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Book Review

Antonio Benítez-Burraco, Isabel Fernández López, Milagros Fernández-Pérez and Olga Ivanova: *Biolinguistics at the Cutting Edge: Promises, Achievements, and Challenges*. Berlin-Boston: De Gruyter Mouton 2025. vi + 385 pages.

Abstract: This is a review of the book *Biolinguistics at the Cutting Edge: Promises, Achievements, and Challenges*.

Keywords: Biolinguistics, general linguistics, generative grammar, Chomskyan biolinguistics, syntax, MERGE

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Recent decades have witnessed a remarkable expansion in biolinguistic research; however, there exist two factions in the use of the term (a rebranding of generative linguistics vs. a firm orientation towards biology), causing misconceptions about the biolinguistic approach (Martins & Boeckx 2016). Most works published under the label of biolinguistics centre on syntactic inquiry, thereby resulting in scant attention to biological and neurolinguistic research. Besides, due to its inherently multifaceted and comprehensive nature, biolinguistics research still faces significant challenges of multidisciplinary, technification, theorizing, and applicability. The volume *Biolinguistics at the Cutting Edge: Promises, Achievements, and Challenges* emerges as a timely intervention to address current fissures, since it not only synthesizes decades of disparate research but also articulates a coherent agenda for the field's future. Spanning diverse research domains including phonology, psycholinguistics, and neurolinguistics, as well as inquiries into the nature, evolution, disorders, teaching, and diversity of language, this volume adopts biolinguistics as its core theoretical perspective and presents innovative research findings of substantial academic significance.

In the Introduction, the editors outline the research background of biolinguistics and summarize the content of the following chapters. The twelve chapters are divided into four thematic parts.

Part I (Chapters 1–2) lays the theoretical and historical groundwork by reconceptualizing the disciplinary identity of biolinguistics. Chapter 1 summarizes the history of biolinguistics and demonstrates the interaction between linguistic theory and biology. Unlike the weak and strong meanings of biolinguistics (Boeckx & Grohmann 2007), this chapter distinguishes biolinguistics in the narrow sense (rooted in generative grammar) and the broad sense (integrating genetics, neurobiology, and evolutionary archaeology). The author argues that narrow-sense biolinguistics constitutes the scientific core of the discipline, and broad-sense biolinguistics represents its natural development, indicating that the interdisciplinary work is only possible if it is integrated with generative grammar (p. 20). Influenced by the evolution of biology, the theory of generative grammar develops to achieve biological adequacy, contributing to the explanation of the biological nature of language.

Chapter 2 analyzes the status of biolinguistics under the broader framework of linguistics, explaining its value in promoting conceptual shifts in linguistics and interdisciplinary research. The authors advocate for a “brain-mind-language” model that unifies neurocognitive approaches with theoretical linguistics. This chapter specifies that the study object of biolinguistics is the biological nature of language, and the three main topics in the field are the origins of language, language acquisition, and verbal dysfunctions.

Part II (Chapters 3–6) discusses the challenges of multidisciplinary and technification that biolinguistics should address. Chapter 3 introduces the biolinguistic approach to child phono-

logy, reviewing the early tradition of the naturalistic study of language and famous linguists' contributions to the study of child language, including Edward Sapir's phonetic patterns and Chomsky's generative phonology.

Chapter 4 focuses on the contributions of psycholinguistics to the biolinguistic enterprise. After making explicit the relationship of psycholinguistics to linguistics and biology within the domain of language processing, this chapter presents the different ways in which the grammar and the processor match or mismatch and introduces the research methods in experimental psycholinguistics, especially the eyetracking methodology and the priming paradigm.

Chapter 5 explores new techniques in neurolinguistics, including neuroimaging and brain stimulation techniques, active and passive experimental methods, clinical studies of language disorders, and computer modeling.

Chapter 6 is devoted to the genetic studies of developmental language disorders. After presenting the core concepts and examples from major studies of language disorders, this chapter concludes that an interdisciplinary study is still needed. The author claims that "researchers from different disciplines do not necessarily speak the same language" (p. 177), resulting in a substantial gap between molecular etiology and the disease of language disorders.

