

Introduction: Historiography's contribution to theoretical linguistics

What is needed for a twenty-first-century linguistics is an understanding of language that is inspired not by Descartes but by Darwin. A linguistics inspired by Descartes is beautiful but static. A linguistics inspired by Darwin is messy and dynamic. A linguistics inspired by Descartes assumes that communication occurs and proceeds to explain how it occurs. A linguistics inspired by Darwin is motivated by the whys: why communication occurs, why a group has the particular language it has, why on any given occasion an individual says this or that or nothing at all. A linguistics inspired by Descartes abstracts linguistic universals away from time and space and lets them disappear into the mysteries of the genome. A linguistics inspired by Darwin tethers itself to whole bodies whose feet are on the ground and seeks to understand the possible relationship between brain development genes such as *ASPM* and *Microcephalin* and the degree of difficulty in learning a tonal language like Chinese or a non-tonal language like English. A linguistics inspired by Descartes operates in a framework where the terms *nature* and *nurture* function in familiar opposition, precludes investigation into the explanatory dimensions of both evolutionary time and an individual's lifetime, and accommodates with difficulty micro-variables in the human genome. A linguistics inspired by Darwin dispels the conceptual chaos of the nature/nurture opposition and recasts explanations within the framework of a developmental system that has evolutionary stability.

For the past fifty years, it is fair to say that large parts of linguistic theory and practice in the United States and elsewhere in the world, along with certain branches of the cognitive sciences, have been influenced by the Cartesian-inspired linguistics promoted by Noam Chomsky. Its methodology of analyzing sentences in isolation is complemented by the equally context-independent goal of discovering the abstract, universal principles that are said to underlie an individual's knowledge of language. This knowledge or *competence* is theorized to be an inborn complex cognitive system that secures the ability to understand and produce an infinite number of novel sentences. How this knowledge comes to be inborn is an evolutionary question that has been only relatively recently addressed. How this knowledge develops is not addressed at all, because a universal, inborn ability is not open to individual development.

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Julie Tetel Andresen

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Although many linguists have parted ways with Chomskyan linguistics and diverse approaches to our subject matter are flourishing, a comprehensive and integrated articulation of the messy, feet-on-the-ground, temporally aware understanding of language as a product of evolution, of cultural history, and of individual development has yet to emerge.

In the past several decades, researchers in a variety of social and biological sciences – some with an interest in language, some without – have come to recognize the importance of context, and at every level, beginning with the understanding that the observer is not outside of that which s/he is observing but is, indeed, a part of it. These researchers, working in a framework broadly known as constructivism, ground their analyses in the richness of circumstance and the dynamics of development. When it comes to accounting for human language behaviors, a constructivist account is not concerned to describe a theoretical entity such as competence or the language faculty but rather to provide both an evolutionary (phylogenic) and individual (ontogenic) script for those behaviors. Introducing linguists and language theorists to a constructivist account of our subject matter in order to open a path to the discipline's future is the purpose of *Linguistics and Evolution*.

On constructivism

The term *constructivism* is seemingly everywhere these days. Constructivism has arisen, in part, as a response to what is often called the rationalist-realist (think Descartes) account of cognition, truth, science and the world. Theorists involved in articulating a constructivist account of human experience are cognitive scientists, epistemologists, neuroscientists, philosophers, psychologists and historians of science, and they are interested, in particular, in understanding and describing the processes and dynamics of cognition. The key idea is that organisms' experiences of the world are not prior to and independent of their sensory, perceptual, motor and manipulative activities, but rather emerge from or, as it is said, are "constructed by" those activities. When it comes to human perceptual, conceptual and behavioral experiences, the role of language is seen to be a crucial part of that which needs to be understood and described.¹

¹ The constructivism advocated here is not to be conflated with the concerns of social constructionism, which is also known sometimes as social constructivism. Barbara Herrnstein Smith has pointed out that social constructionism is a critical stance that has been taken by cultural anthropologists, feminists and gender theorists, among others, in order to challenge frameworks in which racial categories, gender biases or certain sexual behaviors are deemed to be biological, natural or even scientifically proven. These cultural theorists typically stress the social side of human activity, speak of certain practices as being socially constructed, and often acknowledge deliberate political engagement (2005: 4–5). While there is much to admire in the work of social constructionists, the set of concerns that animates their projects is different from that which informs *Linguistics and Evolution*.

