

Exploring systematicity in the developing lexicon with phonological networks

Catherine Laing

Infants' early words are phonologically similar (Vihman, 2016). Deuchar and Quay (2000) show that 13/20 of a bilingual (English-Spanish) child's first words are produced with a CV structure, and many are identical: *car*, *clock*, *casa* 'house' and *cat* are produced as /ka/, and *papa* 'daddy', *pájaro* 'bird' and *panda* as /pa/. Network analysis can account for similarity in early phonological acquisition (Fourtassi et al., 2020; Siew & Vitevitch, 2020), whereby similarity between forms determines their connectivity within a network. This approach draws on two possible models: preferential attachment (PAT; new words resemble the most well-connected forms in the existing network) and preferential acquisition (PAQ; new words attach to multiple similar forms). These existing studies test networks of *target* forms, generating mixed results; it may thus be more revealing to analyse networks of infants' *actual* productions (i.e. target *car* /kaɪ/ ~ *clock* /klɒk/ ~ *cat* /kæt/ versus actual /kæ/ ~ /kæ/ ~ /kæ/). I propose that PAT offers a more plausible model for phonological development of actual forms, given that infants tend to adapt early words to fit established production routines (Vihman, 2019).

In this talk, I use network analysis to observe the connectivity between 9 French- and English-learning infants' target and actual word productions. I analyze word production between 0;11 to 2;6, accounting for phonological distance between each actual form and i) the target form (e.g. *clock*, /kæ/ vs. /klɒk/) and ii) all other words produced by the child (*cat* /kæ/ vs. *dog* /dɒg/). Results show that PAT is a better predictor of lexical acquisition ($p < .001$, both target and actual forms). Furthermore, actual forms provided a better fit to this model than target forms ($\beta = -.22$, $p < .001$); infants' actual forms provide stronger evidence of systematicity than we would expect from analysis of targets alone.