

Complex Systems and Variationist Analysis

Allison Burkette, University of Mississippi (burkette@olemiss.edu)
Jacqueline Hettel, Arizona State University (jacqueline.hettel@asu.edu)
Bill Kretzschmar, University of Georgia (kretzsch@uga.edu)

A complex system (CS) is a system in which large networks of components with no central control and simple rules of operation give rise to complex collective behavior, sophisticated information processing, and adaptation via learning or evolution. We will start the workshop with a 30 minute general introduction by Burkette to basic terms in CS such as “states” and “emergence,” and also apply those principles to language in the form of nonlinear frequency distributions and scale-free networks.

We will then organize the workshop in two additional parts, each with experiential learning: 1) Hettel, CS and Corpus Creation; 2) Kretzschmar, CS and Quantitative Measurement. Hettel will present a rationale for corpus creation using methods of random sampling. Kretzschmar will discuss the problem that frequency patterns that emerge from a CS are always nonlinear, never “normal” in the sense required for use of typical Gaussian statistics. He will present a method to assess just how nonlinear a frequency profile is so that A-curves can be distinguished from normal distributions. The workshop will offer intensely practical, how-to suggestions from our own experience for presentation of CS, respectively, 1) to students in class, 2) for design, implementation, and analysis of corpus studies, and 3) for design, implementation, and analysis of field research. The focus of the workshop will be “how-to,” what participants can do in their own teaching and research to make use of CS patterns, and to exploit them for their own linguistic purposes.

***Participants should bring a laptop running Excel.