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The related term *developmental* also requires a bit of explanation. In a book otherwise congenial to the approach laid out in *Linguistics and Evolution*, evolutionary biologist Richard Lewontin offers the following critique of what he calls developmental explanation in his field: “The development of an individual is explained in standard biology as an unfolding of a sequence of events already set by a genetic program. The general schema of developmental explanation is then to find all the genes that provide instructions for this program and to draw the network of signaling connections between them” (2000: 11). Lewontin – and all of *Linguistics and Evolution* – denies this view of developmental explanation, which is a version of preformationism, the idea that the human sperm contains a microscopic infant folded in a fetal position, such that this already-formed infant supposedly grows larger during fetal development with the mother’s egg providing only the nutrition for its growth. Lewontin *does* endorse a constructivist view of development and asserts: (i) that environment and organism are causally linked; (ii) that organisms “not only determine what aspects of the outside world are relevant to them by peculiarities of their shape and metabolism but they *actively construct*, in the literal sense of the word, a world around themselves”; and (iii) that organisms are in a constant process of altering their environment (2000: 54–55, emphasis mine). Of course, neither Lewontin nor any other constructivist thinks that the term *constructing* means that organisms get to make up the world any way they want, for they are always constrained by the histories of the particular phylogenies to which they belong and by the features of the niches they inherit.

Turning to matters of language, the psycholinguist Stephen Levinson in *Space in Language and Cognition* endorses a position he calls “partial constructivism,” in order to account for the differences in various communities around the world with respect to spatial cognition that correlate with the differences in the spatial categories available in those communities’ languages. This particular topic and Levinson’s remarkable contribution to it will be investigated in the last chapters of this book. For now, it is enough to note that Levinson’s partial constructivism actually accords well with the (complete) constructivism of this book, given that Levinson opposes his position to that of a (non-partial) constructivism that he defines as one where “language actually introduces coordinate systems that might not otherwise be available at all.” This definition seems to suggest that language could be something deposited from the outside into an otherwise empty organism. In addition, Levinson rejects a position he calls “activation” where “language merely favours, exercises and develops one or another system, all of which are antecedently available in cognition” (2003: 214), which is a position also rejected in the present study. In other words, both for Levinson and for the account presented here, the organism’s insides are as relevant to the constructing process as that which the organism has available in the environment (in the case of Levinson’s work, the spatial categories available in one particular language or another).

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In addition, the use of the term *constructivism* here is generally consistent with Annette Karmiloff-Smith's neuroconstructivist approach as well as Adele Goldberg's constructionist approach to grammar. For Goldberg, the term *constructionist* has at least two meanings: (i) an approach that emphasizes the role of grammatical constructions which are conventionalized pairings of form and function; and (ii) an approach that emphasizes that languages are learned, i.e., constructed, from input together with general cognitive, pragmatic and processing constraints.

Disciplinary chiropraxis

The discipline of linguistics has grown so large in recent decades that professional training requires specialization by subdiscipline. One such subdiscipline is linguistic historiography, and it is usually known as a subfield that reaches broadly into the historical record of the discipline. However, linguistic historiography can also be deployed as a method of theoretical intervention when the understanding of the discipline's past is leveraged to open a path to the discipline's future. Thus, despite its seemingly backward-looking orientation, linguistic historiography can be very much a present-tense activity. It can also be a hands-on activity in that reading into the history of the discipline is a way of finding the places in the old bones of linguistic theory that need adjusting. Because, as has just been noted, the study of the subject matter of linguistics can be undertaken from so many different perspectives – e.g., artificial intelligence, biology, cognitive science, cultural anthropology, evolutionary biology, neuroscience, philosophy, primatology, psychology, sociology – the discipline of linguistics is currently suffering from an embarrassment of riches. As a result, the theoretical skeleton of twentieth-century linguistics is bearing a larger load than it was intended to handle. It is now subject to the pressures and misalignments due to excess weight. In short, it is out of whack and is in need of chiropractic adjustment.

