

FLexSign: a lexical database in French Sign Language (LSF)

Périn, P.¹, Herrera, S.¹, Isel, F.¹, Bogliotti, C.^{1,2}

¹*Laboratory Models, Dynamics, Corpora, Department of Language Science, University Paris Nanterre – Paris Lumières, CNRS, Nanterre, France*

²*Institut Universitaire de France, Paris*

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In psycholinguistics, few studies have been conducted on sign languages to understand language processing mechanisms, whether in reception or in production. To do so, researchers need to have accurate psycholinguistic information about the linguistic material they use. They can then observe behavioral or neurophysiological responses and thus the associated language processing mechanisms. This is the case independently of the modality of the studied language, both in spoken language (Ellis, 2002; Adorni and Proverbio, 2012; Barber et al., 2013) and sign language (Bosworth and Emmorey, 2010; Emmorey et al., 2020). Among the normed sign lexical databases, two seem particularly interesting for psycholinguistic research and for us because of their interface and the way the data were collected: in American Sign Language, ASL-Lex (Caselli et al., 2017) with nearly 3000 signs and in Spanish Sign Language, LSE-Sign (Gutierrez-Sigut et al., 2016) for nearly 2400 signs.

The present study aims to propose the first interactive lexical database, inspired by ASL-Lex (Caselli et al., 2017), for LSF: FlexSign. The FlexSign database includes familiarity, concreteness and iconicity data for 550 signs of LSF. We chose to focus on these three factors which are known to influence the speed or the accuracy of lexical processing. Familiarity is known to generate a robust facilitative effect on sign processing in ASL: according to Emmorey et al. (1991), highly familiar ASL signs elicit significantly faster responses than less familiar signs. Moreover, familiarity and lexical frequency are known to be correlated (in English: Stadthagen-Gonzalez and Davis, 2006). Concreteness also has a documented role in lexical processing: as in spoken language with concrete and abstract words, Emmorey et al., (2020) report that concrete signs in ASL are recognized and processed faster than abstract signs in a lexical decision task. The last factor is the sign iconicity, a complex but central notion of signed languages which plays a crucial role in the creation and organization of sign language lexicons. Therefore, having information on the iconicity of LSF signs would help to better understand its role in lexical processing.

These previous findings largely encouraged us to develop a LSF lexicon database with familiarity, concreteness and iconicity data. For this work, we solicited 41 raters, all deaf people, which distinguishes us from other lexical sign databases. Ratings for each factor were collected through an online questionnaire using a 5-point Likert scale. Raw scores are provided with their normalized values as well. The sign videos were produced and provided by us.

Having norms on these three factors on a part of LSF lexicon is a necessary step before one can design and conduct psycholinguistic experiments on lexical access in LSF.

We know that this database will be of great use to sign language researchers as it provides linguistic information that has not been unavailable until now. This FLexSign database will be open to future contributions and allow many opportunities on both experimental and clinical levels.

References

- Adorni, R., Proverbio, A.M. (2012). The neural manifestation of the word concreteness effect: An electrical neuroimaging study. *Neuropsychologia*, 50(5), 880-891.
- Barber, H.A., Otten, L.J., Kousta, S.-T., Vigliocco, G. (2013). Concreteness in word processing: ERP and behavioral effects in a lexical decision task. *Brain and Language*, 125(1), 47-53.
- Bosworth, R.G., Emmorey, K. (2010). Effects of iconicity and semantic relatedness on lexical access in American sign language. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 36(6), 1573-1581.
- Caselli, N., Sehyr, Z.S., Cohen-Goldberg, ALM., Emmorey, K. (2017). ASL-LEX: A lexical database of American Sign Language. *Behavior Research Methods*, 49(2), 784-801.
- Ellis, N. (2002). Frequency Effects in Language Processing: A Review with Implications for Theories of Implicit and Explicit Language Acquisition. *Studies in Second Language Acquisition*, 24(2), 143-188.
- Emmorey, K. (1991). Repetition priming with aspect and agreement morphology in American Sign Language. *Journal of Psycholinguistic Research*, 20(5), 365-368.
- Emmorey, K., Winsler, K., Midgley, K.J., Grainger, J., Holcomb, P.J. (2020). Neurophysiological correlates of frequency, concreteness, and iconicity in American sign language. *Neurobiology of Language*, 1(2), 249-267.
- Gutierrez-Sigut, E., Costello, B., Baus, C., Carreiras, M. (2016). LSE-Sign: A lexical database for Spanish Sign Language. *Behavior Research Methods*, 48(1), 123-137.
- Stadthagen-Gonzalez, H., & Davis, C. J. (2006). The Bristol norms for age of acquisition, imageability, and familiarity. *Behavior research methods*, 38(4), 598-605.