaviours. Some of these factors are briefly explored in this section.

In a study on cross-signing in Zeshan (2019), the relative communicative success of participants in a linguistic elicitation task is captured in terms of the following contributing factors: sociolinguistic norms, external linguistic environment, metalinguistic factors, typological profile of the languages involved, social learning in a community of practice, and individual personal factors such as linguistic background. On the basis of the data, it is hypothesised that some of these factors may have either facilitating effects on the elicitation task (i.e. they make communication easier), or inhibiting effects (i.e. they present an obstacle to communication).

The authors in this volume similarly discuss a number of factors, both linguistic and non-linguistic, that contribute to the communicative settings and outputs. In this section, we briefly discuss the typological profiles of the languages involved (1.3.1), sociolinguistic norms and social learning in communities of practice (1.3.2), and the wider linguistic environment surrounding the bi-/multilingual setting (1.3.3). The impact of all of these factors is evidenced in the contributions to this volume, although not all factors are relevant in all chapters.

2.1 Typological profiles in bi- and multilingual situations

One of the hallmarks of this volume is the wide range of languages covered in its contributions. This range of typological diversity adds to the richness of the research findings. For instance, Işsever et al. point out that their work differs from previous work on bimodal bilingualism partly due to the typological characteristics of Turkish and TİD. The authors argue that some of the instances of code-blending between Turkish and TİD in their data involve congruent structures. According to the categorisation in Muysken (2000), congruent lexicalisation applies where two languages happen to have parallel word orders, so that the equivalent lexical sequence is compatible with the grammars of both languages. As Turkish and

2.2 Sociolinguistic norms and social learning

Several chapters address issues in relation to social and sociolinguistic factors that contribute to an understanding of the bi- and multilingual case studies. For the group of trilingual sign-speakers in India, Zeshan and Panda (2017) includes data that show how the primary and secondary audiences that the sign-speaker has in mind determine the degree to which grammatical features from ISL or from Hindi dominate the discourse. Primary deaf audiences cue ISL structures, whereas secondary audiences cue Hindi structures. Interestingly, examples of balanced discourses, where neither of the two languages is grammatically dominant, are also found in the data.

Another example is the use of literacy in the form of a manual alphabet (fingerspelling) and writing (e.g. tracing in the air or on surfaces such as the palm of the hand) that is observed as part of the multimodal repertoire of cross-signers. Partly, this reflects cultural practices and sociolinguistic norms in their country of origin, and the differences in these practices can lead to communicative difficulties (see Zeshan 2015 on the use of written numbers in Arabic, Japanese, and Bahasa Indonesia). On the other hand, if participants share a language of literacy, this can potentially be a bridge that facilitates communication by making manual alphabets and writing-related strategies more available and useful. Chapter 2 by Byun et al. includes literacy as one of the frequent repair strategies used by cross-signers, though this strategy leads to successful repair only some of the time, which underscores both the potential and the difficulties inherent in literacy practices.

In several chapters, it is argued that the small bi- and multilingual communities of sign language users develop shared linguistic characteristics through social learning, and that they constitute communities of practice (CoPs). Though the term “community of practice” (Wenger 1998) has traditionally been applied to larger groups, e.g. professionals in the sphere of law, authors in this volume contend that small groups of individuals – in some cases as small as four to six individuals – can also show characteristics and behaviours suggestive of CoPs. They use the term “micro-community of practice” (MCoP) to recognise that these exist on a reduced scale compared to typical larger CoPs, and to indicate that the emergence of their shared linguistic behaviour may have some interesting differences from their larger counterparts. Each MCoP can be shown to develop its own linguistic characteristics (cf. Lave and Wenger 1991; Eckert and McConnell-Ginet 1992).

Thus Panda (Chapter 8, this volume) notes that the MCoP of bilingual BuSL-ISL users is characterised by their shared background and intensive contact in India (see also Zeshan and Panda 2015). The linguistic variety that emerged from

their bilingual signed communication is characterised by consistent contributions of both BuSL and ISL signs, with similar proportions; considerable use of the pool of shared signs in both sign languages; and usually following the source language's patterns in their use of signs from closed grammatical classes, but not open lexical classes (Zeshan and Panda 2015: 126–127).

A particularly clear case of emerging linguistic norms in a MCoP is presented in Chapter 4 by Bradford, Michaelis, and Zeshan. The authors trace the development over time of an inter-language among two groups of cross-signers with respect to the domain of animate referents. The groups start out with a range of variants for signing MALE and FEMALE, and over three to four weeks, the feature pool of variants is greatly reduced to just one or two signs being used for each of the meanings. These two micro-communities of cross-signers are described in the sociolinguistic sketches by Bradford (Chapters 10 and 11, this volume), and it is evident from these sketches that both groups are engaged in social learning, joint endeavours, and group identity formation. For instance, they develop specific in-group jokes and humour.

Such shared social undertakings characterise CoPs in general, and shared linguistic norms are part of the picture. For example, the deaf Burundians arrived in India with the intention of studying at university. As they lived and learned with each other and together with deaf Indians, they developed bilingual linguistic norms alongside their group objectives.

