
Of the cognitive neuroscience handbooks recently published, this, to my knowledge, is the only one that is entirely devoted to the neurology of language. In the editors’ words, it is “intended as a state-of-the-art reference and resource book describing current research and theory in the many subfields of neurolinguistics and their clinical applications.” It is intended for “the newcomer to the field, as well as the expert.”

The book starts out with three theme-setting prologues and a brief history of the field of neurolinguistics. What follows are 46 short essays, divided between four sections. The first section provides background discussions of clinical and experimental methods; the second covers recent experimental work; the third describes language and communication capacities in special populations and in the context of various neurological disease processes, both acquired and developmental; and the fourth tells the reader how to access the latest information (e.g., which software and journals to investigate). It represents a heroic undertaking, and much of it, I think, is worthwhile.

The three prologues, authored by Harold Goodglass, Roch Lecours (his entry is coauthored with Martine Simard), and Guido Gainotti, respectively, are worthwhile. These are researchers who have helped to shape the field. It is fitting that they were chosen to offer personal reflections on such varied topics as the alignment of lesions and lexical categories and cerebral ontogenesis – topics that they have thought about and written about for years. Also of value is Whitaker’s history of neurolinguistics from the middle ages to the premodern era. Written in the form of several vignettes, it anchors both the prologues and what follows. It is a scholarly chapter, slyly insinuating the question: How much of what is current will be of interest to future historians? And in the context of this question, the value of this book turns on how adequately it covers the current state of the field.

By this measure, the tutorials on methods in neurolinguistics get a mixed rating. The best are those that focus on event related potential (ERP) research (two chapters), electrical stimulation mapping, and more modern functional imaging techniques: positron emission tomography (PET), functional magnetic resonance imaging (fMRI), and magnetoencephalography (MEG). The authors of these chapters – Segalowitz and Chevalier (ERP), Whitaker (stimulation), Demonet (PET and fMRI), and Papanicolaou et al. (MEG) – describe the techniques and their physical limitations (e.g., the relatively poor temporal resolution of PET) in easily accessible terms. But they hardly discuss the language part of this research domain – what it is they are trying to localize. This is because that
part of the imaging work is hardly developed; so far, modern imaging analyses
tend to be associated with fairly gross features of comprehension and production
or with meaning and sound at the single-word level (see, e.g., the references
listed by Demonet). There is some excuse for this; these advanced imaging
techniques are still very new. Even as this review was being written, matters
were improving; now, these advanced imaging techniques are starting to figure
in experiments that treat linguistic structure and parsing in a more refined way.

What is unfortunate is that none of the tutorials in this section pick up on the
topics of linguistic structure and parsing. There is only one methodology chapter
(Westbury) on how to go about providing a functional analysis of language, and
it is not at all helpful. It mentions “syntax” and “semantics,” but offers no
description of the formats associated with each of these information types and
no description of the processes that implement them. Equally unfortunate is the
short work made of syntax in Dronkers and Ludy’s tutorial on brain lesion
analysis. As an example of advances in this field, they mention a study by
Dronkers and her coworkers putatively showing that Brodmann’s area 22 is
crucially involved in syntactic comprehension. As it happens, the article that
Dronkers and Ludy refer to is an abstract of a paper presented at a meeting at
which I was present; I remember that the claim foundered on, among other
things, a failure of the test battery to isolate a syntactic component.

The general point here is that the entries in the methodological tutorials sec-
tion tend to shortchange the language side of the brain–language connection. In
part, this seems due to the editors’ insistence on short essays. They should either
have relaxed the length limits on these methodological tutorials or else provided
more of them to deal more adequately with language structure and processing.

Some of the chapters in the next section, “Experimental Neurolinguistics,”
are informative, but may not be enough for the newcomer. At least some of
what is presented in this section is insufficiently evaluated. I have in mind
Kolk’s essay on aphasic disorders of syntax. He raises what he considers to be
a crucial empirical problem for the claim that damage to left inferior frontal
cortex disrupts the capacity to form syntactically governed dependencies. This
generalization, he states, applies only to about a third of agrammatic patients.
That is true. What he fails to mention, however, is that the generalization is
intended to apply only to the agrammatism associated with Broca’s aphasia; this
is crucial for our understanding of brain–language relations. Agrammatism on
its own does not seem to have any localization value; only agrammatism in the
context of Broca’s aphasia implicates left anterior cortex. Still, Kolk covers a
lot of ground, and he provides brief descriptions and references for much that
is cutting edge in this domain. There is plenty to learn from Kolk’s chapter, and
this holds also for many of the other chapters in this section that cover, among
other topics, representation and processing at the phonological, morphological,
semantic, syntactic, and discourse levels. I particularly recommend Hagoort’s
balanced account of semantic impairments; it does not duck a discussion of the
vagueness that is characteristic of most neuropsychological analyses of “lexical
semantics.”

