REVIEWS

DAVID LIGHTFOOT, *The development of language: acquisition, change and evolution*. Oxford: Blackwell, 1998. Pp. 352.

In *The development of language*, Lightfoot works within Chomsky's Minimalist program to show the potential of formal linguistics as a common framework for research into language acquisition, change and evolution. Such a unification could be 'a good thing': the three phenomena have an intuitive similarity, at least in their effects, and it may prove fruitful to test how significant these similarities really are. Lightfoot's conclusions, however, seem entirely negative: there can be no general theory of change, and even particular kinds of change are epiphenomenal of atomic chance occurrences. These conclusions appear more the result of Lightfoot's initial assumptions and definitions than of any rigorous survey of the separate fields.

The book can be divided into three sections: chapters 2–4 sketch the theoretical background that Lightfoot assumes; chapters 5–7 develop Lightfoot's cue-based model of acquisition and change in grammars; and the last three chapters, 8–10, explore the broader implications of this model for history and evolution.

The first section outlines in a series of definitions the Chomskyan paradigm within which Lightfoot is working. Chomsky (1986) defines E-language – Externalized language – as 'a collection of actions or behaviours' of a population (p. 20) – for example, the set of sentences used by some population over some period of time. I-language – Internalized language – is defined as a structural 'element in the mind of a person who knows the language': to 'know a language' is to have this structural element in one's mind/brain (p. 22). Lightfoot follows this model, with E-language and I-language renamed respectively as 'language' and 'grammar'. Grammars are 'biological entities represented in people's brains' (p. 49). These grammars may vary between individuals, and within individuals over time (although Lightfoot thinks this implausible in adults, p. 80). Individuals may also 'grow' more than one grammar, and not necessarily as a representation of bilingualism: 'we cannot know in advance of investigation how many grammars speakers may have access to' (p. 92). Differences between grammars are constrained by the human 'linguistic genotype', which is how Lightfoot defines Universal Grammar (p. 52). Language is a derivative concept, 'the aggregate output of some set of grammars', 'perhaps modified by other [i.e. non-linguistic] mental processes', 'not a coherent, definable entity' (pp. 74, 77). Thus grammar (or I-language) and not language (or E-language) is the proper object of study for linguistics. The linguist becomes the grammarian (e.g. p. 218).

First language acquisition is 'grammar growth', the development of an individual's 'language organ' (p. 53), caused by exposure of the child's innate Universal Grammar (UG) to Primary Linguistic Data (PLD). *PLD* is defined as the set of simple grammatical structures that are robustly present (i.e. present above a certain frequency threshold) in the child's linguistic environment, and that trigger the child's UG to develop towards mature grammar(s). PLD in other words is a set of grammar-fragments (pp. 67, 76n6) that enables the child to set his or her parameters.

This individualist linguistics, with language as a property of individuals rather than societies, echoes the 'self-consciously reductionist' political psychology of Jon Elster, in which 'the individual human action [is] the basic building block of aggregate social phenomena' (Elster, 1993, p. 8; Lightfoot, p. 43).

The phenomenon of language change is treated similarly. When UG is exposed to PLD a mature grammar develops; the output of a set of grammars produces a language; a subset of this language provides the PLD for a later generation of grammars. Language change may occur when the PLD a child receives is different (for whatever reason) from that of his or her parents. If this difference results in certain simple grammatical structures no longer being robustly present, the grammar the child develops will differ parametrically from that of the previous generation. This difference has implications for the child's younger siblings and for the PLD of the next generation, and the change consequently spreads through the population (p. 77). This model of spread of change through a population is borrowed explicitly from population biology (p. 101), and the view of a language's history as an equilibrium, punctuated by sudden catastrophic changes, is a development of dynamic systems theory (i.e. chaos & catastrophe theory, p. 89).

