Caregiver reconstruction of children’s errors: the preservation of structure in language

Abstract: The abstract should be written for an educated audience who does not have experience in the field of study. The abstract should be written by the student under the guidance of the faculty advisor. The title is requested above and should not be included in the abstract. Limit: 250 words.

Why do languages change? One possibility is they evolve due to two competing pressures: one, for the language to be simple and transmissible, and another, for the language to be descriptive and complex. Children and adults may differ in their biases towards these pressures. We explore how simplicity and complexity operate in the evolution of a novel language.

480 adults participated online in a baseline iterated learning experiment in which they were told to re-create a randomly-generated dot grid pattern. Each user’s responses became the training input for the subsequent user, representing a generational transmission. Results show a simplification in the complexity of the patterns over twelve generations.

However, we do not learn languages in isolation, instead, we learn from those who are more competent than ourselves (e.g. parents, teachers). In a second condition, 960 adults were assigned to be “learners” or “fixers” within a generation. Learners completed the task described above. Fixers were instructed to correct the errors on the learner’s produced pattern to match a target—the same target previously seen by the learner. Results show that fixers allow a greater level of complexity to be retained in the patterns, while achieving comparable reproduction accuracy compared to the baseline task.

Data collection is ongoing with children ages 6-8 in the baseline and dyad tasks, where children are “learners” and adults are “fixers”. We hypothesize that adults will allow a higher level of complexity to be retained than children alone by protecting against simplicity errors in the language’s evolution.

Disciplinary Significance: In 1-2 sentences, describe the disciplinary significance or the uniqueness of your research: Limit: 60 words.

This study attempts to show not only how caregivers are necessary to help reconstruct an individual child’s errors, but also how they are pivotal on a large-scale to protect language as a whole from simplifying to disuse. Thus, correcting a child’s errors over time serves a dual purpose: to aid the child, and to protect the language system.

-also different from other iterated learning studies (horizonal transmission) or much of the field which views child-directed and child-produced speech as separate processes