

THREE INTRODUCTIONS TO PSYCHOLINGUISTICS

A Review Article by

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Psycholinguistics: An Introduction to the Psychology of Language. By Donald J. Foss and David T. Hakes. Englewood Cliffs, New Jersey: Prentice-Hall, 1978. Pp. xiv, 434.

Psychology of Language. By David S. Palermo. Glenview, Illinois: Scott, Foresman and Company, 1978. Pp. 261.

Psycholinguistics (second edition). By Dan Isaac Slobin. Glenview, Illinois: Scott, Foresman and Company, 1979. Pp. 224.

1. Introduction. Quite a few introductory textbooks on psycholinguistics have appeared in recent years. This is no doubt due to several factors: the rapid maturation of psycholinguistics as a discipline, the growing number of scholars with the expertise to produce such books, and the increasing popularity of psycholinguistics courses on both the graduate and undergraduate levels. The frequent publication of new textbooks is of course a boon to those who teach the subject, but it brings a corresponding problem which must be faced almost annually: should a new text be adopted, and if so, which one? As the instructor of an undergraduate psycholinguistics course, I have been trying to solve this problem. The present review article grew out of this effort.

In searching for a new textbook, I imposed two initial criteria. First, I would prefer a book that has appeared within the last two years. While this perhaps unfairly excludes several slightly older but by no means outdated books, it should help postpone the inevitable search for a text to replace this year's choice. (If we go back another two years, there are at least three other worthy candidates: Cairns and Cairns 1976, Taylor 1976, and Clark and Clark 1977. The first two are reviewed in Scovel 1977, the latter in Waterhouse 1979.) The second criterion is that the book should not presuppose any background in linguistics or psychology. All three of the books reviewed here satisfy both criteria; if there are any other eligible texts, they have not come to my attention.

The main body of this article reviews each book in turn; this is followed by a few suggestions concerning the pedagogical applications of each book. The reviews attempt to answer the following questions:

1. How well does the book communicate the basic concepts of psycholinguistics to readers with little or no background in linguistics or psychology?
2. How comprehensive is its coverage of the field?
3. How thoroughly does it cover the topics it deals with?
4. How effective is the organization?

2.0 Foss and Hakes are well known for their contributions to the study of syntactic processing. Foss developed the important phoneme-monitoring technique; Hakes has studied the roles of verb and complement-structure complexity in comprehension.

2.1 Basic concepts. On p. xiv, F&H state: "The reader of this book needs no background training in linguistics or advanced psychology. Terms are defined when needed, and we have tried to state the issues in such a way that they can be understood without prior knowledge of them." Indeed, F&H have succeeded in producing a text that any intelligent reader should be able to understand. Linguistic concepts and terms are introduced with admirable clarity; in particular, the section on syntax (pp. 26-48) contains an excellent explication of the bases of transformational grammar. I must note one error, however: on pages 34-37, F&H claim that relative clauses are generated by the phrase-structure rule $NP \rightarrow Art + (Adj) + N + S$; this should of course be $NP \rightarrow NP + S$, for otherwise there is no head NP.

Even readers who have never heard of cognitive psychology will be able to grasp the essence of the psycholinguistic enterprise from such lucid passages as the following (p. 58):

If you try to consciously reflect upon what you are doing during understanding... two things become clear fairly quickly. First, ... [it] does not take very long... The second thing... is that there is nothing there. The speaker spoke; you understood... [with] no feeling of having done anything... [But] there is abundant evidence to suggest that, in fact, a great deal of extremely complex perceptual processing intervenes between the sound of an utterance and your understanding of what it meant.

Throughout the book, there are many such transparent, elementary statements of the broad themes of psycholinguistics.

F&H do not follow the usual practice of explaining why cognitivism has triumphed (in most quarters) over behaviorist psycholinguistics. This omission is unfortunate; the story of the cognitive transfiguration of the field is an exciting and instructive chapter in the history of modern thought, and can lead our students to a better understanding of the foundations of the discipline.

Any introduction to psycholinguistics must say something about the competence-performance distinction. Here, F&H fumble a bit. They say (p. 18) that

[T]he grammars which linguists try to construct characterize only a part of a speaker's knowledge... A theory of the additional knowledge is a theory of linguistic performance. A theory of performance describes the psychological processes involved in using our linguistic competence... Developing a theory of linguistic performance... is the main task of psycholinguistics.