Other contributions to this section include essays by Corina on ASL aphasia,
Eviatar on attention, Harris and Small on computational models, Dehaene and
Cohen on number processing, and Kinsbourne on the role of the right hemisphere in recovery from aphasia. There is a lot of material here, and if some of it is less than fully agreed upon that is simply a measure of the current state of the field.

The next section, “Clinical Neurolinguistics,” starts off with an entry on the recovery patterns of bilingual aphasic patients (Paradis) and another on the role of subcortical structures in language processing (Crosson and Nadeau). Neither seems to fit here, but they are interesting nonetheless. Next in this section is a set of papers that describe the fate of language and communication in the context of various disease states – in non-Alzheimer dementias (Cherrier et al., including the late Frank Benson), in Alzheimer’s disease (Caramelli et al.), in Parkinson’s disease (Cohen), in psychosis (Tracy), and after traumatic brain injury (McDonald). This is followed by a set of papers that focuses on language and communication in the setting of various developmental disorders, including Landau–Kleffner syndrome (Denes) and autism (Happeé). Each paper in these two sets offers clear and easily accessible descriptions of the language and communicative impairments, and each is interesting to read. But it was not always clear to me what was at stake – what was to be gleaned for theoretical or remedial purposes. At any rate, there is a set of papers, still within the clinical section, that covers aspects of remediation and recovery, such as it is. Here I found the essays by Cappa and by Blomert to be particularly interesting. The first analyzes spontaneous recovery, and the second provides a measured assessment of various efforts to train recovery.

Finally, there is a section on where to find information concerning advances in the field. It is a good idea to include this sort of resource listing in a handbook. In fact, as I suggested at the outset, much of what is in this book is valuable. The volume is an encouraging document. While current neurolinguistic discussion is often indulgent and without discipline, this handbook offers evidence that there is, nonetheless, important, ongoing scientific activity in the field.

Edgar B. Zurif
Brandeis University


I believe that I do not worry unduly about the animal in me, nor fear that what little humanity I possess will be lost if I try to understand other animals better. (Stokoe, 1983)

Snowdon and Hausberger fill a theoretical niche in recognizing that some aspects of human vocal development are analogous to those found in animal vocal communication. In pointing out parallels, they recognize the validity and intent of animal communication as well as the social aspects of both human and animal communication. Snowdon and Hausberger’s edited volume leaves behaviorism
and anthropocentrism behind and bridges the gap between animal ethology and human linguistics – a refreshing change from the anthropomorphic literature that touts the supremacy of human language over all other (animal) communicative forms. At last, we have a coalition of studies paralleling human vocal development with that of animals: birds, nonhuman primates, and cetaceans. Also of interest is their choice of contributors, who tend to favor a natural approach to the study of language as opposed to the rigor and artificiality of more clinical or captive settings. This is a strange irony when set against the scientific philosophy that something as variable as language should be rigorously controlled for and studied within an experimental context.

The editors assert that this book is “required reading for students and researchers interested in animal and human communication and its development,” and it is assumed that the reader has an existing level of knowledge in developmental linguistics and animal behavior (ethology). The use of complex terminology in many of the chapters means that this book is not aimed at the beginner or layperson interested in this important and interesting subject area.

The book starts off with an introduction that describes the context for the rest of the volume. Then the editors provide a very useful starter summary of the aims and objectives of the main chapters in the book. There are details of both quantitative and qualitative research paradigms.

