Infants, children and adults are constantly exposed to repeating patterns in their environment, and manage to learn them implicitly. This ability, often called statistical learning (SL), is postulated to be an important mechanisms in language acquisition [1]. Research over the past twenty years has shown that SL is present from early infancy [2] and is found in a variety of tasks and modalities (e.g., auditory, visual), raising questions about its domain generality [3,5]. But although SL is well established for infants and adults, very little work has looked at SL across development. Importantly, despite its postulated role in language learning, no study has examined changes in auditory SL throughout childhood, and no work has compared children's visual and auditory SL abilities.

The paucity of research leaves two important questions unanswered. The first has to do with the developmental trajectory of SL: is SL a fully developed capacity in infancy, or does it improve with age, like other cognitive skills (e.g., memory)? Only few studies have examined SL across childhood, with conflicting results: some find age-related improvement while others do not [2,4]. Interestingly, the differences seem to be, in part, modality-based. This leads to the second question: does SL have the same developmental trajectory across domains, or does age affect SL differently in different perceptual modalities?

We addressed these issues by conducting a large-scale study of children's performance on matching auditory and visual SL tasks across a wide age-range (5-12y, N=230). Our results show modality-based differences in the developmental trajectory of SL abilities: while children's learning significantly improved with age in the visual domain (in line with [4]), learning in the auditory domain did not change much across development (in line with [2]). We examine these findings in light of previous studies and discuss their implications for modality-based differences in SL and for the role of auditory SL in language acquisition.
References: