Dear Members of the National Academy of Science,

Please find enclosed our manuscript entitled *Infants’ Preference for Speech Decomposed: Meta-analytic evidence*, which we wish to submit for publication in PNAS.

Vocal communication is a crucial cognitive function for a broad range of gregarious species, but very few animal groups have complex vocalizations that are learned (humans, bats, cetaceans, songbirds, parrots and hummingbirds). The rarity of vocal learning among animals and its evolution in these distantly related species raises questions about the developmental mechanisms that endow a species with vocal learning. One theory argues that language develops from familiarity with the sound patterns of the language to which infants are exposed. Another argues that the auditory system has evolved to process natural sounds the most efficiently, in which case speech would initially not be distinguished from other natural sounds. A last one argues that infants are endowed with a capacity to process vocal sounds from various species as a broad category, and narrow it to speech during the first year of life.

We gather all the available literature on this topic, and leverage meta-analysis to integrate results from experiments that used different stimuli at different ages. This allows us unprecedented power to examine current theories. Synthesizing data from 776 infants across 38 different experiments, our results demonstrate that from birth, human infants preferentially orient their attention toward speech. Results do not statistically differ depending on the language used, whether the competitor sound is vocal or non-vocal, natural or artificial; and are extremely stable across the first year of life. As such, our results provide evidence for yet another theoretical perspective, where from birth, human cognition is setup to discriminate speech from other natural or vocal sounds, in a way that is flexible enough to be independent of the language spoken. These results strikingly parallel the development of face perception, and we argue that this capacity would be the gate to social cognition.

How vocal communication develops is one of the most intriguing questions nowadays, be it from an evolutionary, biological, or psychological perspective regarding the cognitive architecture that enables it. Accordingly, we are convinced that our results would be of great interest for a large public from psychology to system neuroscience, but also ethology and evolutionary biology.

We make our meta-analytic data and reproducible analysis scripts publicly accessible online; links provided in manuscript.

This work has not been published previously, and is not under consideration for publication elsewhere.

Best regards,

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**Authors’ contribution**: Cécile Issard collected the meta-analytic data, with input from Alejandrina Cristia. Cécile Issard, Sho Tsuji, and Alejandrina Cristia analyzed data. Cécile Issard and Alejandrina Cristia wrote the manuscript. Cécile Issard, Sho Tsuji and Alejandrina Cristia reviewed the manuscript.