Bart de Boer

Self-organization and language evolution

Outline:

- Definition of self-organization and short description of the history of the notion of self-organziation (Prigogine & Sengers etc.)
- prevalance of self-organization in nature, with special reference to neural development and cognition (occular dominance columns, sensory maps, neural network models etc.)
- Early history of self-organization in speech and language
- Examples of work on self-organization in language (mostly modeling and mathematical I'm afraid, as outside these fields self-organization is only used in a loose an ill-defined metaphorical sense)
- early work (Liljencrants and Lindblom 1972, Lindblom, MacNeilage & Studdert-Kennedy 1984, Petitot-Cocorda 1985, possibly something on the dynamic approach to language: Altmann, Wildgen etc.)
- Population-based models of self-organization in language and speech (work by Luc Steels, reference to work of the Edinburgh group, although self-organization plays less of a role in their work, I guess); early work by the Institut de Communication Parlée in Grenoble, my own work, work by Pierre-Yves Oudeyer
- Mathematical models of self-organization in language (work by Martin Nowak & co-authors)
- Relation between self-organization and evolution, with reference to other work in theoretical biology