Part II tries to uncover the biological underpinnings of language by analyzing child phonology, psycholinguistic approaches, neuroimaging techniques, and the genetics of language disorder, but these subfield data remain difficult to integrate across domains, and hypotheses formulated within one discipline often resist empirical validation or falsification from the perspective of another. Consequently, this part underscores that a truly interdisciplinary approach to linguistic facts remains a challenge for the biolinguistic enterprise. It is essential to issue a compelling call for the shared conceptual frameworks and standardized experimental paradigms.

Part III (Chapters 7–8) addresses the challenge of theorizing. Chapter 7 illustrates the recent generative conception of linguistic structure and meaning, including MERGE, units of computation, labeling, and minimal search. Chomsky (2019) defines the "capital" MERGE as an operation on a workspace and its objects. Based on this analysis, this chapter proposes that the innate component of the language faculty is likely unrestricted MERGE, which turns into binary branching MERGE when situated within the context of an organic computational system that is constrained by economy factors (Collins 2022). It is defended that the MERGE-based mechanics of the human mind generate internal representations, which convey interpretations to other cognitive systems. This new definition of MERGE permits the formulation of the efficiency criterion "Resource Restriction", which can determine legitimate MERGE applications alongside minimal search.

Arguing against the widely assumed inference “if there is symbolism, then there must be (modern) language” (p. 237), Chapter 8 advocates that symbolic evidence is linked to behavior, and that it cannot throw light on the presence of language, because language is not a behavior but a computational system. The author claims that it is not possible to determine whether the alleged symbolic pieces were truly symbolic and proposes a different approach: “to analyze archaeological remains according to the computational processes and capabilities required for their production” (p. 237). This new analysis is only concerned with the purely formal features susceptible of revealing a language-like computational complexity, which is consistent with the theoretical underpinnings of Chomskyan biolinguistics and can be advantageous when applied to the analysis of prehistoric objects.

Part IV (Chapters 9–12) deals with the challenge of applicability. Chapter 9 demonstrates that biolinguistics can advance the diagnosis, understanding, and treatment of language disorders in clinical linguistics. The oscillopathic approach is advocated because brain oscillations are more biologically motivated and more theoretically grounded components of language than other features.

Chapter 10 presents a biolinguistic study of language changes during aging, addressing two central questions that demonstrate how the lifespan can inform the biological underpinnings of language: linguistic cognition and architecture in humans.

Chapter 11 highlights the connections between biolinguistics and language teaching. It identifies competence as the linking point and proposes that the meeting points lie in the distinctions between acquisition and learning.

Chapter 12 challenges the foundational assumption of a species-unique, genetically encoded “language module” by highlighting the high genomic similarity between humans and great apes. It emphasizes the roles of cultural transmission, niche construction, and developmental plasticity in language evolution. Furthermore, this chapter calls for “biocultural linguistics”, namely an interdisciplinary paradigm that situates linguistic diversity and universals within the interplay of biological potential and sociocultural practice. This novel view transcends the long-standing nature-nurture dichotomy and offers an empirically grounded account of language origins and variation.

Offering a consolidated perspective on the current landscape of biolinguistics, this volume not only delineates the field’s aspirational goals, substantive accomplishments, and persistent challenges but also contextualizes findings within biolinguistics’ most intractable debates, moving beyond abstract rhetoric to empirical resolution. The volume provides a framework for dialogue regarding the “internalism vs. externalism” controversy and avoids the pitfalls of “syntactic centrism” (prioritizing syntax over non-syntactic factors) and “biological reductionism” (redu-

cing language to genes or brain regions). It reframes biolinguistics from a discipline focused on endogenous theoretical construction to one oriented toward outward-facing knowledge integration. It addresses the “interdisciplinary divide” and provides many new insights into controversial topics based on the latest proposals. Furthermore, this book advances biolinguistics beyond genetic determinism toward an integrative framework grounded in the co-evolution of biology and culture.

However, the interdisciplinary breadth of the volume also presents a challenge, as certain sections may be less accessible to readers without a background in neurobiology or cognitive science. Although the editors have taken measures to enhance the text’s accessibility, the inclusion of a more detailed glossary or a conceptual primer on key themes could have further aided comprehension.

In sum, this volume is of landmark significance. It not only serves as a significant guidebook for readers who are interested in biolinguistics but also delineates recent achievements in the biolinguistic enterprise, thereby providing specialists with foundational frameworks for interdisciplinary and in-depth research.

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