# Introduction:
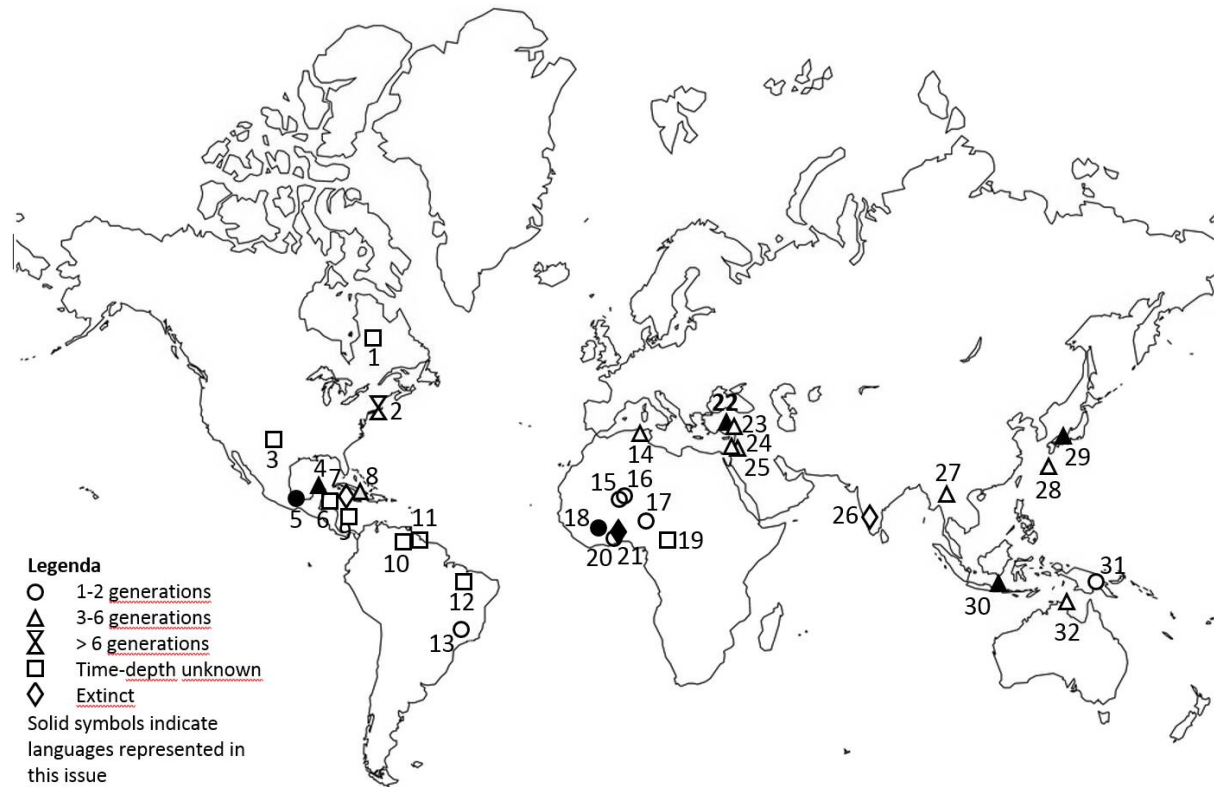# The time-depth and typology of rural sign languages

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**Introduction**

This special issue of Sign Language Studies is focused on recent developments in the study of rural sign languages, which have arisen from the spontaneous interactions between deaf and hearing individuals in rural communities with high incidences of deafness. With the exception of a few preliminary studies, such as the ones on the now-extinct Martha's Vineyard community (Groce 1985) and the work on Providence Island Sign Language (Washabaugh, Woodward & DeSantis, 1978), the linguistic documentation and description of these sign languages did not really take off until the early 2000s (de Vos & Pfau 2015). Importantly, rural sign languages are only one part of the linguistic landscape, including the urban sign languages of national deaf communities whether they have emerged recently, as happened in the case of Nicaragua (Senghas & Coppola 2001), or are in fact presumed to have a long-standing history (Palfreyman & Zeshan 2017).