The fact that different sociolinguistic norms lead to different bilingual outputs with regard to linguistic structures is particularly visible when comparing the bimodal bilinguals in India (Zeshan and Panda 2017, and Chapter 9) and in Turkey (Chapter 5 by Işsever et al.). In India, the intention to convey information in a non-disrupted way equally to the deaf and hearing people present in the situation leads to linguistic outputs with mismatched semantic and syntactic structures in the signed and spoken language. In Turkey, on the other hand, we do not find such a pattern, and there is evidence that spoken Turkish is sociolinguistically more dominant.

2.3 Linguistic environments surrounding the bi-/multilingual setting

The various settings reported on in this volume are situated in larger linguistic environments. The notion of linguistic ecology (Haugen 1972) is particularly relevant in the more complex cases where multiple languages are involved. In Chapter 4 (Bradford, Michaelis, and Zeshan), the authors argue that the selection of variants for MALE and FEMALE from the feature pool over time is, to a substantial

extent, driven by the sign languages used in the environment surrounding the micro-community of cross-signers. For the group located in India, the selection of signs is doubly facilitated not only by the wider Indian Sign Language using setting but also by the fact that the signs MALE and FEMALE are the same in India and Nepal, where two of the signers in the group come from. This in turn is an effect of the geographical and linguistic contact between these adjacent regions. In the UK (see Chapter 10 by Bradford), the linguistic ecology has three layers: the micro-community of cross-signers, the international research institute where the group is embedded and where the main language used is International Sign, and the wider British Sign Language using community. Therefore, the variants selected over time include both IS and BSL signs.

Another similar factor is discussed in Zeshan (2019) in terms of the sign language environment in the home areas of the cross-signing participants. This consideration includes the level of dialectal diversity, which can vary across locations. For instance, Japanese Sign Language is comparatively homogenous and dialectal diversity is decreasing (cf. Sagara 2016), with the Tokyo dialect emerging as a standard variety. At the other end of the spectrum, the sign language environment of Solo in Java, Indonesia, is highly multi-dialectal (Palfreyman 2014, 2015), and multi-dialectalism is characteristic of many areas of Indonesia. Potentially, signers from areas with a greater extent of dialectal variation could be at an advantage in cross-signing situations, because they would have more experience with lexical flexibility, and Zeshan (2019) discusses some preliminary evidence with respect to cross-signers from Japan and Indonesia. The same participants also feature in Chapters 2 and 4 in this volume.

In cross-signing settings, the linguistic ecology includes various sign languages as well as some uses of literacy. By contrast, the cases of bimodal bilingualism include both signing and speaking, and we see evidence of the dominance of spoken languages in some of the chapters, including both settings with children (in Brazil and in the US), and with adults (in Turkey), though the Indian sign-speakers seem to go against this general trend.

3 Structure of this volume

With the MULTISIGN project and the present volume as its major output, the intention has been to kick-start a new linguistic sub-discipline of “Sign Multilingualism Studies”, developing this area both theoretically and methodologically. The contributions in this volume extend known bi- and multilingual phenomena to the domain of sign languages, going beyond current approaches into novel areas that are specific to the use of sign languages. We hope that MULTISIGN inspires more

research in this new field, investigating e.g. the characteristics of International Sign (cf. Rosenstock 2008; Hiddinga and Crasborn 2011; Friedner and Kusters 2015; Whynot 2016), the simultaneous or sequential acquisition of more than one sign language, issues of interpreting between sign languages, and language attitudes in settings where more than one sign language is being used.

This volume is structured in two main parts. Part 1 contains detailed case studies of various multilingual settings involving sign language users. The studies cover a wide variety of locations and theoretical issues, aiming to present to the reader the rich and diverse emerging field of Sign Multilingualism Studies. In addition to individual cases, Part 1 also includes a chapter on methodological innovations (Webster, Byun, Panda, and Bradford) that cuts across several of the research settings. With the emergence of a new field of research, it is only natural that new methodologies need to be found as well.

Part 2 features an exploration of several groups of participants and communities of practice that were formed during the MULTISIGN study. In the two chapters by Panda (Chapters 8 and 9), research conducted with signers in India is brought to life by documenting the Burundi-Indian bilingual signers and the ISL-Hindi-English bimodal bilingual sign-speakers as micro-communities of practice. This is followed by two chapters by Bradford (Chapters 10 and 11) on the micro-communities of cross-signing participants who were recorded in 2012 in the UK and in 2014 in India. Finally, Byun (Chapter 12) examines the cross-signers who met in 2004 at the Max-Planck Institute for Psycholinguistics in the Netherlands.

A separate part with details about each group of participants was deemed necessary so that the case studies in Part 1 can be better understood in relation to the settings, which are, for the most part, highly unusual. Moreover, Part 2 also serves as an explicit reminder that after all, the participant groups are the main actors in these various research undertakings. Their communities of practice, though transitory, are valuable for documentation in their own right. The explicit documentation of the settings also prevents us from seeing linguistic data in isolation from the people who have engaged with us in research and have generously shared their languages, skills, time, and commitment with the research team.

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