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Signs Pointing in a New Direction: A Biosemiotic Framework for Biolinguistics

Favareau, Donald. 2010. *Essential Readings in Biosemiotics: Anthology and Commentary*. Biosemiotics 3. Berlin: Springer.

by Liz S. Swan

Biosemiotics is considered by some to be a new philosophy of biology in the sense that it recasts our understanding of the living world as being *replete with meaning* from the interaction of molecules to the intercommunication of human societies — a grand idea which is systematically missing from the modern biological framework. But because contemporary philosophy of biology grew out of the analytic tradition and thus is mainly concerned with analysis of the key terms and concepts endemic to biology and, to a lesser extent, the philosophical recasting of outstanding puzzles in biology, others instead argue that biosemiotics is a new kind of science, an empirical method through which we can discover the codes of life (see especially Barbieri 2008, also contained in the present volume).

As a philosopher of science, I think both views are correct: No great revolution in science occurs without an attendant sea change in our philosophical world view. A lesson from Thomas Kuhn is that paradigm shifts affect not only the practice of science but also our thinking about science insofar as how and to what extent it contributes to our understanding of the world. I believe that **Donald Favareau**'s new volume in the Springer *Biosemiotics* book series, *Essential Readings in Biosemiotics: Anthology and Commentary*, demonstrates that biosemiotics has captured the attention of both those who do science and those who think and write about science, as well as that special third category of those who do both — a category that is well represented within biosemiotics.

Why should biolinguists take an interest in biosemiotics? First, there is the sentiment held by some in the biosemiotics community that it would be counterproductive for the two fields to operate in isolation from each other, as has traditionally been the case, since there is considerable overlap between the empirical and philosophical questions pursued by each (see, for example, Augustyn 2009). For starters, the two fields are in agreement that human language is a biological phenomenon. However, a distinction between the two fields can be identified with regard to their respective methodological foci: While biolinguistics focuses on human language and tries to embed it conceptually and empirically among grander patterns in the natural world, biosemiotics focuses more fundamentally

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on sign processes in the living world, of which human language is but one example. A central task of biosemiotics thus becomes one of elucidating the continuity between human language and all other forms of meaningful sign processing in the biosphere, and as such, biosemiotics can provide a comprehensive theoretical framework necessitated by the biolinguistic thesis that language emerges from human biology.

A more specific point is that the concept of organic codes surfaces in much of the biolinguistics literature — but when it is not explicitly acknowledged and elaborated on, an opportunity for fruitful collaboration between the two fields is regrettably lost. For at least these reasons, researchers in both fields would do well to acquaint themselves with their conceptual neighbor — a task that is made more feasible for biolinguists by Favareu's *Essential Readings*, which offers a very comprehensive coverage of the field's historical depth and contemporary theses.

The extremely rich historical introduction, written by Favareau, constitutes reason enough to acquire this book. It provides an essential roadmap of the history of the emerging interdiscipline of biosemiotics, critical for those new to the field, and relays the very engaging story of how thinkers from different parts of the world working on seemingly very different problems related to the origins and nature of life, and the evolution of meaning in organisms, found one another and established the now definitive field of biosemiotics. In four main parts, the almost 900-page volume covers everything from key historical figures in both the life sciences and philosophy whose research and thinking paved the way for what would become biosemiotics, to contemporary approaches and outstanding problems in the field today. Each of the twenty-four entries in the volume is preceded by a helpful introductory commentary by Favareau. As such, the book is a must-have for those well-entrenched in the field as well as those just beginning to learn about this novel approach to conceptualizing the role of signs and sign processes in the biosphere.

With selections from Thomas Sebeok, Jakob von Uexküll, **Charles Sanders Peirce**, **Charles Morris**, and **Juri Lotman**, Part I of the book, "Sebeok's Precurosrs and Influences", provides a necessary historical overview of the seminal 19th and 20th century scientists and philosophers whose early efforts to legitimate scientific investigations into meaning, and to understand the role of signs, signals, and symbols in the natural world (including in the context of human language) eventually gave way to the contemporary field of biosemiotics. We learn, for instance, how the contemporary notion of *strong continuity* between life and mind, credited in large part to the thought of 19th century philosophers such as Herbert Spencer and John Dewey, has important overlap with the work of experimental and theoretical biologists of the same time period who were keen on identifying what, if anything, distinguished human symbol use from that found in all organisms in the natural world (see Swan & Goldberg 2010 on exactly this question).