In the map below, we provide a comprehensive overview of all rural sign languages for which we could currently identify linguistic sources, including the ones that are discussed in the current issue. The map differentiates between communities that constitute only 1-2 generations, communities that have had at least 3 generations of deaf signers, ones that are older than 6 generations, and rural sign languages that no longer exist. All in all, we have identified 32 rural sign languages at present. A complete list of these rural sign languages and their references is provided as an online supplementary material.

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|---|---|---|---|---|---|---|---|
| 1 | Inuit SL (Schuit 2012) | 9 | Providence Island SL (Washabaugh 1986) | 17 | Bura SL (Blench and Warren 2006) | 25 | Al-Sayyid Bedouin SL (Sandler et al.   2005) |
| 2 | Martha's Vineyard SL (Groce 1985) | 10 | South Rupununi SL | 18 | Bouakako SL (Tano 2016) | 26 | Alipur SL (Panda 2012) |
| 3 | Keresan Pueblo SL (Kelley and McGregor 2003) | 11 | Kajana SL (van den Bogaerde 2005) | 19 | Extreme North Cameroon SL (De Clerck 2011) | 27 | Ban Khor SL (Nonaka 2014) |
| 4 | Yucatec Mayan SL (Escobedo Delgado 2012; Safar et al. 2018) | 12 | Urubu Kaapor SL (Ferreira-Brito 1984) | 20 | Nanabin SL (Nyst 2010) | 28 | Amami Oshima SL (Osugi et al. 1999) |
| 5 | Chatino SL (Hou 2016) | 13 | Maxakalí SL (Stoianov and Nevins 2017 | 21 | Adamorobe SL (Nyst 2007) | 29 | Miyakubo SL (Yano & Matsuoka 2018) |
| 6 | French Harbour SL (Braithwaite forthcoming) | 14 | Ghardaia SL (Lanesman and Meir 2012) | 22 | Central Taurus SL (Ergin 2017) | 30 | Kata Kolok (de Vos 2012) |
| 7 | Old Cayman SL (Washabaugh and Woodward 1979) | 15 | Douentza  SLs (Nyst et al. 2012) | 23 | Mardin SL (Dikyuva 2012) | 31 | Enga SL (Kendon 1980) |

| 8 | Konchri Sain (Cumberbatch 2012) | 16 | Berbey SL (Nyst et al. 2012) | 24 | Kafr Qasem SL (Kasmer et al. 2014) | 32 | Yolngu SL (Maypula and Adone 2012; Bauer 2014) |

Figure 1. Rural sign languages currently attested in the linguistic literature[1]

## The time-depth and typology of rural sign languages

Compared to spoken languages, all sign languages are to be considered relatively young and, each and every sign language, at whichever stage of development it is, therefore contributes a unique piece to the puzzle as to how sign languages emerge (Meir et al. 2010). The studies presented in this issue each contribute to our understanding of what these emergent signing varieties look like. On a par with urban sign languages, rural signing varieties are thought to be grafted upon a pre-existing gestural repertoire used by hearing community members, but little is known about such initial stages from gesture to language. What is more, the few detailed linguistic descriptions of rural sign languages have made clear that they may rapidly develop distinct typological features that were previously unattested (e.g. Zeshan et al. 2013; de Vos & Pfau 2015).

The typology of rural sign languages is still in its infancy, but with each new data point we gain, it becomes clearer how much they have to add to our understanding of linguistic diversity in the visual-gestural language modality. Yano & Matsuoka (this issue) provide an initial sketch of Miyakubo Sign Language, and find that this rural sign language uniquely combines a celestial timeline, which is linked to the absolute location of the sun, with a deictic timeline that places the past at the signer's right, but does not include a spatial representation of the future. Lutzenberger (this issue) is the first to identify the use of fully non-manual name signs in Kata Kolok. Further comparisons to other urban sign languages reveal cross-linguistically robust properties of name sign phonology, specifically the predominance of the head location and one-handedness. In the case of San Juan Quiahije Chatino Sign Language considerable formational variation exists among signers, iconic prototypes are shared among the families (Hou, this issue). This suggests that variation studies should cover both the phonological and the iconic level.