The second section covers Lightfoot's cue-based model of acquisition and change in grammars. During first language acquisition 'children scan their environment for designated structures or "cues"' (p. 149), and the robust presence of a particular cue will cause the child's grammar to develop in a particular direction. For example, on exposure to an utterance like 'John's hat', which after parsing becomes the PLD [$_{Spec}$[John's] $_N$[hat]] the child can set her Spec/Head parameter (to 'Spec before Head'). 'Cues', then, are the crucial grammatical properties of parsed utterances (e.g. 'Spec before Head'), that direct growth in children's grammars (p. 150) – they can be thought of as the trigger experiences that set individual parameters of UG. Children do not try to match their language to that of their environment, nor do they need to worry about the poverty of the linguistic stimuli (p. 60); they simply use the cues to develop their own grammar.

Often, and especially in the work on language change, PLD is in effect reduced to the frequency pattern of cues in a language (e.g. pp. 141, 154).

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The cue-based model then becomes a unified analysis of language acquisition and change. If a language like English or French is the output of a population set of grammars in which certain cues are robustly present, then language change is a change in frequency of these cues. Lightfoot gives examples from the history of English (e.g. loss of Verb-second in Middle English, loss of V-to-I raising in early Modern English) to demonstrate how this might work.

In the final section, Lightfoot extrapolates from these ideas to argue against the need for, or the possibility of, independent theories of change in linguistics, whether that change is historical, developmental or evolutionary (p. 206). The reductionist conclusion of the book is that 'history is an epiphenomenon' (p. 265), derived from the interaction between logically prior properties of logically prior individuals. With respect to language change these properties comprise UG, including the cues, an innate biological property of the human species. UG and its processes are the proper objects of study of linguistics; all else is derivative of these.

If the conclusions seem pessimistic, the book is also ambitious. Lightfoot's vision of the potential of formal linguistics to unify research on language acquisition, change and evolution can be quite exhilarating. On the other hand, it can be frustrating to be confronted repeatedly by his narrow definition of his object of study.

Lightfoot's formalism is a medium through which disparate fields of enquiry can interact: by including techniques from population dynamics, chaos theory and socio-biology, he broadens the scope of formal linguistics. He is also eclectic within formal linguistics, using a Head-driven Phrase Structure Grammar analysis of the history of English Auxiliaries (Warner 1995), and an analysis of French *chez* in which syntactic change is derivative of more concrete changes in phonology or semantics (Longobardi 1996). Although there is no stated aim to develop a common framework within which to explore problems of language acquisition, change and evolution, Lightfoot's treatment does suggest the possibility of one.

A unified approach to language change in general has had intermittent attention over the centuries. Lightfoot's contribution notes some of the problems: the necessity of describing variation between individuals, environments, or different parts of a linguistic system (e.g. syntactic or phonological irregularities); the importance of capturing the effects of these variations; and the relevance of the subjective activity of the individual (e.g. the first language learner).

However, Lightfoot often seems to have achieved generality only by narrowing drastically his domain of enquiry. There is only the briefest of surveys of each of the three areas: the recent child language research covered is all from within the Chomskyan paradigm; there is no coverage of anthropological or archaeological research on human evolution. In language acquisition, Lightfoot defines the child's subjective activity entirely in terms

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of innate rules to be followed and representations to be generated, echoing Chomsky's definition of human creativity in terms of recursive generativity. In language change, the causes of change in a child's PLD are defined as external to linguistics (166); the existence of factors that might promote the spread or suppression of linguistic innovations is not acknowledged.

This narrowness might be seen as a consequence of reductionism, and Lightfoot's reductionism is stronger than Elster's. Elster's reductionism is straight-forward in that it aims to reduce social phenomena to aggregate functions of individual BEHAVIOURS, reducing the domain of enquiry to what is relatively uncontroversially public and observable. Lightfoot rejects behaviour (performance) as evidence for grammar (e.g. p. 80), but offers no other public or observable 'basic building block' from which to construct the aggregate social phenomena of language: his postulatedly biological grammars bear only an indirect relationship with individuals or their behaviour.

