DEVELOPMENTAL PHONOLOGY: IS THE CHILD FATHER TO THE MAN?*

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Locke's basic premise for this monograph is his "...belief that language acquisition can be understood—not merely described—and that...phonological development and change are dynamic processes in which cognitive, biological, and social factors continuously interact throughout the life of human speakers (p. xiii)." That prefatory statement is quite apropos of the book. It reflects not only the substance but also the form of the discussion, revealing both strengths and certain weaknesses. As it suggests, the psycholinguistic contribution of the work lies in the vast evidence marshalled toward the central goal of delineating the forces behind phonological growth. Of interest to developmental psychologists are its perspective that developmental processes continue throughout the lifespan, and that phonological ontogeny is shaped by the interaction of biological (intrinsic) and environmental (extrinsic) forces. But the prefatory statement also foreshadows recurrent problems in the book. First, it implies that other students of language acquisition take a merely descriptive approach, which would come as some surprise to established writers on this topic such as Bloom, Greenfield, Ferguson, Menn, Nelson, and many others. Thus, we get the semblance of a straw man, and no sense that others besides Locke believe language acquisition can be understood. Second, the book's interactionist perspective sounds grand in the abstract but falls short of adequate explanatory power, since it remains too abstract and arrives ex post facto. I will discuss these points further after a brief summary of the book's organization and contents.

Overview

At its core, the book is an extensive, annotated review of phonological and phonetic studies on various groups of people under a variety of conditions. This literature is used to discern parallel phonological characteristics between child and adult speech, which serve as the grist for two arguments about direction of causal influence: first, that intrinsic tendencies in the infant and child form the basis for adult phonological patterns and change (chapters 1-4); second, that influences are also visited upon the child from adult phonological behavior (chapters 5-6). Chapter 1 asks the question "When does phonology begin?" and answers "Before the first words," based on the restricted range and skewed distribution of phonemic elements transcribed from infant babbling. The universality of this pattern is taken as evidence of an underlying physiological basis for infants'
phonetic tendencies. Chapter 2 poses the related question, "When does phonological acquisition begin?" Its cross-language review of phonological research on early language acquisition reveals that the universal tendencies continue to shape the child's early words. These tendencies are not bent toward the phonological particulars of the native language until the final stage in a proposed three-stage model of phonological development, the "systemic" stage that presumably begins when the child has acquired a roughly 50-word vocabulary. Chapter 3 finds the intrinsic phonetic tendencies alive and well in a wide array of adult speech contexts—casual conversation, lexical avoidance, slips of the tongue, inebriation, neurological dysfunctions, glossolalia, historical sound change, and phonological universals. As summarized in Chapter 4, they are evident, as well, in the phonetics, phonotactics, and phonemic distributions within the lexicons of modern languages. Since "[t]he language and the child must both be in the equation, as each is under scrutiny (p. 186)," Chapter 5 asks "What is the child's actual phonological environment?" It considers the potential effects of adult phonetic variability upon the child's phonological development, including the extreme case of language death. The sixth and final chapter discusses the interaction between child and language by reconsideration of phonological changes (phonologization, dephonologization, rephonologization) within individual ontogeny and within the evolution of particular languages.

Evaluation

The monograph is quite commendable in a number of respects. First and foremost, it is a remarkably broad-ranging compendium of findings, which presents more comprehensively than elsewhere the universal phonological properties and phonetic tendencies observed in children and adults. It raises a variety of thought-provoking questions, and points out several intriguing between-group parallels in speech behavior, such as that between infant phonetic proclivities and the phonotactic constraints and distributions of phonemic elements found in glossolalia. As a developmental psychologist, I was attracted to the view of children as active contributors to phonological processes within a language, as opposed to their more traditional treatment as passive acquirors or recipients of some immutable adult language. Also appealing was the argument that actual adult speech must serve as the linguistic model for children, rather than the usual assumption that their source of reference is the linguist's ideal representation of the language. In addition, as a biopsychologist I particularly appreciated the attempt to trace the observed phonetic tendencies to a biological substrate, and the evidence of continuity from prelinguistic infancy into later periods of language use.

