

**COMPATIBILITY OF LANGUAGE CHANGES AND SHARING
VOCABULARY: THE ROLE OF PRIORITY OF GENERALIZATION
AND PREVENTING PRODUCTION OF HOMONYMS**

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Humans communicate with others using common vocabularies. At the same time, the human language has an important property of compositionality whereby an expression's meaning is a function of the meanings of parts of that expression and the way they are put together. But in the evolution process of emergence of the compositional language, expressions of the vocabularies should change. If the language evolved in response to the need to communicate using the common vocabularies, the acquisition of the different expressions impedes advantages of the evolution. How abilities can realize the language changes and the common vocabularies at the same time? We study on the abilities using a few extended simulations of a computational model of (Kirby,2002). The model is capable of generating the compositional language through linguistic transmission from one generation (parent) to the next (child).

Concretely, we show three simulation results as follows. (1) In the model of normal condition, an average ratio of the common vocabulary over generations is about 60%. (2) If the child persists parent's expressions more than the generalization, the ratio decreases unexpectedly. (3) If the child prevents a production of homonyms, the ratio increases dramatically. Based on these results, we suggest that at least two abilities have important role for sharing vocabulary in learning the compositional language. One of the abilities gives a priority of generalization over the persistence of parent's expressions, and the other ability prevents the production of homonyms.