A Selectionist Model Of

The Genesis Of Phonic Texture

Systemic Phonology & Universal Darwinism

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Dedicated To The Memory Of

Margaret Hart, Maxwell Finnigan, Patrick McBriarty

and Troppo

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Abstract

This thesis develops notions of phonological function and structure from a Systemic theoretical perspective and provides a framework for modelling language as a complex adaptive system evolving according to Darwinian principles.

In discussing function, a distinction is made between phonological systems and structures that signal lexicogrammatical positions and those that do not; the former are described as cohesive in function, the latter as structural only. The phonological texture of a language is said to derive from its evolving structural and cohesive resources.

In discussing structure, alphabet-derived particulate phonological models are complemented with those of wave and field. Cycles of phonological prominence (tonic, rhythmic, moraic) are interpreted, on the quantum physics model, as probability waves that measure the syntagmatic location of a phonological particle (tone group, foot, syllable). Several types of field are introduced: quantum, charged, vector and phonogenetic, the last parallel to (biological) morphogenetic fields. Directionality in phonological vector fields is related to the linguistic notion of phoricity.

Comprehensive descriptions of the articulatory textures of Irish (and, in the Appendix, of Australian English) are used to illustrate the theoretical model of function and structure. The model of structure is briefly extended to English lexicogrammar in the concluding chapter.

The Darwinian framework for modelling language draws on Darwinian models of the brain and culture by Edelman and Dawkins, respectively. Neurological systems, functioning through the selection of randomly adaptive variant neuronal groups in populations, are taken to be the substrate from which language, functioning through the selection of randomly adaptive variants in populations, emerges. The relation between lexicogrammatical and phonological systems is held to be proportional to that between genetic information and DNA molecules.

In the concluding chapter, language is, in turn, said to be the substrate from which higher level, language-dependent cultural (meme) systems, also functioning through the selection of randomly adaptive variants in populations, emerges.

PreText

The broad aim of the thesis is to participate in the expansion process — elaboration, extension and enhancement — of the conceptual repertoires for modelling phonology in particular, and language in general (building on models of language as social semiotic system, rather than models of knowledge of language).

The methodology employed in researching this thesis has been consistent with the epistemological position introduced in Chapter 1 and developed in Chapters 5 and 6. In this view, language and the systems of meaning that emerge from language, including linguistic theories, are deemed to be systems that are dynamic and open (thermodynamics), that are complex and adaptive (complexity) and self-organised through Darwinian principles of variation and selection (evolutionary biology), and that evolve in parallel to that which they model (neuroscience).

In thinking of theoretical models as thermodynamic systems that only keep entropy at bay by being open to other systems, the procedure has been, as this description suggests, to open up linguistic modelling to other theoretical systems, principally those of physics and biology, in order to allow the possibility of information flow from these systems into linguistics. The text is therefore riddled with references to other disciplines that are intended to be links/gateways/wormholes to those systems of description.

A further motivation in this regard is the possibility that very similar models may be appropriate for a host of semiotic systems. This relates to the *fractal* concept of self-similarity: the idea that the same patterns may be repeated at myriad scales within and across various domains.

In thinking of theoretical models as Darwinian complex adaptive systems, the procedure has been to generate as many ideas as possible by replicating, mutating and recombining select ideas and then to present them for selection, first to myself, then to others, in the hope that the most adaptive (functional) variants would be the ideas to survive. An interesting feature of Darwinism is the nonlinearity of both the systems modelled and the modelling system: a very simple formula generates enormous complexity.

Controlling what counts as phenomena is a real function of research traditions…

Kuhn's claim [is] that change from one scientific paradigm to another is often the work of young scientists who suddenly and passionately revolt against the "puzzle-solving" tradition in which they were nurtured, not by answering its old questions in a new way but simply by forgetting the old questions, formulating new ones, and answering them instead.[1]

[1] Depew & Weber (1996: 395; 214).