Does ontogeny recapitulate phylogeny in language evolution ?

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Key words
Haeckel, interspecifically, intraspecifically

Abstract

In the 19th century Ernst Heinrich Haeckel developed the idea that ontogeny recapitulates phylogeny. By this he meant that it was possible to gain insight into the evolution of species by studying the development of individuals belonging to specific species, and vice versa, that it was possible to gain knowledge about the ontogenetic development of individuals that belong to a certain species, by studying the evolutionary emergence of that species.

Biological scholars around the world today reject Haeckel's biogenetic law as a fundamental law or principle in evolution, but discussion remains about whether his principle can be applied up until a certain degree within biological evolution (Richardson and Keuck 2002). It is especially within extra-biological disciplines, such as the origin and evolution of languages studies, that one can find a renewed interest in his principle (Bickerton 1990; Givon, 2002).

The different applications of Haeckel's biogenetic law in language origin an evolution studies is quite remarkable.. Here, the focus will be on 3 specific implementations:

1. it is applied at an interspecific level (between species) when it is argued that hominid development recapitulates primate evolution;
2. it is applied at an intraspecific level (within the same species) when the language of a child is compared with adult human language;
3. and in the Pidgin and Creole application, the "species-concept" is replaced by "different languages", which makes us raise the evolutionary epistemological question whether languages are understood as analogical to species (interspecifically) or individuals (intraspecifically).

Applying Haeckel's law, implies that one adheres to the view that evolutionary novelty is *added* onto old, already existing structures. More specifically, new evolutionary structures are added by *terminal* addition (Richardson and Keuck 2002). The latter means that evolution is to be regarded as a linear process, and as a continuous process, instead of a discontinuous one. If we take the brain as an example, this would mean that we have to assume that there can be no evolutionary restructuring of old structures that lead to different types of behaviour, so no pre-adaptations or exaptations (Pinker and Bloom1990, Gould and Vrba 1998). On the contrary, new behaviour would have to be the result of new brain tissue, or existing brain tissue that did not have a function previously. This is the view defended by Bickerton for example: full-blown human language is an advanced form of proto-language, but the latter is not qualitatively transformed, it just expands quantitatively until grammar is needed. And this originated in an unspecified part of the brain:

We assume that, to have this capacity, there must have been a portion in the brain potentially available for it (and probably for other tasks as well); a portion, in other words, that was not irrevocably committed to monitoring digestion or blood flow, … . … the brain would require a substantial increase to bring it even within reach of syntax, but only a small

additional increment to make full human syntax potentially available." (Bickerton, 2002b, 114).

The "terminal addition"-idea might hold for the origin of language, as long as one assumes that evolution is a continuous process, and it might even hold within the child-adult comparison (although structural linguists would argue that the language of a child differs qualitatively from adults). But the concept of terminal addition raises serious problems when we look into the Pidgin and Creole application.

Pidgins and Creoles are languages that originate in the here and the now, and the speakers of this language are already fully human. The linearity of the process is therefore called into question: Slobin (in press) already mentioned that the input of a Pidgin or a Creole language is quite often richer than the output; and Croft (2000, 2002), with his "plantish approach to language variation" stresses that languages can partly hybridize or cross-fertilize. Thus non-linear processes contradict the idea of terminal addition.

Most important, however, is that the different applications of Haeckel's law within language origin and evolution studies, demonstrate the need for a critical evaluation of the units and levels of language evolution. Therefore evolutionary epistemology (Gontier 2005) needs to be implemented into the field.

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