There are, however, some notable drawbacks to the book. For one, it seems to have been written backwards. That is, explanations are generally attempted only after findings have been surveyed from a vague "let's see ..." approach. This has two negative effects. It makes the reading of summarized empirical findings difficult and tedious, especially in the first two chapters. Of greater concern, this approach seriously weakens the force of the explanations, because they are predominantly post hoc. Specific a priori predictions are not often set forth for critical test; the arguments lose power since they are not clearly falsifiable. This problem is likely related to the criticism offered next.
It is disturbing that many of the book's ideas are presented with little theoretical and historical background, as though sui generis, when in fact preexisting literature has often addressed a similar or identical view. For example, the discussions about parallels between child and adult phonological properties are quite compatible with Stampe's model of natural phonology, which that author acknowledges in turn as a resurrection of late-19th century phonological theory (e.g., Donegan & Stampe, 1979; Stampe, 1969, 1979). Indeed, Stampe presents an integrated set of specific testable predictions about the phonological properties of child and adult speech, as well as of historical language changes, that could have guided several of the literature searches in Locke's book. Yet Stampe receives only passing mention; likewise, his identified predecessors Sweet, Baudouin, Jespersen, Passy, Hockett, Sievers and others receive scant or no reference. Discussions about the naturalness of phonological properties proceed without clear attribution, and the term natural phonology is even printed in scare quotes, as though newly-coined (p. 141). Similarly, many studies presented as if merely descriptive were actually theoretically motivated, and in directions not altogether dissimilar from that of the book. For example, the treatment of phonological tendencies in speech that has undergone various forms of dissolution (inebriation, dysarthria, aphasia) failed to recognize earlier well-known proponents, notably Ribot (1883), Freud (1953), and Jakobson (1968). A number of other relevant references are also oddly lacking, e.g., Chomsky and Halle (1968), Lieberman (1980); Lieberman et al. (1972), Stark (1980). One would like more evidence of theoretical and historical scholarship, which could have greatly strengthened the thesis of the book by providing a rich source of testable a priori predictions.

There are a number of other, more specific criticisms; I will summarize only a few of the more serious ones here. Discussions about physiological, or neurological, mechanisms that may contribute to the infant's phonetic tendencies are at times confused with anatomical or mechanical factors, and in general are not wholly satisfying. In addition, the sketch in Chapter 2 of a three-stage model for phonological development is interesting but incomplete (age ranges and behavioral markers are unclearly specified); moreover, the description of the first stage is neither phonological nor phonetic. Furthermore, the author notes the striking dissimilarity in the high incidence of /r/ within mature languages vs. its low incidence in infancy and early childhood (during which it is commonly mispronounced when uttered). This fact is a nontrivial challenge to his perspective, yet no serious explanation of the discrepancy was even attempted (there are other such challenges, also under-explained).

Certain peculiarities of style and format need mention. Between-table comparisons of data were made quite difficult, since the format differed widely between tables that were purportedly illustrating the same phonological principles. In at least one case a single table contained some data in percentages, alongside other data presented in raw frequencies (p. 160). The existence of the table formatting discrepancies is perplexing, given the amount of effort that the author obviously spent on interpreting and comparing the data himself! Although the inclusion of a language index is a nice touch, it is frustrating that the book lacks an author index, if one wishes to locate discussion of particular papers. In fact, the quality of the subject index itself is weak, and contains a number of idiosyncratic entries (e.g., Visual pattern imitation in infants, p. 263). Finally, certain stylistic characteristics were distracting, such as idiosyncratic terminology (e.g.,
repertoire vs. nonrepertoire refers to infant babbling sounds that have a high vs. a lower frequency of occurrence, respectively), and liberal and idiosyncratic italicization of quoted passages.

Recommendation

Lest the criticisms appear to overshadow the accomplishments of the book, I must emphasize the service it has provided in ferreting out parallels in phonological and phonetic patterns across a wide array of findings, and in drawing out one view of their implications. The book should serve as an important reference source for specialists in many fields: psycholinguistics, phonology, phonetics, child language, speech science, speech-language pathology, developmental psychology, neuropsychology, even those applying speech science to computer information systems and machine recognition of speech. I concur with the author that it would be additionally useful as a supplement to a main text in courses on language acquisition or phonology, although it is not suitable as a central text itself.

References