This sounds very similar to the old position that psycholinguists are supposed to take linguistic models of competence and figure out how speakers make them work. But later (pp. 18-19) we read:

[T]he two theories [of the linguist and the psycholinguist] are fundamentally different kinds of theories. Essentially, one is a theory of language... The other is a theory of both knowledge and processes. The psycholinguist wants to state how our linguistic knowledge is represented in the cognitive system. In addition, he wants to identify the psychological processes that utilize this knowledge.

Here, we seem to have the more modern position that psycholinguists must construct their own models of linguistic competence. Students will need help to sort this out.

2.2 Comprehensiveness. This is as comprehensive a textbook as we could ask for. Nearly every major topic normally associated with "core" psycholinguistics has its own chapter: speech perception, comprehension processes, memory representation, sentence planning, speech production, and language acquisition (with three chapters devoted to the latter). There is no chapter dealing specifically with meaning, but semantic issues are discussed in several contexts throughout the book. Additional chapters are devoted to topics which F&H characterize as somewhat peripheral: reading, neurolinguistics, and language and thought.

2.3 Thoroughness. Given such breadth of coverage, one might expect that most topics could be dealt with only superficially. But this book contains almost 400 pages of text set in small type, and is written in a compact, business-like style. F&H are to be congratulated for their thorough, explicit treatment of the issues confronting psycholinguistics; no reader can fail to appreciate the fact that this is a field with real substance. I do feel a nostalgic twinge at the absence of the elegant, classic

studies based on the coding hypothesis and the derivational theory of complexity, e.g., Savin and Perchonock (1965), Miller and McKean (1964); while this line of research has little to do with current preoccupations, it did much to put psycholinguistics "on the map", and might have been mentioned in a book of this length. And child phonological development gets only scanty coverage: the acquisition of phonemic contrasts, and children's patterns of phonological simplification, are skimmed over in two brief paragraphs (p. 223). But in general, F&H provide a rich texture of interrelated studies bearing on the major research questions. Especially impressive is the authors' consistent practice of SUMMARIZING, rather than just citing, the numerous experiments presented--too many textbooks are cluttered with brief, unexplained references which can be of little use to beginning students.

2.4. Organization. F&H also deserve high marks for the organization and continuity of their book. While to a certain extent they follow the more-or-less standard sequence (linguistics first, then performance, acquisition, etc.), they depart from the rather common practice of treating syntax, phonology, and semantics as the major subdivisions of performance. Rather, they have two major units called "Understanding Language" (speech perception, comprehension processes, and memory representation) and "Producing Language and Speech" (sentence planning and speech production). This organization seems psycholinguistically more natural, going, as it were, from the outside in, then from the inside out. The three chapters on acquisition are nicely sequenced. The first deals with early utterances; the second begins with theories of acquisition and proceeds, in a series of smooth transitions, to acquisition strategies, comprehension strategies, and semantic development; the third takes up the development of communication skills, metalinguistic abilities, and reading. The overall thematic unity of the book is greatly enhanced by clear, straightforward introductions to the major units; these outline the questions to be discussed and relate them to earlier material.

2.5 Other Comments. This book contains many excellent illustrations, a very detailed table of contents, and an extremely useful subject index. If there are any typographical errors, I cannot find them.

3.0 Palermo has made numerous contributions to the psychology of language, in a variety of areas. Much of his recent work has been on word meaning and semantic development.

3.1 Basic Concepts. P's book "is written as an introduction to the field for the undergraduate or beginning graduate student" (from the Preface). No background in linguistics or psychology is assumed, but many newcomers

are likely to find this a somewhat more difficult text than Foss and Hakes, in some respects; while the writing is in general quite clear, there are fewer of the transparent, elementary statements of basic themes for which the Foss and Hakes book is so remarkable. P does provide a very readable account of the history of the field, particularly the problems of Bloomfieldian-behaviorist psycholinguistics (Chapter One). This history, in fact, is preceded by a 14-page Introduction in which the rise of behaviorism is traced against the background of Kuhn's (1970) model of scientific revolution; it could be argued that this is somewhat more history than is required in an introduction to psycholinguistics. Problems of behaviorist views of language are highlighted in several other places: Chapter Four opens with a discussion of behaviorist information-processing approaches to syntax, and Chapter Five deals briefly with behaviorist accounts of meaning. P does not, however, completely turn his back on behaviorism; rather, he points out (p. 13) that

...psycholinguistics has, perhaps, presented the most open and direct attack on the paradigm of behaviorism. Furthermore, it is here that a new paradigm which may replace behaviorism seems to be emerging.

