ITERATED LANGUAGE LEARNING IN CHILDREN

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Due to the development of several new methodologies, it has recently become possible to investigate precisely the contribution of cultural evolution to the origins of linguistic structure. For example, the Iterated Learning Model (Kirby & Hurford, 2002) provides a framework for investigating the role of repeated cultural learning in the emergence of language. It was originally used in computer simulations, but has recently been successfully adapted for use with adult human subjects (Cornish, 2006). As the differing roles of adults and children in language evolution and language change are the subject of much debate and research (i.e. Aitchison, 1996; Bickerton, 1984), adapting this promising framework to work with children is the next logical step.

In this study, we sought to modify Cornish's (2006) procedure for use with human children. Twenty children (mean age 7;0), composing two "families" or "diffusion chains", took part in the iterated learning study. The initial child in each family received a randomly generated artificial language as input and was required to learn the 9-word language ("Dragonese") as best as s/he could. The child was given several presentations of the words in the language and their meanings (colored blocks). The output produced by that child during the test phase was then provided to the next child as her/his input. A comparison group of adults (two families of ten adults each) was also run on the same paradigm.

In both the adult and child families the languages became smaller and more learnable after repeated transmission demonstrating that language was adapting through cultural evolution. Several structured languages closely resembling those in Cornish's adult families did arise among the adults in this study. However, the way in which these systems arose was quite different in the present work. The structure in languages in the present study was generated by sudden individual innovation, not slowly and steadily as it had been in Cornish's study. Strikingly, no significantly structured languages arose in the child families. Furthermore, most children and adults appeared to ignore the meanings in the language, attempting instead just to retain the list of words.

Consideration of the surprising results in this study is essential for further investigation of the iterated learning model in human subjects. This study sheds light on what the most important aspects of the procedure are in creating a workable framework. First, the meanings used in such experiments should be maximally different and likely to be of interest, and therefore retained, by subjects. Additionally, spaced learning sessions of the language, as typical in artificial language learning work (i.e. Hudson Kam & Newport, 2005), may be a necessity in working with child learners in the iterated learning model. Furthermore, an experiment with a slimmed down procedure, with no extra changes in modality, would likely allow children (and adults) to more easily focus on the task at hand and would likely yield the most interesting results.

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