The major adjustment that is needed involves incorporating into the discipline an important tradition of thinking about our subject matter that has thus far fallen outside the mainstream of disciplinary linguistics. Notably, it is a tradition that developed in the wake of Darwin. It begins with the American psychologist William James and continues with thinkers from a variety of disciplines and national origins including, among others: the Russian semiotician V. N. Vološinov, the Russian psychologist Lev Vygotsky, the British embryologist Conrad Waddington, the American developmental psychologist Susan Oyama, as well as the Chilean neurobiologists Humberto Maturana and Francisco Varela. These are researchers who all share a deep interest in the role of language in their disciplines and have accordingly reflected in interesting and useful ways on our subject matter. They all share three

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general tendencies: (i) an orientation toward our subject matter that can be summarized, circularly, as languaging as an orienting behavior; (ii) an allowance for the role and place of the individual that allows, at the same time, for a layered approach to our subject matter, one that engages with a wide variety of neurological, cultural and even ethical elements, even if the theorists were/are not interested in exploring those layers themselves; and (iii) an appreciation of how bodies (for the most part human) behave in environments and engage in feedback loops with their environments and each other. These theorists foreground the highly circumstanced nature of whatever it is that they are studying, always with bodies embedded in environments and minds fully embodied.

They are the problem setters. They are the ones whose works have opened up new avenues of investigation in their respective fields of inquiry and are finding increasing application in neighboring disciplines. Other problem setters will appear in the following pages. The purpose is not to promote these individual theorists as such but to suggest how their approaches to our subject matter may be worked in an effective way for a twenty-first-century account of language. At the very least, writing them into our discipline will help to limber up disciplinary theory and practice. One way to make a place for them in mainstream linguistic theory is by taking an enlarged view of what counts as the history of our discipline. This ploy is well known to historiographers, who are apt to say things like “social parenthood is bestowed by the children.” Linguistic historiography is a way of choosing who we, as linguists and language theorists, want to be now by reimagining our origins.

Narrative overview

Part I engages with theoretical considerations. Chapter 1 undertakes a review of the twentieth-century disciplinary objects – *langue* and competence – in order to argue that however useful they were to the ongoing development of linguistics throughout the previous century, they are not now capacious enough to accommodate the wealth of cultural, behavioral and neurological phenomena concerning our subject matter that have enriched linguistic study in the past few decades. In place of proposing another disciplinary object, the present study offers instead the term *linguaging* – which denotes an activity and not a thing – and outlines how it is to be understood in its various neurological, behavioral and cultural dimensions. Placing languaging front and center in a linguistic theory also ushers in two new organizing questions, namely: “how do living beings become languaging living beings?” and “how do we become the particular languaging living beings that we do?”

Chapter 2 begins with an exposition of developmental systems theory elaborated first and most cogently by Susan Oyama, whose main achievement is to

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have eliminated the nature/nurture dichotomy, and ends with the search for what Oyama would call *linguistic interactants*. In between, a useful illustration of developmental systems theory applied to the psychological category *emotion* is outlined. It is important to recognize that elimination of the nature/nurture dichotomy does not mean the elimination of interest in an organism's interior, that is, the so-called cognitive side of the languaging equation. Thus, in Chapter 3, the work of Maturana and Varela is called upon to provide a rigorous understanding of the interior and its relationship to the exterior through the exposition of their concept of *autopoiesis*. This chapter also opens up a preliminary examination of languaging and the brain.

Part II outlines the particulars of a developmental linguistics. In order to account for the first new organizing question: "why is it that (typically) only human beings become languaging living beings?", some kind of phylogenetic story must be told. Since quite a number of linguists and language theorists have been producing evolutionary scripts for human language/languaging, it is necessary to review various arguments that are currently in play for explaining how human language/ing came to be instantiated, developed and maintained in the species. Chapter 4 outlines the more or less standard evolutionary story as it is accepted in mainstream linguistics, while Chapter 5 draws once again on the work of Maturana, now in collaboration with Mpodozis, in order to frame the evolutionary work being pursued in terms of the second neo-Darwinian synthesis that is currently afoot. What is important to note for the second synthesis is the renewed attention to the importance of behavior in evolutionary theorizing and the growing conviction that evolution can no longer be understood only in terms of changes in gene frequencies.

