within the theory of translation (Bilous 2014: 2, among others), which is the most authoritative in the field, should not have been overlooked. In addition, in Chapter 3, it should have been clearly stated that second language acquisition and second language teaching (with its approaches, methods, strategies and techniques) are two separate and fast-expanding branches within applied linguistics. Furthermore, since the targeted readership is undergraduate students, it would have been worthwhile to make a clear distinction between the terms *acquisition* and *learning*, and it would have been useful to introduce the concepts of second language incomplete acquisition, attrition and loss as well. The Theory of Universal Grammar (Chomsky 1965 and much subsequent work) could have been given more attention in Chapters 1 to 3, as well as the question of its access to L2/L3-L_n (see Bilous 2009, White 2003, among others).

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Frederick J. Newmeyer and **Laurel B. Preston**, eds. 2014. *Measuring Grammatical Complexity*. Oxford: Oxford University Press. Pp. xvi + 370. US $110 (hardcover).

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Measuring Grammatical Complexity is an edited collection of papers presented at the "Formal Linguistics and the Measurement of Grammatical Complexity" workshop held in Seattle in March 2012. Consisting of fourteen chapters, the volume addresses grammatical complexity differences among languages from a formal linguistics approach. Each chapter explores the concept of complexity either from a grammar-based (e.g., Minimalist program) or user-based (e.g., Construction Grammar) perspective in order to highlight the complexity of specific grammatical elements or their degree of difficulty for language users. The volume also contains two chapters that deal with the contributions of neurolinguistics to the measurement of complexity. Covering both the trade-off hypothesis and interpretive complexity, the volume provides a new methodological perspective in bringing together empiricist and generativist stances in the assessment of grammatical complexity.

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In chapter 1, "Introduction", Newmeyer and Preston review three independent currents that led to the axiomatic belief that all languages are equally complex (as summarized in Hockett 1958), a belief which prevailed for over a century. This idea was derived from the humanistic sense of equality (human beings are equal; hence, languages are equal), from the linguistic trade-off hypothesis (complexity in one part of grammar is balanced out by simplicity in another part), and from Universal Grammar (languages are equally complex or simple).

In chapter 2, "Major contributions from formal linguistics to the complexity debate", Hawkins examines the concepts of efficiency and complexity, which he discussed in detail in Hawkins (2004). The author claims that the precision of measurement relies on the formalization and characterization of surface structure syntactic phenomena. Different structures, once measured, can be ranked and used for cross-linguistic comparison purposes. Efficiency can also be measured by investigating complexity in different areas of grammar.

In chapter 3, "Sign languages, creoles, and the development of predication", Gil attributes the relative contribution of predication to the level of complexity in young languages (e.g., sign languages and creoles) and other languages. Defining predication as a "composite emergent entity derived from the alignments of two independent elements of conceptual structures: thematic role assignment and headedness" (p. 54), the author provides evidence on the absence of grammaticalized predication, or the presence of only weak grammaticalized predication, in young languages, based on two morphosyntactic phenomena, that is, core argument marking and expressions of tense, aspect, and modality (TAM), which suggests that young languages are simpler than other languages.

In chapter 4, "What you can say without syntax: A hierarchy of grammatical complexity", Jackendoff and Wittenberg argue that meaning is expressed through a trade-off between the semantic/pragmatic component of grammar and the syntactic component, positioned on a hierarchy. The proposed hierarchy is composed of three main parts: word-level grammar, simple phrase grammar, and recursive phrase grammar. At simpler syntactic levels, successful communication relies more on pragmatics and discourse, while at more complex levels, there is more reliance on the syntactic component.

In chapter 5, "Degrees of complexity in syntax: A view from evolution", Progovac adopts a minimalist framework in discussing syntactic complexity. She argues that root small clauses and intransitive absolutive clauses are syntactically simpler than tense phrases and transitive clauses respectively, which suggests that syntax evolved progressively, with simpler structures providing the foundation for more complex constructions. The author also presents neurological evidence for differing syntactic complexity levels in support of her thesis.

In chapter 6, "Complexity in comparative syntax: The view from modern parametric theory", Biberauer, Holmberg, Roberts, and Sheehan question the underlying assumptions of the classic parametric theory. As an alternative, they propose that parameters emerge from the interaction of an underspecified Universal Grammar, the primary linguistic data, and acquisition strategies. Through investigating typological features of English, Mandarin Chinese, Japanese, Mohawk, and Basque,

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the authors explain how this view permits the quantification of grammatical complexity into parameter hierarchies.

