

## REPORT

### Neural mechanisms for lexical processing in dogs

A. Andics<sup>1,2,3,\*</sup>, A. Gábor<sup>2</sup>, M. Gácsi<sup>1</sup>, T. Faragó<sup>1</sup>, D. Szabó<sup>1,2</sup>, Á. Miklósi<sup>1,2</sup>

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#### e-Letter

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#### *Dogs process associations, not lexical or prosodic information*

Marc D. Hauser, Robert C. Berwick, Jeffrey Watumull and Noam Chomsky

Andics et al (1) use fMRI data to claim that dogs perform lexical and prosodic computations, concluding that these capacities evolved in the absence of language. The evidence does not support these conclusions.

First, the experimental design is flawed. With stimuli restricted to a single, familiar woman, we cannot generalize to all human speech. Logically, we cannot know whether the observed processing resulted from acoustic familiarity, one person, a woman, or an adult. The study also failed to include familiarity controls (used in several other studies, e.g., 2), most obviously familiar dog vocalizations. Notably, these same authors failed to find a laterality effect when both dog and human sounds were presented (3).

Second, even if they had presented a variety of voices, and eliminated familiarity by demonstrating a difference with dog vocalizations, there would still be no evidence for human language lexical or prosodic processing. Imaging and neuropsychological data (4) reveal that when humans process language, lexical and prosodic aspects go beyond sound structure or sounds with functional associations. For a dog, human words are at best associations to functional contexts or objects, and intonation merely conveys emotion. In contrast, for even young infants, lexical items are fixed by syntactical roles (e.g., verb, noun), spoken/signed articulation, and abstract semantics that can't be reduced to simple emotional or referential qualities. Prosodic information additionally specifies

segmentation, hierarchical metrical structure, syllabic stress, etc. There is no evidence that dogs process any of these dimensions of language.

What the results show then is that when dogs are exposed to linguistic input they never acquire even the rudiments of human language, even though they are endowed with sensory-motor systems much like ours. This failure supports the idea that the sensory-motor system is ancillary to the internal conceptual-computational aspects of our species-specific linguistic competence.

## REFERENCES

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