

Sign language reveals the hidden logical structure, and limitations, of spoken language

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Sign languages can help reveal hidden aspects of the logical structure of spoken language, but they also highlight its limitations because speech lacks the rich iconic resources that sign language uses on top of its sophisticated grammar.

The study, published in *Theoretical Linguistics* with nine peer-commentaries, is the culmination of more than eight years of research on French Sign Language and American Sign Language (ASL) by Philippe Schlenker, a senior researcher at Institut Jean-Nicod within France's National Center for Scientific Research (CNRS) and a Global Distinguished Professor at New York University.

Sign languages are considered by linguists as full-fledged and grammatically very sophisticated languages, which are essential to the communication of Deaf people. But they also have unique insights to offer on how meaning works in language in general. In several cases, they make visible a logical structure that must be inferred indirectly in spoken language.

For instance, the logical structure of the English sentence Sarkozy told Obama that he would be elected is conveyed more transparently in sign language. The English sentence is ambiguous, Schlenker explains, as he can refer to Sarkozy or to Obama. Linguists have postulated that this is because the sentence contains some unpronounced—but cognitively real—logical variables like x and y .

If the sentence is understood as Sarkozy told Obama that he would be elected, with the same variable x on Sarkozy and on he, the pronoun refers to Sarkozy; if instead he carries the variable y (= hey), it refers to Obama. Remarkably, in sign language the variables x and y can be visibly realized by positions in space, e.g. by signing Sarkozy on the left and Obama on the right. The pronoun he is realized by index pointing. If it points towards the left, it refers to Sarkozy; if it points towards the

right, it refers to Obama: left and right are the visible realization of the unpronounced variables x and y .

But sign languages don't just reveal the hidden logical structure of spoken language: they also highlight some of its limitations. While some spoken words can be iconically modulated to resemble what they refer to (think of the word looooooong to mean 'very long'), this is a rare occurrence.

"By contrast, iconic modulations are entirely common in sign language," Schlenker observes. He points to the ASL verb for 'grow' (as in my group has been growing), which may be signed with broader endpoints to denote a larger growth, and may realized more quickly to represent a quicker growth.

"One and the same expression may simultaneously be logical and iconic, as is the case with pronouns," adds Schlenker, who has previously published work co-authored with Deaf consultants and researchers. "If referring to a very tall individual standing, one can point upwards because the head of the person is high; but if the tall person is hanging upside down, one will point downwards instead: the logical variable has a dual life as a simplified picture of the person it denotes."

"Along some dimensions, sign languages are more expressive than spoken [language](#) because they combine the same kind of logical resources with far richer iconic means," he concludes. "They are, in a sense, 'super languages' - and they have a unique contribution to make to our understanding of human meaning."

More information: Philippe Schlenker, Visible Meaning: Sign language and the foundations of semantics, *Theoretical Linguistics* (2018). [DOI: 10.1515/tl-2018-0012](https://doi.org/10.1515/tl-2018-0012)

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