This puts matters in a more accurate perspective than is found in some textbooks, where behaviorism is either damned or ignored.

P's introduction to basic linguistics (Chapter One) is generally adequate but marred by several errors. On page 33, he presents a deep-structure tree for the sentence *The delicate girl, who smokes a pipe, grows mushrooms*; in this tree, the sentence *The girl smokes a pipe* is shown as a relative clause modifying the adjective *delicate*, which is preposterous. On page 43, the notion of phonemic transcription is illustrated by several erroneous examples, the worst of which is "/saicaloge/ = psychology".

P gives a simple, clear explanation of the competence-performance distinction, avoiding all the potential conceptual tangles (pp. 28-29):

...a distinction is made between competence and performance, between the mental knowledge of the language and the processes of implementing that knowledge.

Only later, after enough background has been provided to give the issue some substance, does P suggest (p. 177) that

...the type of competence model developed by linguists for the goals they have in mind should not necessarily be the same model that psychologists would develop to account for the phenomena of interest to them.

This is nicely done, as it tells readers what they need to know about the matter without afflicting them with the obsessive hair-splitting that we all enjoy in more technical treatments of the issue.

3.2 Comprehensiveness. P covers all the basic topics: speech production and perception, syntactic processing, meaning and semantic memory, and language acquisition (two chapters). He does not deal with reading or with language and thought (as Foss and Hakes do), but does discuss neuro-linguistics in the context of a chapter on the biological bases of language, which also takes up animal communication and its relevance to the definition of language.

3.3 Thoroughness. This book is considerably shorter than Foss and Hakes (by about 150 pages), and has rather wide margins; accordingly, there is less text and less detail. There is, to be sure, some material here that is not found in Foss and Hakes: reflecting P's more historical orientation, he reports, for example, research dealing with the derivational theory of complexity and Yngve's depth hypothesis (Yngve 1960). And the two chapters on acquisition contain as much material as one could want in a book of such broad scope. But in several areas, the coverage is not quite as thorough as one might hope for. To a great extent, this is not due to failure to cite relevant studies (overall, P refers to about as many sources as Foss and Hakes do), but simply to brevity of treatment: there are fewer illustrations, examples, and discussions of experiments. For example, while Foss and Hakes devote ten pages, containing four illustrations, to the categorical perception of speech, P gets by with three pages and no illustrations, yet manages to cover about as much of the literature as Foss and Hakes do. P's text is thus rather dense in places--too dense, I think, for the average undergraduate, who needs to have things spelled out.

3.4 Organization. P follows the conventional division of performance into its phonological, syntactic, and semantic aspects; there is certainly nothing wrong with this, although I prefer Foss and Hakes' approach (see 2.4 above). I am not very comfortable with the position of the chapter on the biological bases of language (Chapter Two: animal communication, the evolution of language, neurolinguistics). Sandwiched between the straight linguistics and the straight psycholinguistics, it interrupts what would otherwise be a logical sequence of topics. And I'm afraid that the 14-page Introduction on Kuhn and behaviorism, while it is very well done, is not the optimal way to begin a book which is intended to capture the interest of uninformed beginners. But within the individual chapters, there is generally very good thematic continuity. Especially praiseworthy is Chapter Five, "The Meaning in Language", which begins with the behaviorist approach to meaning, unfolds the problems of knowledge

and semantics, memory representation, and contextual effects on meaning, and concludes by drawing these ideas together in the context of the Platonic and Aristotelian theories of knowledge.

3.5 Other Comments. The bibliography is done chapter by chapter, which is good for some purposes but not for others. The subject index could have been compiled more carefully; you can look up three different chimpanzees, but not the click experiments or the verb complexity hypothesis. There are a few typographical errors, none serious. It is rather irritating, though, to find Chomsky (1965) called *Aspects of a theory of grammar* (pp. 37, 50) and *Aspects of a theory of syntax* (pp. 141, 177), rather than the correct *Aspects of the theory of syntax*.

