

# In Defense of Recent Approaches to the Emergence and Evolution of Language

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There has been a recent trend in the study of the emergence and evolution of human communication systems, based around experimental paradigms in which novel systems evolve from scratch in the laboratory. Many of these studies adopt a communication game approach, which leads to participants creating their own systems *de novo*, whilst simultaneously being engaged in some shared problem-solving task (e.g. Galantucci, 2005; Garrod *et al*, 2007). Over the course of repeated interactions, participants jointly construct and converge upon shared systems of communication that are adaptive in the sense that they appear to provide a solution to the problems posed by their respective game-environments. Some of these systems share structural properties with natural language, whilst others appear more specifically tailored towards the constraints posed by the tasks themselves. In any case, it has been argued that such studies are useful explorations of how complex systems (such as language) could have emerged in human populations.

Whilst these studies show that humans are highly adept at constructing communication systems in this manner, it has been argued that natural languages are unlikely to have arisen as a result of such intentional design – whilst innovations and changes are undoubtedly the result of human actions, they are rarely the goal of their intentions (Keller, 1994). In response to this argument, we have shown how structured signaling systems can arise in the absence of any shared task or mindful design on behalf of participants, simply as a product of cultural transmission (Kirby, Cornish & Smith, 2008). Whilst this work appears to have been generally well received, there are a number of criticisms and questions about the generality of the results obtainable from studies of novel emergence. More specifically, since all of the studies to date have been conducted on adult humans who possess not only the necessary (evolved) cognitive apparatus to acquire and manipulate language, but also an actual instance of a structured communicative system in the form of their native language, it could be argued that results from these studies can in fact shed little light on the deeper evolutionary question.

In this talk I will address some of these criticisms, and suggest that they largely stem from a misunderstanding of the kind of explanatory role that these studies are providing. By looking at some of the results in more detail, it can be shown that the systems that evolve are more than simple reflections of the underlying competences of the individual participants involved, and that recent iterated artificial language learning approaches to language emergence are useful tools to have at our disposal.

## References

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