In Part II, "The Biosemiotic Project of Thomas A. Sebeok", we read excerpts from some contemporaries of Sebeok, such as the very interesting excerpt from the Swiss zoologist **Heini K.P. Hediger**, whose work goes a long way in explaining what went so horribly wrong in the lab of former Harvard primatologist Marc Hauser, a salient example of observer bias based on strongly wished for

results, which Hediger notes as one of animal psychologist Otto Koehler's strict warnings regarding animal behavior studies. In **Marten Krampen**'s very interesting thesis on *phytosemiotics* we learn that semiosis can be extended to the world of plants, a notion that is reminiscent of Aristotle's tripartite system of the vegetative, animal, and rational modes of the natural world. Favareau interestingly points out in his introduction to this entry that Krampen's excerpt makes a postmodern contribution to biosemiotics in that the very idea of phytosemiosis challenges the duality of mind and matter articulated by Descartes. The last essay in this section, a manifesto of sorts written in 1984 by **Myrdene Anderson** and her colleagues, advocates for semiotics as a progressive conceptual bridge between the sciences and the humanities, and is followed by nine pages of references and thus, in and of itself, serves as an excellent sampling of the important literature in the field over the past three decades.

Part III of the book, "Independent Approaches to Biosemiotics", starts off with a wonderfully insightful essay on the history of theoretical biology and its crossover with biosemiotics, written by **Kalevi Kull**, the first ever full professor of biosemiotics and founder of the first Ph.D. program in the field at his home institution, the University of Tartu in Estonia. Next is an essay by **Friedrich Rothschild**, the very first researcher to use the term 'biosemiotics' at a psychology conference in New York in 1961 (Rothschild 1962). Also in this section are essays by preeminent biochemist **Marcel Florkin**, physicist **Howard Pattee**, and anthropologists **Gregory Bateson** and **Terrence Deacon**, all of whom have made major contributions to biosemiotics from their respective disciplines.

The fourth and last part of the book, "The Contemporary Interdiscipline of Biosemiotics", begins with an excerpt from **Jesper Hoffmeyer**'s eloquently written *Biosemiotics: An Examination into the Signs of Life and the Life of Signs*, wherein we learn about his and Claus Emmeche's code-duality hypothesis according to which the essence of living things is their ability to represent themselves in both digital and analog codes — in genetic transmission and phenotypic expression, respectively. This section also includes entries from **Claus Emmeche** and colleagues, **Anton Markos**, **Søren Brier**, and **Günther Witzany** — all influential actors in contemporary biosemiotics.

The section ends on a high note with an entry from **Marcello Barbieri**, who was working in the field long before it was called biosemiotics; his earlier work referred to the discipline as 'semantic biology'. In this selection (a reprint of his 1998 article), Barbieri explains his code-based approach to biosemiotics and how it provides "a new understanding of life" (which is the subtitle of the paper) in that it overturns three fundamental assumptions of modern biology. He argues that (i) the cell is a true semiotic system (and not a genotype-phenotype duality), (ii) the genetic code is a real code, and thus not amenable to physical reduction, and (iii) evolution is due not just to natural selection, but also to natural conventions, which are the many and varied codes of the living world.

The volume concludes with very comprehensive bibliographies for the editorial commentary that accompanies each section of the book, as well lists of suggested reading. Though the book's size might seem daunting, it is important to note that most of the first half of the book presents historical content that helps to contextualize the emergence of biosemiotics as a distinct field of research which

is very helpful to those new to the field. The book is a must-have addition to the libraries of research institutes and university departments that are engaged in progressive approaches to the nature of life and organic cognition, specifically in its offering a new way to conceptualize the role of signs and sign processes in cultivating meaning in the natural world from the ground up.

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