The first few chapters (Chapters 2–8) expose the reader to research on avian song ontogeny, an enlightening insight for readers only familiar with the early avian imprinting studies of Lorenz. The studies involve a variety of birds, from sparrows (Douglas A. Nelson, Chapter 2) and zebra finches (Richard Zann, Chapter 6) to crows, budgerigars, and Australian magpies (Eleanor D. Brown and Susan M. Farabaugh, Chapter 7) and European starlings (Martine Hausberger, Chapter 8). Several findings emerge from these chapters:

1. There is relative plasticity in avian vocal development in terms of the ability of some species to modify song repertoire throughout life according to social influences and rigors of the natural environment.
2. The sensitive phases for song learning can be extended through social experience with companions.
3. There are several stages in avian song learning; both visual and acoustic stimuli in the social environment are important during the early stages of development.
4. “Vocal convergence” (song sharing) in birds involves themes specific to species or regions, indicates social membership within a group, and is a mark of affiliation between song partners paralleling the “affiliative badge” of whistle sharing in adult male dolphin coalitions.

Chapter 9 (Irene Pepperberg) concentrates on the “development of interspecies communication between humans and birds” (p. 157). Pepperberg applies a subset of four principles from social modeling theory to the study of avian vocal learning and explains how this theory can be used to influence the “exceptional learning” of components of vocal English in grey parrots. She describes analogous experiments with nonhuman primates that are said to demonstrate the
utility of social modeling (social interaction) in teaching human-based, nonvocal codes of communication.

Chapters 10 and 11 address cetacean vocal learning and concentrate on the correlation between human and animal communication. Brenda McGowan and Diana Reiss provide evidence from naturalistic research on “vocal modification and learning” in dolphins and demonstrate how a dolphin can imitate and later reproduce computer-simulated whistles. An account is also given of the behavioral biology of wild dolphins within fission–fusion social networks, which, coupled with their solely aquatic existence, shows that acoustic communication may play a primary role in the development of social coalitions and socially affiliative behavior. Evidence is presented of young dolphins’ overproduction of variants of adults’ whistles, as in the avian overproduction of subsongs. The authors identify some possible future studies in dolphin vocal development.

Peter Tyack and Laela S. Sayigh supply evidence for vocal learning in dolphins and indicate that a dolphin’s whistle repertoire can be influenced by both social and acoustic variables. The acquisition and use of conspecific signature whistles within adult male coalitions suggest that shared vocalizations act as an affiliative indicator of social bonding.

Chapters 12 and 13 deal with social influences and general characteristics of vocal development in nonhuman primates. Charles T. Snowdon, A. Margaret Elowson, and Rebecca S. Roush describe the vocal development of marmosets and tamarins and argue that the overemphasis on studies of vocal production has led to the neglect of vocal usage and responses. This has produced the erroneous assumption that nonhuman primate vocal development shows no parallels with that of humans and birds. However, the authors argue that, when production, usage, and response are evaluated equally, similarities between the three species become more readily apparent. They provide examples of the social influence of companions, interaction, and environment with respect to vocal plasticity, early (infant) “babbling” behavior, and structure of adult trills.

Robert M. Seyfarth and Dorothy L. Cheney indicate that the research on free-ranging vervet, rhesus, and Japanese macaque monkeys is an optimistic attempt to correlate the “similarities” between human and nonhuman vocal development. They suggest that too much emphasis has been placed on the development of vocal production and not enough on usage and response and state that each component develops at different rates and is affected by differing causal devices. The authors conclude that call production is relatively innate and fixed, call usage develops out of a partnership of innate predisposition and experience, and the development of responses to calls is mediated entirely by social experience.

When examining which components of vocal development are innate and which are influenced by auditory and social experience, Seyfarth and Cheney recognize the problems of experiments involving primates raised in isolation. Such socially deprived monkeys have (not surprisingly) exhibited severely abnormal behavior and vocal calls. To overcome these problems, the authors collaborated with a study where infant rhesus macaques were cross-fostered with another species shortly after birth. The results indicated that these monkeys showed the greatest flexibility in learning appropriate responses to calls.

John L. Locke and Catherine Snow (Chapter 14) ask the central question of
whether certain aspects of human vocal learning are determined by biology or influenced by social interaction and look at a sensitive period for language and the neurobiological basis of vocal learning. They parallel the early stages of human vocal acquisition and production, including babbling, turn taking, control, and accommodation, with those of nonhuman primates. They outline the importance of vocal accommodation by parents to children in the early stages of language development, similarities of which can be evidenced in birds, monkeys, and dolphins. The amount of linguistic input is directly related to the rate of vocal learning. Children who experience normal levels of social interaction with parents learn more quickly than do those with more impoverished linguistic environments. Locke and Snow suggest that vocal accommodation in early life is necessary for later integration into social relationships/networks and competence in social discourse.

