

Language by mouth and by hand

April 3 2013

Humans favor speech as the primary means of linguistic communication. Spoken languages are so common many think language and speech are one and the same. But the prevalence of sign languages suggests otherwise. Not only can Deaf communities generate language using manual gestures, but their languages share some of their design and neural mechanisms with spoken languages.

New research by Northeastern University's Prof. Iris Berent further underscores the flexibility of [human language](#) and its robustness across both spoken and signed channels of communication.

In a paper published in *PLOS ONE*, Prof. Berent and her team show that [English speakers](#) can learn to rapidly recognize key structures of American Sign [Language](#) (ASL), despite no previous familiarity with this language.

Like spoken languages, signed languages construct words from meaningless syllables (akin to can-dy in English) and distinguish them from morphemes (meaningful units, similar to the English can-s). The research group examined whether non-signers might be able to discover this structure.

In a series of experiments, Prof. Berent and her team (Amanda Dupuis, a graduate student at Northeastern University, and Dr. Diane Brentari of the University of Chicago) asked English speakers to identify syllables in novel ASL signs. Results showed that these non-signing adults quickly learned to identify the number of signed syllables (one vs. two), and they

could even distinguish syllables from morphemes.

Remarkably, however, people did not act as indiscriminate general-purpose learners. While they could easily learn to discern the structure of ASL signs, they were unable to do so when presented with signs that were equally complex, but violated the structure of ASL (as well as any known human language).

The results suggest that participants extended their linguistic knowledge from [spoken language](#) to sign language. This finding is significant because it shows that linguistic principles are abstract, and they can apply to both speech and sign. Nonetheless, Dr. Berent explains, language is also constrained, as not all linguistic principles are equally learnable. "Our present results do not establish the origin of these limitations— whether they only result from people's past experience with English, or from more general design properties of the language system. But regardless of source, language transcends speech, as people can extend their linguistic knowledge to a new modality."

Provided by Northeastern University

Citation: Language by mouth and by hand (2013, April 3) retrieved 9 April 2024 from <https://phys.org/news/2013-04-language-mouth.html>

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