4.0 Slobin has done a great deal of influential work in psycholinguistics, especially in the area of language acquisition. He is perhaps best known for his studies of acquisition strategies and universals.

4.1 Basic Concepts. S does not explicitly characterize the type of reader his book is intended for, but it is quite introductory in all respects. The writing is extremely lucid; consider, for example, the following characterization of psycholinguistic research (pp. 34-35):

Psycholinguists often take what is obvious to the linguist and try to demonstrate it in a controlled setting. For example, they are not content to be told, on good linguistic evidence, that passive sentences are more complex than actives... They want to see traces of linguistic entities for themselves, as in a cloud chamber in which one can measure reaction times, learning curves, memory errors... and the like.

The problems of behaviorist psycholinguistics, and the resulting cognitive orientation of most current research, are explained in several contexts, most notably in the introduction to syntax (Chapter One).

S scarcely touches on phonology and deals with semantics largely in conjunction with syntax; accordingly, his introduction to basic linguistics is mostly restricted to syntax. He does a very nice job with this, although his treatment of transformational grammar is a bit too sketchy and under-illustrated; most readers will find it hard to grasp just what a transformation is. There is an excellent explanation of generative semantics, which plays a role in much subsequent discussion throughout the book. Another very attractive feature is a section entitled "What is Grammar For?" (pp. 9-12), in which S unfolds the performatives and presuppositions involved in the sentence *Heat the coffee*; he argues that grammar makes it possible for this three-word sentence to convey a complex of underlying propositions:

I, who am speaking, command you, whom I am addressing, to do something which will cause the particular coffee, of which you are aware, and which is not at present in a state of appropriately high temperature for coffee, to become in that state.

In my opinion, this is an unusually effective way to convince students that the analysis of everyday language is not a trivial undertaking.

S handles the competence-performance distinction skillfully. A brief statement of the theme (pp. 12-13) concludes:

A psycholinguistic theory will have to account for the various things we language-users know implicitly about our language (competence) AND for the various ways we use this knowledge (performance).

As Palermo does, S waits until his readers have acquired more perspective before raising the question of whether linguists' grammars are good models of a speaker's linguistic competence. In a section entitled "What is Grammar?" (pp. 58-61), he illustrates the problem by pointing out that, contrary to the standard linguistic analysis, reduced passives are not psycholinguistically more complex than full passives. This issue is then related to previous discussion of processing strategies:

...psycholinguistics began...by taking transformational rules to be mental operations. Now the pendulum has swung in the other direction, and some linguists and psycholinguists are asking whether all of linguistic competence can be described in terms of processing strategies.

While S does not pretend to have the answer to this vexing question, he has posed it in a way that will make sense to his readers.

4.2 Comprehensiveness. As mentioned earlier, S says virtually nothing about the phonological aspects of speech perception, speech production, and language acquisition. His main topics include syntactic processing in comprehension, the acquisition of syntax, the biological foundations of language (including neurolinguistics and the chimp studies), and language and cognition. In addition, there are two brief but excellent chapters entitled "Psycholinguistic Constraints on the Form of Grammar" (Chapter Three) and "Recapitulation: Form and Function in Language" (Chapter Seven). These two chapters alone are worth the price of the book; they should get nearly any reader excited about the interplay of form, function, and processing constraints in human language.

4.3 Thoroughness. This is the shortest of the three books reviewed here; but it is also the most restricted in scope, with the result that most of

the topics which are covered are presented with a reasonable amount of detail. Less of the literature is mentioned than in the other two books, but those studies that are mentioned generally receive thorough treatment, with clear discussion and exemplification. The chapter on language acquisition (Chapter Four) is the most detailed; the chapter on comprehension (Chapter Two) is a very sketchy survey which doesn't really do justice to the subject. It should be noted, though, that this book is deliberately cursory; in the Preface, S states:

I have omitted a number of grammatical models and experimental paradigms, because these details will change in the next few years, and I want the reader to have a GENERAL idea of what our endeavor is about.

Given his objectives, S has done a good job of selecting the more fundamental issues and the basic studies bearing on them.

