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How do performance factors influence the fixed grammatical conventions of languages? How does crosslinguistic variation in grammatical structure inform our understanding of language use? In Cross-linguistic variation and efficiency, John A. Hawkins presents new applications and refinements of the principles proposed in his earlier book Efficiency and complexity in grammars (2004), representing the latest development in a long line of research on the relationships among grammar, typology, and performance. As in his previous major works on this topic (Hawkins 1983, 1994, 2004), H argues that factors related to language use have left their mark on grammars in such a way that one can find evidence of their influence in numerous grammatical rules and crosslinguistic generalizations. In turn, he shows how linguistic evidence from grammatical rules and crosslinguistic generalizations can shed light on aspects of performance that might otherwise remain obscure.

The current work applies the principles proposed in Hawkins 2004 to a wider range of empirical data and addresses a number of recent developments in language processing, syntactic theory, historical linguistics, and linguistic typology. Ch. 1 summarizes the PERFORMANCE GRAMMAR CORRESPONDENCE HYPOTHESIS (PGCH) and lays out some of its predictions. The PGCH is stated as follows: ‘Grammars have conventionalized syntactic structures in proportion to their degree of preference in performance, as evidenced by patterns of selection in corpora and by ease of processing in psycholinguistic experiments’ (3). The primary evidence for this hypothesis is found in parallels between patterns of variation in language use and patterns of variation among grammars, of which numerous examples are given throughout the book.

Ch. 2 reviews the three major efficiency principles from Hawkins 2004: MINIMIZE DOMAINS (MiD), MINIMIZE FORMS (MiF), and MAXIMIZE ONLINE PROCESSING (MaOP), and gives examples from both performance and grammar illustrating how these principles cooperate and compete with each other. One example is the distribution of gaps versus resumptive pronouns in relative clauses. Whereas gaps are favored by MiF, since there are fewer morphological forms to process, resumptive pronouns are favored by MiD, since they provide a local argument for processing lexical cooccurrences within the relative clause (24). H provides evidence both from systematic crosslinguistic variation in the distribution of gaps versus resumptive pronouns and from variation in usage for languages like Hebrew and Cantonese that allow the option of either gap or resumptive pronoun in certain positions. Both sources of data confirm the same pattern: resumptive pronouns are preferred more often in structurally more complex environments for which overall efficiency is achieved through domain minimization at the expense of form minimization.

Ch. 3 situates the three major efficiency principles in the context of current findings in psycholinguistics. One current line of research develops the idea that linguistic elements are easier to process when they are more predictable within a given context (Levy 2008), and the related idea that speakers maintain, on average, a uniform information density in spontaneous speech by reducing the form of more-predictable information and elaborating the form of less-predictable information (Jaeger 2006). H’s MiF captures the same general idea, but lacks the precise metrics used to quantify predictability (or surprisal) and information density. H acknowledges the usefulness of these measures and sees them as a complement to his own proposals. Another current issue addressed in this chapter is the apparent contradiction between studies that show locality effects (i.e. a processing advantage for local dependencies as compared with nonlocal ones), and those that show antilocality effects (i.e. a processing advantage for nonlocal dependencies). H exemplifies this contrast with the case of relative clause extraposition in German and English (52–57). Kövecses’s (2000) German data showed antilocality effects in word-by-word reading,
in the form of shorter reading times on the verb when preceded by an object-modifying relative clause, but longer reading times on the verb when the relative clause was extraposed (55). In contrast, Francis’s (2010) English data showed locality effects in that whole-sentence reading times were faster for sentences involving extraposed relative clauses than for corresponding sentences with adjacent ordering (although only for heavy relative clauses). Furthermore, both studies showed strong locality effects in production preferences as shown in corpora. H reasonably concludes that antilocality effects are highly localized, reflecting the fact that information in the preverbal relative clause helped readers predict the upcoming verb (Konieczny 2000). In contrast, locality effects reflect more global preferences that are shown most strongly in production choices and to a lesser extent in whole-sentence reading and off-line judgments (57). Thus, H makes sense of apparently contradictory findings by recognizing that different data sources can highlight different aspects of performance.

