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How Human Languages Cohere: Languages Seen as Artificial Life

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This paper takes the conceptual tools of artificial life to examine a question which has been intractable in Chomskian linguistics: the status and characterization of changing and variable natural languages. How do languages cohere across speakers who each have a somewhat different “internalized language”? Because languages are dynamic and variable systems, linguists have been unable to define or characterize in an explicit way the “languages” we commonly refer to, such as ‘English’ and ‘Serbo-Croatian’. “Languages” will not stand still; they keep evolving, and they vary considerably from speaker to speaker, from community to community, from social situation to social situation. A definition or characterization of a language, then, cannot be static.

Chomsky attempted to define languages as static sets of generative rules that would generate all the grammatical sentences of a language and none of the ungrammatical sentences. To do this he needed a “conceptual shift” in linguistics to freeze the language, and study the “internalized language” of an ideal speaker-listener in a homogeneous speech community, where, it was hoped, language could finally be characterized by a coherent, well-defined set of generative rules. He denied that there was any theoretical interest in defining or characterizing the variable “languages” that we talk about in daily life. Chomsky has argued that the very concept of “externalized languages,” as he calls them, “appears to play no role in the theory of language” (Chomsky 1986, 26). He maintains that “obscure socio-political and normative factors” are needed to define “the word ‘language’ as it is used in ordinary discourse” (Chomsky 1988, 36-37), implying that purely linguistic criteria are not adequate.

More recently, under the rubrics of “Cognitive Grammar” (Langacker 1987) or “Cognitive Linguistics” (Lakoff 1987) and “Grammaticalization” (Hopper and Traugott 1993), linguists have been paying attention to the dynamic phenomena of language. Yet even linguists who study the dynamic processes of “grammaticalization” (the self-organization and evolution of grammar in languages),

have a hard time abstracting beyond individual speakers. For example, Hopper and Traugott, in their Cambridge textbook, *Grammaticalization* (Hopper and Traugott 1993, 33), say that “Language does not exist separate from its speakers. It is not an organism with a life of its own.”

The conceptual framework of Artificial Life allows us to make a new conceptual shift in linguistics, enabling us to recognize that a language *may be* an organism or system with a life of its own, and that this is not inconsistent with a language’s dependence on individual speakers. We will see that the characterization of languages as dynamic systems with permeable boundaries is central to linguistic theory.

The argument revolves around eight propositions:

1. Languages, like artificial life, are man-made systems.
2. Languages are like viruses, requiring hosts.
3. Individual humans are agents of language working in parallel in a shared but variable system.
4. Languages are changed and renewed in the processes of communication.
5. Grammatical change is an inherent result of a decentralized language faculty in individuals in which the modules of language work together in parallel.
6. The characterization of languages as dynamic systems with permeable boundaries is central to linguistic theory.
7. Languages have more of the characteristics of life than computer viruses do, and may be our best example of artificial life.
8. Languages, seen as artificial life, stretch our concept of “life as it *could be*.”