ITERATED LEARNING FROM MULTIPLE TEACHERS: LEARNING AND EVOLVING EXPECTATIONS ABOUT LINGUISTIC HOMOGENEITY

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1. ABSTRACT

Languages are traditionally transmitted: they are maintained over time by being passed from one generation of learners to the next. We can examine this process, and explore its role in the emergence of linguistic structure, by characterising formally the dynamics of cultural transmission through iterated learning. This enterprise has led to some foundational findings [1], but has been criticized [2] on the basis that existing models are flawed by a limiting assumption: namely the premise that learners acquire a language from just one other individual. A recent series of models [3, 4] explores the weight of this criticism by extending the Bayesian iterated learning framework [5] to include the case of learners learning from multiple individuals. These models suggest that learners expectations about variation present in the linguistic behaviours they observe can have a radical impact on the outcome of iterated learning: where learners expect to learn from a homogenous speech community, iterated learning can give rise to structured languages in the absence of strong individual biases towards that structure; where learners expect to learn from a multilingual speech community, iterated learning straightforwardly returns languages which reflect the biases of individual learners. In this talk, I will present the results of simulations designed to explore two mechanisms through which such expectations might plausibly be formed: biological evolution and individual learning. These simulations suggest that there are conditions under which iterated learning from multiple individuals obscures the link between learning biases and language structure: a possibility that has profound implications for the evolution of the language faculty.

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