Chapter 7, "The complexity of narrow syntax: Minimalism, representational economy, and simplest Merge", by Trotzke and Zwart, highlights the similarities between the Minimalist program and Construction Grammar in measuring grammatical complexity. Providing examples from German, the authors point out that a phase-based derivational model of syntactic complexity is not an appropriate representation of complexity. Instead, they argue for a minimalist model of grammar in which complexity arises from the cyclic interactions of subderivations, which is compatible with Construction Grammar approaches.

Culicover's study, "Constructions, complexity, and word order variation" (chapter 8), couched within a Construction Grammar framework, discusses the factors contributing to the persistence of complex phenomena in a language even though less complex alternatives are available. Focusing on the role of word-order variation in producing complexity in Germanic verbal clusters, the author reasons that linguistic change and distinct social networks underlying the correspondence between syntactic form and conceptual structure interpretation lead to variation and persistence of complexity even in closely related language varieties.

In chapter 9, "Complexity trade-offs: A case study", Sinnemäki argues for a cross-linguistic and typological measurement of grammatical complexity. Characterizing complexity as "the number and variety of parts and their interrelations in a system" (p. 180), the author examines the link between case marking and regulation vs. resource-based (rigid or free) word order. Analyzing data from a stratified sample of 50 languages, Sinnemäki finds a complexity trade-off between case marking and rigid word order, but the strength of the correlation depends on the way the grammar is described with respect to resources but not regulations.

In chapter 10, "The importance of exhaustive description in measuring linguistic complexity: The case of English *try* and pseudocoordination", Ross provides arguments against the analysis of grammatical subsystems in order to measure grammatical complexity, as does Sinnemäki (Chapter 9), among others. The author advocates measuring grammatical complexity by taking into account an entire grammar. In support of his view, he discusses *try* and pseudocoordination in English to demonstrate how a peripheral phenomenon can contribute to overall grammatical complexity.

In chapter 11, "Cross-linguistic comparison of complexity in phonological systems", Moran and Blasi adopt a typological perspective to explore the absolute measures used to quantify the complexity of phonological systems. In an attempt to overcome the methodological shortcomings of statistical aspects of datasets, particularly parameterization of distributions and the direction of correlations between pairs of variables, the authors designed experiments to calculate different distributions of variables and correlations between variables. They argue that distinctive features build up a better basis than segments for complexity ranking.

In chapter 12, "The measurement of semantic complexity: How to get by if your language lacks generalized quantifiers", Matthewson addresses the issue of semantic complexity by comparing English and St'át'imcets. The author proposes metrics for

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measuring semantic complexity (formal complexity, paradigm complexity, and expressive complexity) and argues that St'át'imcets has a less complex quantificational system than English, but that other areas are more complex. While such balancing makes functional sense, the author underlines the fact that Universal Grammar cannot prevent languages from differing in overall complexity.

Chapter 13, "Computational complexity in the brain", by Chesi and Moro, explores the possible link between Chomskyan hierarchical formal complexity and brain activities. The discussion focuses on formulating explicit metrics for measuring grammatical complexity and connecting them to brain-imaging data obtained during performance tasks. Providing experimental evidence for the connection between automata, task processing, and brain functions, the authors maintain that some brain regions (e.g., Broca's area) are involved in long-distance syntactic dependencies such as relative clauses.

In chapter 14, "Looking for a 'Gold Standard' to measure language complexity: What psycholinguistics and neurolinguistics can (and cannot) offer to formal linguistics", Menn and Duffield argue in favor of developing a theory-independent "objective way to validate relative language complexity […] anchored in human mind" (p. 281), that is, to measure utterances that are harder or easier for humans to understand, learn, or produce. Focusing on factors influencing the complexity of utterance production, the authors propose that the psychological model MISCHA (Model Integrating Sequential, Categorial, and Hierarchical Activation) can represent hierarchical grammar and sequential usage simultaneously.

The book could be of great interest to linguists of various theoretical camps, including but not limited to linguists working in morphosyntax, psycholinguistics, neurolinguistics, and cognitive linguistics. Like Miestamo et al. (2008) and Sampson et al. (2009), the book edited by Newmeyer and Preston provides a detailed account of the contributions of formal linguistics to the measurement of grammatical complexity and dispels the equal language complexity myth. Instead of providing a unified description of the notion of complexity, the volume presents diverse views on clear-cut characterizations and measurements of complexity. In addition, in presenting the findings of brain research (chapters 13 and 14), this contribution confirms that formal linguistics can benefit from different disciplines, especially from the study of cognitive and neurological processes in language use.

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