

One or two? That is the question! The variation in the number of hands in the production of some Libras signs as a result of co-articulation

Language of the presentation: English

Klima and Bellugi (1979) reported that in American Sign Language (ASL) signs can be characterized as one or two-handed. The number of hands, however, can vary in some signs. Woodward and DeSantis (1977), for instance, showed that some ASL two-handed signs can be articulated by some signers with one hand only. The same observations have been reported for Libras. Xavier (2006) observed that even though Libras signs can be distinguished in terms of their number of hands, some signs can vary in relation to this articulatory parameter (Xavier 2011). In his 2011 work, the author cites co-articulation, either anticipatory (ACA) or perseveratory (PCA). ACA is the anticipation of articulatory properties of a following segment onto the current one, whereas PCA is superficially the same phenomenon in the opposite direction (Kühnert and Nolan 1999). Co-articulation related to variation in the number of hands has also been reported to occur in ASL by Liddell and Johnson (1989) and in Australian Sign Language (Auslan) by Johnston and Schembri (1999). To test Xavier's observations of the same phenomenon in spontaneous signing, we designed an experiment in which five Libras signs (ACCEPT, ALREADY, NEED, NOT and WANT), observed to vary in their number of hands, had their context of occurrence controlled so that each of them appeared in-between (a) one-handed signs, (b) two-handed signs, (c) a one-handed sign and a two-handed sign, and (d) a two-handed sign and a one-handed. In addition, to check if the signing rate can also play a role in the occurrence of number-of-hands-related co-articulation, the experiment was run in two sessions: in the first, subjects signed in their default signing rate and, in the second, they were requested to sign faster. Based on Tyrone (2010), we created Libras sentences with the help of a deaf signer and, during the experiment, we displayed them on a computer screen through glosses. The experiment consisted of having the subjects sign each sentence (after reading them) by memory to another deaf person sitting by the camera. The sentences, mixed with 30 % of fillers, were displayed five times randomly in each session. Before the experiment, however, a native bilingual signer interviewed and conducted a game with all eight subjects selected. The goal of the interview and game was to elicit the same target signs used in the experiment in a more relaxed situation. The analysis of the data obtained (both from the interview/game and the experiment itself) revealed a great variability among subjects in terms of which of the signs underwent co-articulation and to what extent this happened. This occurred even though the selected subjects are all from the same city, shared a common educational background and mainly interacted among themselves frequently. We concluded that inter-signer variability is still a main issue to tackle before conducting any experiment in sign languages.

- Johnston, T. and Schembri, A. On defining lexeme in a signed language. *Sign Language and Linguistics*, 2(2), 115-185. 1999.
- Klima, E. and Bellugi, U. *The signs of language*. Cambridge, MA: Harvard University Press, 1979.
- Kühnert, B. and Nolan, F. 1999. The origin of coarticulation. In Hardcastle, W. J. and Hewlett, J. (Eds.) *Coarticulation. Theory, Data and Techniques*. Cambridge: Cambridge university Press. Pp. 7-30.
- Liddell, Scott & R. Johnson. 1989. American Sign Language: The phonological base. *Sign Language Studies* 64. 197-277.
- Tyrone, M. et al. *Prosody and Movement in American Sign Language: A Task-Dynamics Approach. Speech Prosody 2010*.
- Xavier, A. N. Descrição fonético-fonológica da língua de sinais brasileira. Master's dissertation, 2006.
- Xavier, A. N. Variação fonológica na libras: um estudo da alternância no número de articuladores manuais envolvidos na produção dos sinais. In: XVII SETA - Seminários de Teses em Andamento, 2011, Campinas. *Anais do SETA*, v. 5. 119-145, 2011.
- Woodward, J. C., and S. DeSantis. "Two to One It Happens: Dynamic Phonology in Two Sign Languages." *Sign Language Studies* 17: 329-46, 1977.