Seeing Through Language: Structure of the Language Input to a Blind Child

Olivera Savic

Basque Center on Cognition, Brain and Language

There is no doubt that language plays an important role in shaping lexico-semantic knowledge in blind infants and children. However, it is unclear what information from language and what learning mechanisms support their early acquisition of semantic knowledge. Previous work suggested that blind learners may use theory-like linguistic and conceptual knowledge to make inferences based on language (e.g., Kim, Elli, & Bedny, 2019). These kinds of proposals are however circular – lexico-semantic knowledge itself has to be learned first, and it has to be acquired via language input. On the other hand, there is solid evidence that even infants can track simple regularities with which words reliably co-occur in language (e.g., Wojcik & Saffran, 2015), and that these regularities can foster the development of semantically organized word knowledge in sighted children (Unger, Yim, Savic, Dennis, & Sloutsky, 2023). The current investigation built upon this evidence and investigated the semantic information available from regularities of word use in language input to a blind child. We report analyses of a large corpus of densely sampled language input to one blind child, ages 16 to 25 months (Wilson & Peters; 1988) and demonstrate that simple word co-occurrence in their input provided reliable signal from which this child could built foundations of early lexico-semantic knowledge. Most importantly, we demonstrate that if the child was to solely rely on simple associative learning mechanism to build connections between the words in their input, they would be able to differentiate between semantically related and unrelated words in 4 out of 5 (Bergelson & Aslin, 2017; Willits et al, 2013; Sirri & Rämä, 2015; Delle Luche et al, 2014; Rämä, Sirri, & Serres, 2013) studies we used in our analyses ($p < .001$). We further compare semantic information present via labeling of typical features and simple word co-occurrence statistics.