The link between narrowness and negativity is perhaps most clear in the penultimate chapter, on the evolution of the language faculty. With the language faculty defined as an organ of the brain, the only fossil data considered relevant to its evolution are those pertaining to brain size (p. 228). With such a constraint, however, it is difficult to argue that the language faculty is adaptive; indeed many of its features are presented as maladaptive (p. 250). Lightfoot must assume that intelligence and language evolved as an incidental consequence of a sudden increase in human brain size (p. 231), or 'as an accidental by-product of some other adaptive mutation' (p. 249). Once grammar is defined as an organ of the brain (e.g. p. 53), no conclusions can be made about its evolution.

But there are other data from the fossil record, which are surely relevant to the evolution of a less narrowly defined object of study. Beaken (1996) surveys fossil evidence of tool use and social behaviour among primates and early humans, stressing the implications of this evidence for communication and thinking of some complexity, and portraying the evolution of language as a corollary to the development of human sociality. Like Vygotsky (Luria & Vygotsky 1992), Beaken sees this development as of a kind with the development of sociality and language in children.

The development of language may not convince the un-converted, but perhaps it is not intended to do so. In his approach to the acquisition, change and evolution of language (or grammar), Lightfoot shows himself to be at the forefront of Chomskyan linguistics, and the book is nothing if not challenging and stimulating. However, his narrow conception of the object of study of linguistics results in almost universally negative conclusions: no general theory of change, no place in linguistics for 'language' or activity, and no explanation for linguistic change. 'The grammarian needs the descriptivist', says Lightfoot (p. 218): the descriptivist discovers the raw material from

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which the grammarian derives grammar. In *The development of language* he offers the descriptivist little in return.

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MEHMET YAVAS, *Phonology: development and disorders*. San Diego, CA: Singular Publishing Group, Inc., 1998. Pp. xi + 335.

The major theme of phonology textbooks written primarily for students in speech–language pathology has been the clinical applicability of phonological assessment and remediation techniques. Both Ingram (1976, 1989) and Stoel-Gammon & Dunn (1985) used their textbooks to provide students with a current and working understanding of phonological theory, analysis, and typical phonological development. From this base, the authors presented the nature of disordered phonology, its assessment, and its remediation. These introductory textbooks chronicle the rapid development of phonological research through the late 1980s. However, an update is needed. It is time for a phonology textbook that reflects the current status of phonological theory as well as the present perspectives concerning phonological assessment and remediation. Yavas' (1998) book *Phonology: development and disorders* (henceforth PDD) was written to address this need. He states in the preface and 'note to instructors' that the book's purpose is to provide students interested in applied phonology with an accurate, comprehensible and useful account of the principles and analytical methods arising from the technical study of phonology.

   PDD contains ten chapters. It begins in chapter one by defining and contrasting the terminology used in phonological theory and phonological acquisition. The chapter includes general discussions of phonological knowledge and applied phonology, as well as clinical phonology and remediation. The second, third and fourth chapters discuss phonetics, phonemics and distinctive features. Information is provided regarding phonetic transcription, the vocal tract, the description, articulation and distribution of sounds, phonemic analyses, phonemics and writing systems, and a chronological

account of the development of distinctive features. Chapters five and six describe phonological processes, phonological development and disordered phonology. They also discuss characteristics of typical and disordered phonological development and the implications of phonological processes for remediation in general and select remediation approaches in particular. Chapter seven explains the naturalness of segments (syllables) and systems (processes) and markedness in generative phonology. Chapter eight addresses issues surrounding bilingual phonology, including the critical age hypothesis, universal and interference patterns, hierarchies of difficulty, distinctive features of interlanguage phonology and clinical relevance. A return to the discussion of syllables occurs in chapter nine and provides more in-depth information on syllable structure, sonority, syllabification, ambisyllabicity, stress assignment and syllable weight, as well as developmental implications. Lastly, chapter ten discusses feature geometry and underspecification as they apply to clinical and interlanguage phonology.

