HOW DOES SOCIAL STRUCTURE SHAPE LANGUAGE VARIATION? A CASE STUDY OF THE KATA KOLOK LEXICON

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Sign language emergence is an excellent source of data on how language variation is conditioned. Based on the context of sign language emergence, sign languages can be classified as Deaf community sign languages (DCSL), used by a large and dispersed group of mainly deaf individuals (Mitchell & Karchmer, 2004) or as shared sign languages (SSL), which typically emerge in tight-knit communities and are shared by deaf and hearing community members (Kisch, 2008)[1].

It has been suggested that, in small, tight-knit populations, a higher degree of variation is tolerated than in large, dispersed communities because individuals can remember others' idiolects (de Vos, 2011; Thompson et al., 2019). Confirming this, Washabaugh (1986) found more lexical variation in Providence Island Sign Language, a SSL, than in American Sign Language (ASL), a DCSL. DCSLs frequently exhibit variation influenced by schooling patterns, for instance seen in the differences between ages in British Sign Language (Stamp et al., 2014), gender in Irish Sign Language (LeMaster, 2006) and race in ASL (McCaskill et al., 2011). It remains unknown how variation is conditioned in SSLs.

The present study of Kata Kolok (KK) is one of the first in-depth studies of how sociolinguistic factors shape lexical variation in a SSL. KK emerged six generations ago in a village in Bali, Indonesia due to a high incidence of hereditary deafness (Winata et al., 2012). Over half of the village knows KK, and the majority of signers are hearing (Marsaja, 2008).

We used a picture description task of 36 stimuli to study the lexical preferences of 46 deaf and hearing KK signers. These signers were sampled by age, clan and deafness, and additional sociolinguistic features are recorded. In order to study variation in the KK lexicon, we use the following three steps: 1) we focus on the first variant in the sequence produced by participants, 2) we classi-

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[1] However, this two-category dichotomy has been questioned, given that features characterizing SSLs and DCSLs (e.g. the proportion of deafness) are continuous (Nyst, 2012).

fy signs on the basis of *underlying iconic motivation and mapping,* and 3) we compare individual repertoires by calculating the lexical distance between participants.

In line with previous findings from SSLs we find a large amount of variation in the KK lexicon. However, it appears that there is less variation for everyday concepts, e.g. *dog*, and more variation for less frequently occurring concepts, e.g. *dragonfruit.* To understand how this variation is conditioned, we compare the first signs produced by participants by creating a lexical distance matrix. We visualize this matrix using multi-dimensional scaling (MDS) (Fig. 1). Participants with a short distance from one another have similar lexical repertoires.
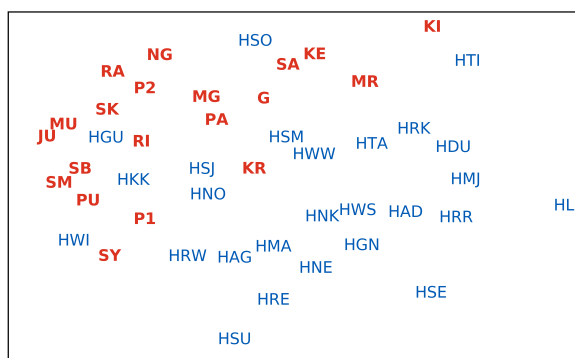

Figure 1. MDS visualization of the lexical distance between participants, with deaf participants colored in red and bolded, and hearing participants colored in blue.

Clearly, deaf and hearing participants have different lexical preferences (Fig. 1). To test this hypothesis, we use a Chi-squared test to compare two models, one with the coordinates as predictors and one without. The model with the coordinates from the MDS visualization is significantly better at predicting if participants are deaf or hearing (χ^2=12.05, df=1, p=0.00). We find that no other sociolinguistic factors significantly predict lexical variation in KK, likely due to the tight-knit community.

To conclude, in line with other SSLs, KK exhibits a high degree of variation in the lexicon, which is conditioned by deafness. Both of these results are in contrast to what has been reported for DCSLs. We conclude that the social setting of sign language emergence and evolution directly affects the degree of variation and how variation is conditioned.

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