This issue also explores the view that during emergence, the morphosyntactic complexity of a sign language increases (Sandler et al. 2005). Tano & Nyst (this issue) demonstrate a gradual grammatical integration of size and shape specifiers when comparing the co-speech gestures of Anyi speakers to the first generation of Bouakako Sign Language, and to Adamorobe Sign Language, which is much older. Safar et al. (this issue) consider the different numerals of Yucatec Mayan Sign Language and show that while the first generations signers of Nokhop and the Cepeda Peraza signing varieties solely adopt a digital strategy, the third generation of

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[1] Source of the blank map: https://www.flickr.com/photos/jrhode/1386592982/sizes/l/ (creative commons)

Chicán signers has several numeral strategies including, for example, non-manual modifications to indicate hundreds and thousands.

As pointed out by Ergin and colleagues (this issue), however, the timeframe and trajectory along which sign languages accrue structure can however not be predicted beforehand. Specifically, they show that Central Taurus Sign Language does not disambiguate core arguments on the basis of word order, but rather capitalises on subsequent single argument constructions combined with character assignment by its second cohort (cf. Sandler et al. 2005 on Al-Sayyid Bedouin Sign Language). Interestingly, the third cohort of signers, who are also fluent in Turkish Sign Language, have developed spatial verb agreement strategies, pointing to a role for sign language contact in the development of rural sign languages.

**Future research**
Many rural sign languages have emerged spontaneously, in response to a local rise in the incidence of deafness. As such, they can be qualified as linguistic isolates. Notably however, as is the case in any sign luguage, rural sign languages incorporate the conventional gestures and gestural strategies of the wider hearing community in which they emerge (e.g. LeGuen 2012). These gestural origins may lead to areal effects in the structure of the sign language(s) emerging in that culture (cf. Nyst 2016). This calls for systematic documentation and description of the gestural environments of emerging sign languages.

One particular challenge in the description of rural sign languages is the high degree of within-community variation reported for these sign languages, across generations, across families, and between deaf and hearing signers. Qualitative analyses of variation shed light on the processes that lead to the patterns of linguistic dissemination observed as well as the sources of conventionalization. This requires detailed metadata on the signers in the community and their social network. Additional quantitative analyses are necessary to better understand the clustering of variation, for example across families (Tano 2016). Such quantified variation data allow solid comparisons of variation across sign languages, including the sign languages used in larger urban signing communities.

An issue for research in the coming years is to come to an understanding of when a sign language should still be considered 'emerging' and when the rate of change has reduced to the levels expected of normal language change. This is particularly the case for sign languages such as Kata Kolok, which is currently in its sixth generation, and thus has a similar time-depth to many urban sign languages. A related issue is the question to what extent formal features recurring in rural sign languages, such as a relatively small set of phonemic handshapes or a large signing space, are indicative of their emerging status or rather representative of typological variation among sign languages more generally. That is to say, some spoken languages are also known to have small phoneme inventories regardless of a longstanding history (Madieson 2013). For this reason, comparisons with older rural sign languages such as Adamorobe Sign Language are particularly informative in determining whether time-depth is indeed a decisive factor in the development of linguistic characteristics (Nyst 2007).

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Another important challenge for the field is to disentangle which linguistic characteristics of (rural) sign languages have been shaped by the specific circumstances in which they have emerged (De Vos & Pfau 2015). Such factors include not just time-depth, but also the lack of formal education in any written language, overall community size, the sheer numbers of hearing second language learners who have adopted the local sign language, the causes, types and incidence of hearing loss, as well as the level of geographical dispersion (de Vos & Zeshan 2012; Nyst 2012). It is also possible that some aspects of the linguistic structure are more easily affected by these social factors than others. For example, it is likely that education affects certain types of sign formation (i.e. initialisation) and the levels of lexicalisation more generally, but less clear how education would favour a particular type of negation pattern (cf. Meir et al. 2010; de Vos 2011).

A recent innovation to further disentangle each of these factors has been to adopt models of computational agents to mimic the social dynamics of various sign language community types, allowing for experimental control as to how each parameter contributes to the sustained use of the sign language by hearing community members (De Vos, Roberts, & Thompson 2016). We expect that a combination of further linguistic documentation, including a detailed understanding of the interaction patterns within these communities, and methodological innovations such as the latter will contribute considerably to our understanding of language emergence and change, whether in the case of rural sign languages, sign languages, or human language in general.

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