4.4 Organization. This textbook is brilliantly organized--it tells a continuous story from beginning to end. After the first two chapters present the basic concepts of linguistic analysis and the psycholinguistic study of speech comprehension, the third chapter, "Psycholinguistic Constraints on the Form of Grammar", blends these themes in the context of Greenberg's (1963) language universals, then shows how they are involved in the process by which pidgins become creoles. Next comes the chapter on language acquisition, in which much material builds on previous discussion, and then a chapter on the "Biological Foundations of Language", with many references to the acquisition material. There follows "Language and Cognition", which continues to develop and relate earlier themes, and finally "Recapitulation: Form and Function in Language", where S draws everything together (p. 194):

A fully developed human language must be rhetorically flexible, semantically expressive, rapid in tempo, readily decipherable, and semantically clear. Children have the capacity to construct such languages, and the human mind has the capacity to consistently maintain and adjust Language so that it remains in consonance with all of these goals.

4.5 Other Comments. In addition to the usual indices, etc. (all of which are quite useful), there is a glossary of the main technical terms used in the book; all introductory textbooks should have one.

5.0 We are fortunate to have these three textbooks to choose from. All three do a good job of introducing psycholinguistics, but each reflects a different approach to the task; we can choose among them on the basis of the level of our students, our own preferred emphases, and our teaching

styles. Any one of them can serve as the main text for courses on one or more levels; any of them could also be used profitably as a source of collateral readings. All three should be on the shelf of anyone who teaches the subject. I will conclude by summarizing the main pedagogical advantages and drawbacks of each book, as I perceive them.

5.1 The Foss and Hakes text is superior in both breadth and depth. It is written in a clear, readable style, and is very well illustrated. I would not hesitate to use it as the main or sole textbook in an introductory course on any level, from low undergraduate to graduate. There is probably too much material to cover in a course for lower-level undergraduates, but the book is organized in such a way that certain parts can be skipped without loss of continuity. For example, some might prefer to omit the last unit altogether (the chapters on reading, neurolinguistics, and language and thought). One could also skip the third chapter on acquisition (see above, 2.4) and still have a very adequate unit on this topic. In a graduate or upper-level undergraduate course, where students can be expected to handle more material, the size of the book should pose no problem. Many instructors might want more advanced students to acquire a better historical perspective on the field than F&H furnish; certain sections of Palermo would provide useful collateral reading for this purpose. F&H can also offer valuable collateral readings for courses using a different book as the main text; in particular, the excellent chapter on reading is unrivaled in any other book of this scope that I have seen.

5.2 Palermo's book offers a relatively condensed survey of the field; in general, it demands more of the reader than the other two books do. Its outstanding features are its emphasis on the historical development of psycholinguistics and its balanced view of the position of cognitive psycholinguistics within psychology as a whole. These considerations, in my opinion, render the book more appropriate for graduate and upper-level undergraduate courses, less appropriate for lower-level courses. It is comprehensive and thorough enough to serve as the sole textbook, but many instructors might want to complement it with, e.g., collateral reading in Slobin, especially the third and seventh chapters (see above, 4.4). Also, in view of the errors in the introductory linguistic material (see above, 3.1), it might be advisable to have students read comparable material from another source; the second chapter of Foss and Hakes would be good for this purpose. P also offers certain advantages as collateral reading: the historical discussions and the chapter on meaning (see 3.4 above) are especially noteworthy.

5.3 Slobin has produced a rather personal kind of book: in both scope and approach, it is more an introduction to the author's particular

interests and viewpoints than a survey of the field. There is thus a certain risk involved in using it as the main textbook in a course. But in my judgment, the risk is worth taking, at least in the case of lower-level courses, because of the book's very considerable advantages. This book is unique in its coherence, thematic unity, and persuasiveness; only a very dull or jaded reader could fail to appreciate and resonate to the beauty that S so clearly sees in his subject. S has given us a focused beam of light which will penetrate the murk of many an uninformed, un-inspired undergraduate mind. This focus is achieved, of course, at a certain cost: for example, the neglect of speech perception. (The Foss and Hakes chapter on this topic would fill the gap nicely.) For more advanced courses, on the other hand, S is neither comprehensive nor thorough enough to serve as the main text; but I would seriously consider making it a required or strongly recommended supplementary book. Mature students will need little assistance in digesting it.

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