The final three chapters address language acquisition. Three very interesting studies are presented. Susan Goldin-Meadow (Chapter 15) asks whether the path of human language learning (development) is fixed (i.e., an inevitable process impervious to the effects of (atypical) experience or environmental variety) or whether human language is regulated by a relatively “open program” that is adjustable to environmental changes. Goldin-Meadow presents a study of the gestural communication of ten deaf children of hearing parents in the United States. These children did not communicate through spoken language and had not been taught a conventional sign language such as American Sign Language. But they did use gestures learned within the familial environment that resembled many of the aspects of the conventional signed and spoken language forms. A sample of deaf children from China was studied to examine the cultural differences in the development of gesture systems. The findings were that the children’s gestural systems had both sentence-level and word-level structure. Goldin-Meadow concludes that “more than one level of structure is a resilient or relatively ‘canalised’ property of language” (p. 295), and that therefore “language development is resilient across a wide range of both environmental and organic conditions” (p. 297).

Annick Jouanjean-L’Antoene (Chapter 16) emphasizes a longitudinal, naturalistic approach to the study of communication. Her integrative study of the reciprocal relationships/exchanges between nonidentical infant twins and their parents demonstrates the importance of studying emergent communicative behavior within the context of naturally occurring social exchanges. This applies to both the human species and nonhuman primates. This has implications for the potentially damaging language experiments done with captive primates (e.g., cited in Seyfarth and Cheney, Chapter 13), where alternative research methodologies could be used.

Marjorie Harness Goodwin (Chapter 17) ends this volume with an account of her research on the pragmatic use of language in preadolescent children. This chapter examines the choice of conversational strategies used to construct “social organization” among working-class groups of girls and boys in Philadelphia. Conversation analysis – derived from sociology – is the methodology she adopts for her work. Goodwin disdains the “difference” or “dominance” models that have traditionally been used to account for gender differences in language
in favor of a theory of “situated language use” that allows for the variety of language forms used across a diversity of activities to form social order. These final chapters are a refreshing change in that they emphasize the role of fathers in the development of language and vocal learning and the influence of gender on structuring social organization, respectively. These two points are noticeably lacking in most studies of vocal learning.

One of the important benefits of this book is that it demonstrates that some aspects of language once thought only unique in humans are also found in other species. Most of the chapters illustrate this point well enough. Even the assumption that it is the lateralization of linguistic control in the human brain that serves as neurobiological evidence for the uniqueness of language to our species has been challenged by Nottebohm’s (1977) evidence of the structural asymmetry of control in the vocalizations of songbirds. As Griffin says, “If we define human uniqueness on too narrow a foundation, we are in danger of having it undermined whenever the same feature is discovered in some other species” (1983, p. 166). With the advent of new, sophisticated research techniques, what indeed will happen if we discover other similarities once thought impossible?

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Lisa Brown
University of Sheffield


As we journey into the new millennium, few among us would bother to argue against the importance of English as a world language, especially considering its role in technology, industry, and politics. Many people of the world are introduced to English as a modern version of a contact language, since the need to know it occurs simultaneously with the need for specific knowledge (to negotiate borders and so on). Of course, there is much to the story of language contact. As Mary Louise Pratt (1992) observed, contact situations are often catastrophic events involving power relations that include conquerors and the conquered, intermediaries, onlookers, and more. The position of English as a national language in many countries and its worldwide influence have occurred within the context of civil wars, political negotiation, constant transmigration, globalization, and the formulation and reconstruction of nationalist ideologies.
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and identities. Though the nature of today’s contact may seem benign, its result may still be catastrophic and have far-reaching consequences, as the ideology and practices that accompany English may not complement all societies and situations. Today, the United States often represents the global influence of English, and as America becomes the symbol of border and civil war negotiation and policing, technology, art, conflict and power, so too does English. Predictably, the people and polities throughout the world wrestle with America’s ideological influence by participating in the invigoration and transformation of English to suit their needs.

It is the ideological usage and transformation of English that interests Karin Dovring, an author and foreign correspondent who has worked in Europe and the United States. Because the use of English is so widespread, she fears that many may believe that all discourse is successful, irrespective of the context and the culture of its users. She warns: “This will mislead many people to believe that international English – used as a lingua franca – is always unambiguous even in matters of political power, cultural life, and religious faith. But this is not so” (p. 2). Dovring was first introduced to the complexities of double talk while growing up in Gothenburg, Sweden, a city “known for its tradition of foreign languages and double talk in its communications” (p. ix). Her purpose in writing the book is to educate others and improve communication by exposing the pitfalls and intricacies of double talk “that are faced by citizens of the world who may either have English as a mother tongue or use English as a lingua franca” (p. x).