In Ch. 4, H discusses the role of the proposed efficiency principles for understanding how grammatical forms and syntactic rules emerge in the history of languages. This is a short chapter without a great deal of historical data, but it contains a useful discussion of how the current theory can make precise some of the reasons why certain structural variants become preferred over others and eventually conventionalized as obligatory grammatical forms or syntactic rules. One issue that I think deserves more attention here is how to understand intermediate stages of grammaticalization. H makes it clear that he assumes a competence grammar as distinct from performance (67), and that he accepts a traditional idea of syntactic rule as defined in terms of syntactic categories and structural configurations (85). However, the discussion in Ch. 4 raises a basic question. If preferences for a particular structural pattern become stronger over time, does a strong but noncategorical preference need to be included in the competence grammar? H hints at an affirmative answer to this question later in Ch. 7, in his discussion of the strong preference for adjacent ordering of transitive verbs and their direct objects in English—an ordering that can be violated by postposing the object NP, but only in the case of significant length differences between the object NP and another postverbal phrase. He claims that this strong preference reflects the application of a grammatical rule of English, but does not explain how such a rule could be formulated to allow for the postponing of object NPs in some circumstances.

Chs. 5–8 form the core of the book, applying the performance principles to patterns of crosslinguistic variation. Although many of the examples and arguments are familiar from H’s previous work, the information is organized differently, and there are many connections to recent proposals as well as more elaborated typologies of NPs and clauses. I touch on just a few points here. In Ch. 5, H engages with some of the recent typological work within generative grammar. H accepts the idea of a competence grammar, and acknowledges the value of detailed formal syntactic analyses. He is critical, however, of proposals that express typological generalizations as innate principles of universal grammar. Specifically, he discusses two general types of mixed head ordering (i.e. mixing of head-final and head-initial phrase types within a sentence), one of which is targeted by a universal constraint called the final over final constraint (FOFC) as developed in a series of works in minimalist syntax (e.g. Biberauer et al. 2008). H argues that the FOFC is empirically both too narrow and too broad, and that it has little explanatory value. He sees his own performance principles as giving a more accurate and explanatory account of why mixed head ordering is dispreferred, and of which types of mixed head ordering are least efficient for processing. H supports these assertions with detailed explanations of how the principles apply to predict both usage patterns and frequency distributions across languages. Also considered are mechanisms that languages with mixed head orderings use to compensate for the difficulty of these structures. For example, extraposition is cited as a common strategy used in German to shorten the otherwise long processing domains that can result from having head-initial NPs within head-final VPs (108). One issue that seems relevant here but is not discussed is the role of frequency of usage, and the related role of discourse utility, as additional mechanisms that might help compensate for the difficulty of rare but attested mixed head orderings.

In Ch. 7, H outlines ten differences between VO and OV languages and motivates them in terms of the efficiency principles. For example, he shows that verb movement (fronting of a finite
verb) occurs in both VO and OV languages, but fails to occur in the subset of OV languages described as ‘rigid’ (meaning that phrases are consistently head-final). He argues that for these rigid OV languages, the potential advantages of constructing a clause early (as can be accomplished through verb movement) are outweighed by the advantages of having a uniform phrase structure and the ability to immediately interpret all verb-argument relations upon encountering the verb (182). The chapter is rich in examples and arguments similar to this one.

Overall, I found Chs. 5–8 to be quite detailed and elaborate in offering performance motivations for typological patterns, but somewhat lacking in evidence from performance. Although several corpus studies are described in these chapters, experimental studies are mentioned only a few times in passing. A volume that seems relevant here but that is not cited is Yamashita, Hirose, & Packard 2011. This volume includes experimental studies of mixed head ordering languages (Mandarin, German, Basque) as well as rigidly head-final languages (Japanese, Korean). I feel that both the discussion of mixed head ordering and the discussion of VO versus OV language types might have benefited from engagement with some of the data from this volume.

Ch. 9 returns to the issues of competition and cooperation that were introduced in Ch. 2, while Ch. 10 summarizes the main points of the book and returns to some of the psycholinguistic issues raised in Ch. 3. These chapters underline both the ambitiousness of H’s research program, as shown by the intricate interweaving of many data sources, and its limitations. Although he makes connections with an impressive range of empirical and theoretical work, H does not attempt to be all things to all people. For example, although he now acknowledges the independent effects of discourse information structure on structural choices in language use (213), he does not engage much with the extensive literature on this topic. Nor is he out to develop a theory of formal syntax or of sentence processing. Rather, H asserts that his main goal was to provide processing-related principles to help explain structural variation within and across languages, with the hope that such principles can also be brought to bear on theories of formal syntax, historical change, sentence processing, and sentence production (233). From this perspective, the book is very successful in making connections with these fields as well as developing specific, testable predictions for future work. For those who are already familiar with H’s research, the book provides new insights and connections with current theories and findings. For those who are less familiar with the previous work, the book provides a well-organized and highly engaging introduction to H’s theory.

REFERENCES


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