The path is now open to ontogenic explanations in Chapter 6. Here *Linguistics and Evolution* has to make good on the challenge to explain how a living being becomes a languaging living being without falling into explanations that pit (a notion of necessary) nature against (a notion of contingent) nurture. Fortunately for the present study, a number of researchers who study children and language do not stop their story of the living being becoming a languaging living being at age four or five or even at puberty but understand that the story continues throughout the lifetime of the language user. Now, accounting for any one individual's lifetime of languaging goes beyond the scope of this book. However, because half the interest of a developmental systems linguistics is to account for how languaging living beings become the particular languaging living beings that they do, Chapter 7 necessarily takes up the topic of linguistic relativity as it pertains, for example, to the cross-cultural experiences of emotion, time, space and color.

Part III addresses what to do next by answering two pertinent questions: "how did we get to where we are now?" and "where do we go from here?"

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Chapter 8 pauses to look back and review how it happened that theoretical linguistics came to the explanatory impasses that it has in the last few decades, and it does so by showing how B. F. Skinner's *Verbal Behavior* can be useful to linguists, now over fifty years after it was buried by Chomsky's 1959 review. Skinner's rehabilitation can, among other things, help set the stage for fully appreciating recent trends in construction grammar. Chapter 9 looks to the future, in particular to the way linguistics is presented in standard introductory textbooks, which will often be the first encounter the next generation of linguists will have with the discipline. Leonard Bloomfield's *Language* (1933) currently serves as the template for all introductory textbooks on the market today. Certainly, these textbooks now include findings from, say, neurolinguistics, syntax and sociolinguistics that were not available eighty years ago. Nevertheless, the time has passed for updating chapters. What is needed now is a radical rewriting of the whole.

In sum, *Linguistics and Evolution* lays out an approach to linguistics that builds into its theoretical foundations two temporal dimensions, the phylogenic and the ontogenic. It furthermore sifts its theoretical approach through a third, historiographic dimension in order to reexamine some of the discipline's basic assumptions and presuppositions. The goal here is not to present a complete account of our subject matter but rather to indicate the corners in linguistic theory and practice that have already been turned and to present an outline of a theoretical reintegration that provides the basis for a new introductory approach to the subject. Weaving the languaging-as-an-orienting-behavior line of thinking into the discipline and making space for a constructivist account of our subject matter are designed to facilitate a future for the field in which the incorporation of the latest findings in the social and biological sciences will be a matter not of concern but of course.

The disciplinary shifts outlined in the present study call for an accompanying shift in historiographic perspective – how linguists think about the history of their discipline. Just as Thomas Kuhn's *The Structure of Scientific Revolutions* (1962) inspired a previous generation of linguists, so Ludwik Fleck's *Genesis and Development of a Scientific Fact* (original German edition 1935) can now provide an alternative understanding of how disciplines develop and change, and it is one that should prove useful in the present moment. The contrast between the two approaches is most readily apparent in their titles, with Kuhn underlining disciplinary discontinuity in a structured framework and Fleck emphasizing continuity in an organic framework. It is of note that Kuhn wrote the Foreword to the 1979 English edition of Fleck's text and acknowledges that he first read it in 1949 or 1950. Although the main subject of Fleck's *Genesis* – the story of how the relationship of the Wasserman reaction to syphilis came to be a medical fact – is not the most obvious point of departure for a

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reimagined linguistics, one of Fleck's central points is pertinent at the outset: that any so-called new approach (*Denkstil* or *thought style*) will carry vestiges of the historical, evolutionary developments of various elements from a previous approach and that, accordingly, a newer approach is not to be preferred because it has now, somehow, discovered the truth but rather because it now makes available connections to other ideas and/or disciplines that practitioners in the field feel the need or the desire to make.

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Part I

Theoretical considerations

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