The book is divided into eight chapters, some bestowed with provocative titles such as “Bodysnatched English or the Rape of a Language” (Chapter 1), “At Home or Abroad in a No Man’s Land” (Chapter 4), and “Listeners Beware: Infiltrators at Work” (Chapter 5). Dovring defines “Bodysnatched English” as “an English that thrives on undercurrents of suggestive meanings in the service of political goals” (p. ix). In her discussion of the phenomenon, Dovring switches between cultural and political examples with dizzying frequency, repeating rather than developing what, in the end, is a complex observation about language, symbolism, ideology, and politics.

Dovring’s observation that English abstract nouns and concepts may not refer to the same objects, ideas, and ideals when used in politics and culture is supported by significant illustrations from both international and internal conflicts. One example introduced in Chapter 1 concerns the miscommunication that occurred during the cold war when John F. Kennedy met Nikita Khrushchev in Vienna in 1960. Dovring describes Kennedy’s reaction to Russian English: “He suddenly encountered an English that was short on ideological jargon from time past, but was rich in familiar English words that had gotten a new undercurrent of suggestive meanings pointing to definitive political goals” (pp. xi–xii). Though she only makes vague references to the interaction that transpired, Dovring describes it as “Kennedy’s first encounter with normal English twisted into what has been called Bodysnatched English” (p. 1). This particular observation reveals the major weakness of the text. Dovring does not provide a critical analysis of language, symbolism, and power in discourse. Unsurprisingly, though acknowledging that “any language can be used for the purpose of double
or triple talk” (p. 3). Dovring seems at a loss to explain why dominant powers like the United States have been slow to recognize its existence. She does not discuss the Kennedy–Khrushchev meeting as one between the two most powerful world leaders at that time, both of whom were willing to use that power. Thus, while there is no reason to doubt Dovring’s compelling description of the events, it is still probable that the president of the United States was aware of the existence of ambiguous English usage prior to his cold war meeting with Khrushchev. In fact, Kennedy’s negotiations were about world power, domination, and control. This may have left him blinded to, and unprepared for, the possibility that his proposals might be rejected, and that the Russians might have ideological differences about what they meant and symbolized.

The book does not fare better when Dovring moves from old superpowers to New World conflicts and regional and local disputes. Like a new computer virus, Dovring believes that Bodysnatched English catches everyone by surprise and that it is everywhere. As she explains, “There is hardly one aspect of human life in which English and its bodysnatched version do not appear today. . . . In a dramatic way it concerns war or peace and national security” (p. 9). The bodysnatched and bodysnatchers alike represent the major nationalities in the world, including the Chinese, French, Russian, Swedish, Americans, Iraqis, Cubans, and so on. Different countries and cultures interpret concepts like peace, socialism, democracy, freedom, homeland, and aggression to fit their own local situations. Yet even in local cases, whether negotiating religious, gender, or racial disputes, power and control are being represented. Thus, whether murders of hostages are called executions, robberies expropriations, or hostages guests, “It is obvious that power over communication equals power” (p. 17).

Dovring suggests that the ability both to use and to manipulate English has a distinct market value (Bourdieu, 1977/1991; Rossi-Landi, 1983) in world politics and culture. Yet while the book chronicles important cases where clear communication has been essential, it does not explore the complex cultural and social knowledge and the ideological and interpretive devices necessary to construct, manipulate, and read the symbols. Clearly the text would have benefited from a discussion of language and references as developed earlier by Frege (1970) and Austin (1962), as well as a description of how words index a range of meanings (e.g., Peirce, 1961). But perhaps the most glaring omission is the lack of a critical discussion of language, power, and intentionality (e.g., Bakhtin, 1981; Foucault, 1972). Because many of the political events are described with little critical discussion, Karin Dovring only scratches the surface in uncovering the ideology embedded in English double talk. Those who are devoted to the study of language and culture see order within what some deem chaos and are delighted with the insight these movements bring. What Dovring reveals in this book is that all political situations involve the issue of representation and mediation of the current climate in all of its manifestations.

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Harvard University