The first seven chapters of PDD are intended for introductory level instruction. The chapter topics chronicle the transition in the study of phonology from the phonetically based focus of phonemics to the abstract rule-governed approach of current phonological investigations. The last three chapters, i.e. chapters eight, nine and ten, however, provide description and discussion of relatively more specialized and advanced topics.

In general, chapters begin by defining relevant terms and providing a brief historical background on the major concepts to be discussed. Each chapter topic is then described in detail using a series of case study examples. These examples are initially used to illustrate concepts, such as phonological processes or the phonetic and phonemic inventories of a speaker. Once the basic concept is given, case studies are again used to extend the student's understanding of the topic through comparisons. For example, phonetically transcribed samples of English and Korean are presented and then submitted to phonetic and phonemic analyses. This method provides students with detailed examples and descriptions of phonetic and phonemic analyses. In addition, it assists them with the extension of that knowledge and the process of critically comparing one system to another, a skill they will hone as clinicians. Finally, the case studies lead into a discussion of their clinical relevance and/or a summary of the information presented in the chapter.

While the major premise is to provide an introductory level text for students interested in clinical phonology, the text contains a mixture of introductory and advanced material. The discussions of bilingual phonology, details of syllables and feet, feature geometry, and underspecification may be too advanced for introductory-level students. These chapters may be more appropriate for speech-language professionals, or for master's doctoral level students with a course in both phonetics and phonology and who want to gain more detailed knowledge of current issues in phonology.

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Further, introductory level students may have difficulty gleaning the specific purpose of each chapter due to the unnatural separation of material as well as the redundant treatment of some topics. This pattern is most prominent in the multiple discussions of phonological processes. Although chapter five is specifically designated as the chapter in which phonological processes are discussed (per the chapter title), the topic of phonological processes is also discussed in chapters one and four, and again in chapter seven. Material separation and redundancy are also seen in the discussion of the structure of syllables in chapter three and that of the naturalness of syllables in chapter seven. Finally, clinical relevance and implications of the topics are inconsistently discussed. For example, some chapters directly discuss remediation and/or implications under one of three headings: treatment, implications, or clinical relevance. Other chapters review clinically applicable research but do not directly denote its purpose with a heading.

Considering these issues, prospective instructors may wish to consider a reorganization of the material in the book. Although it is ordered to provide a chronological account of the development of phonology as an area of study, students may benefit from a brief historical overview concurrent with the introductory chapter. This overview would place the current issues discussed throughout the text in an historical framework. The perspective gained from such an overview may assist students to understand the difference between key concepts and to envision future directions of study. For example, in our view the introductory chapter should have mentioned phonemics as well as phonetics in order to highlight the shift of focus from surface-related to abstract rule-governed principles of phonology.

In addition, there are some specific criticisms regarding omitted or unclear information that when addressed by an instructor could make the text more complete and comprehensible. First, chapter two is lacking referential information. In terms of phonetics, the Shriberg & Kent (1982) text *Clinical phonetics* (the primary phonetics text used in speech-language pathology) is not cited. Also, since chapter two relies heavily on Ladefoged (1993), a more prominent reference is in order should students wish to read more on their own. In the distinctive features chapter (chapter four) information is also omitted or unclear. For example, the feature [syllabic] appears on the features chart for consonants (Yavas, 1998, p. 76) but is not found in the vowel chart on the same page. Also, the feature [delayed release] is not included. Finally, it is not clear whose work the tongue root features are based on.

In summary, Yavas has provided the field with a valuable updated textbook on clinical phonology. Although some care may need to be taken to help the student place the material into its historical context, the text provides multiple case study examples, extensive review exercises and a strong overview of phonological theory. As such, PDD is a valuable reference

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for master's or doctoral level students as well as speech-language pathologists and other related professionals wishing to gain or update knowledge in the area of phonology. In addition, PDD may also be appropriate as a supplemental text in an introductory-level course in phonology.

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(*Received February* 1999)

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