Whistled Turkish challenges notions about language and the brain

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Onur Güntürkün conducting the study with a Turkish farmer. Credit: Onur Güntürkün

Generally speaking, language processing is a job for the brain's left hemisphere. That's true whether that language is spoken, written, or signed. But researchers reporting in the Cell Press journal *Current Biology* on August 17 have discovered an exception to this rule in a most remarkable form: whistled Turkish.

"We are unbelievably lucky that such a language indeed exists," says Onur Güntürkün of Ruhr-University Bochum in Germany. "It is a true experiment of nature."

Whistled Turkish is exactly what it sounds like: Turkish that has been adapted into a series of whistles. This method of communicating was popular in the old days, before the advent of telephones, in small villages in Turkey as a means for long-distance communication. In comparison to spoken Turkish, whistled Turkish carries much farther. While whistled-Turkish speakers use "normal" Turkish at close range, they switch to the whistled form when at a distance of, say, 50 to 90 meters away.

"If you look at the topography, it is clear how handy whistled communication is," Güntürkün says. "You can't articulate as loud as you can whistle, so whistled language can be heard kilometers away across steep canyons and high mountains."

Whistled Turkish isn't a distinct language from Turkish, Güntürkün explains. It is Turkish converted into a different form, much as the text you are now reading is English converted into written form. Güntürkün, who is Turkish, says that he still found the language surprisingly difficult to understand.

"As a native Turkish-speaking person, I was struck that I did not understand a single word when these guys started whistling," he says. "Not one word! After about a week, I started recognizing a few words, but only if I knew the context."

Whistled Turkish is clearly fascinating in its own right, but Güntürkün and his colleagues also realized that it presented a perfect opportunity to test the notion that language is predominantly a left-brained activity, no matter the [physical structure](#) that it takes. That's because auditory processing of features, including frequency, pitch, and melody—the stuff that whistles are made of—is a job for the right brain.

The researchers examined the brain asymmetry in processing spoken versus whistled Turkish by presenting whistled-Turkish speakers with speech sounds delivered to their left or right ears through headphones. The participants then reported what they'd heard. While individuals more often perceived spoken syllables when presented to the right ear, they heard whistled sounds equally well on both sides.

"We could show that whistled Turkish creates a balanced contribution of the hemispheres," Güntürkün says. "The [left hemisphere](#) is involved since whistled Turkish is a language, but the right hemisphere is equally involved since for this strange language all auditory specializations of this hemisphere are needed."

That's important, the researchers say, because it means that the left-hemispheric dominance in language does depend on the physical structure the language takes. They now plan to conduct EEG studies to look even more closely at the underlying brain processes in whistled-Turkish speakers.

More information: *Current Biology*, Güntürkün et al.: "Whistled Turkish alters language asymmetries"
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