

BOOK REVIEWS

A New Classic

DOI: 10.1017/S135561770321016X

Handbook of Developmental Cognitive Neuroscience, by C.A. Nelson and M. Luciana. 2001.
Cambridge, Massachusetts: The MIT Press. 685 pp., \$95.00 (HC).

Review by KEVIN R. KRULL, Ph.D., *Department of Pediatrics, Baylor College of Medicine, Houston, TX.*

At long last, a comprehensive review of the rapidly growing field of developmental cognitive neuroscience. With this book, Drs. Nelson and Luciana bring together an impressive breadth of topics and internationally recognized authors in what will surely become a required introductory text for graduate study and professional reference. In its broad coverage, this volume brings to the forefront topics frequently overlooked by previous neuroscience texts. Forty-one chapters contributed by 73 authors from seven countries provide a wide coverage of various neurodevelopmental issues. A testament to the breadth of this book is its 21-page (roughly 3500 terms) index of keywords and phrases.

The chapters of this text are divided amongst eight major sections, including: I. Fundamentals of Developmental Neurobiology; II. Methodological Paradigms; III. Neural Plasticity of Development; IV. Sensory and Sensorimotor Systems; V. Language; VI. Cognition; VII. Neurodevelopmental Aspects of Clinical Disorders; and VIII. Emotion and Cognition Interactions. Consistent with the current state of knowledge in the field, the various sections receive a disproportionate degree of coverage. Developmental neurobiology topics are exhaustive and range from neuronogenesis and synaptogenesis to myelination and morphological changes to the effects and development of hormonal and neurotransmitter systems. What makes this review all the more appealing is, true to the book's title, the continued focus on the development of neocortical systems. The section on methodology, although not considered comprehensive for a general neuroscience text, nicely reviews those techniques applicable to infant and child populations (e.g., functional assessment, event-related potentials, quantitative and functional magnetic resonance imaging (MRI), and genetic methods). Furthermore, the discussion of neural network models provides a useful link back to classic constructs in cognitive development. The section on neural plasticity is expectedly brief and focused on animal models, reflective of the relative paucity of human developmen-

tal research in this area. The sections on the development of sensory systems and language are also somewhat brief. Sensory systems are reviewed through three chapters covering auditory and visual perception. This section is completed with a brief chapter on the development of skilled motor movements. Language is also a topic briefly covered, and includes a discussion of speech/language processing in infancy as well as discussions of acquired and developmental language impairments as models for understanding development.

Cognition properly receives a broad and thorough coverage with nine separate chapters. This section provides excellent reviews of the development of attention and memory systems, tying neurobiological research into established theoretical frameworks. Complex spatial processing and concept formation is discussed in regards to facial perception during infancy and number representation, including models of prelinguistic representation. This section concludes with a discussion of frontal and prefrontal lobe development. The seventh section of this book focuses on neurodevelopmental aspects of clinical disorders, with a selection of topics that is somewhat atypical. A broad, though data-shallow review of nutritional influences on cognitive development begins the section. Attention is quickly directed to two excellent chapters on the effects of alcohol and cocaine exposure on the developing system. Autism is also briefly discussed, though the theoretical framework employed is not widely recognized. This section also includes an excellent chapter on tic disorders and a discussion of disorders of attention, with the later chapter emphasizing attention deficit hyperactivity disorder (AD/HD) and, of all things, schizophrenia. The section distinctively and unexpectedly concludes with a discussion of schizophrenia as it is related to a neurodevelopmental model. Absent from this section is any discussion of medical illness or disease in children and its impact on neurodevelopmental disorders, which is unfortunate as this is a particularly active area of research.

The final section of this book is somewhat unique in that it focuses on the interaction between emotions and cognition. In doing so, it reviews research on attachment, early deprivation, temperament, and reinforcement systems.

As stated in the beginning of this review, this book covers a broad range of topics in developmental cognitive neuroscience, and thus makes an exceptional and valuable contribution to the library of students and professionals in the fields of neuroscience, psychology, and development.

The sections on the fundamentals of neurobiology, methodology, cognition, and emotions are outstanding. The remaining sections also offer valuable contributions, though at times the specific topics and discussions covered seem somewhat unusual and remote. Overall, Drs. Nelson and Luciana have succeeded in putting together a text that opens the doors on a new and exciting field, rich with the potential for original research and important clinical contributions.

The Basal Ganglia—Not Just for Movement Anymore

DOI: 10.1017/S1355617703220166

Frontal-Subcortical Circuits in Psychiatric and Neurological Disorders, David G. Lichter and Jeffrey L. Cummings (Eds.). 2001. New York/London: The Guilford Press. 448 pp., \$75 (HB).

Reviewed by RICHARD G. GIACCIO, M.D., *Hutchings Psychiatric Center, Syracuse, NY*.

Traditionally, the basal ganglia and cerebellum were regarded as primarily “motor” structures. Over the past 20 years, however, a growing body of data has accrued indicating that they also play a significant role in the regulation of complex cognitive and emotional activity. Evidence for the nonmotor functions of the basal ganglia has come from research in both the clinical and basic neurosciences. One line of support has come from the study of cognitive and emotional symptoms in diseases with predominant pathology affecting these structures (such as Parkinson’s disease, Huntington’s disease, progressive supranuclear palsy, and subcortical stroke). Evidence that the basal ganglia participate in complex nonmotor functions also has come from advances in our knowledge of neuroanatomy. Older studies suggested that the basal ganglia channeled input from diverse cortical areas to motor centers in a convergent manner. Newer tract-tracing techniques, however, have demonstrated that there is a complex and highly topographic organization within cortical-basal ganglia circuits. These circuits are structured as a *series* of parallel loops. The basic circuit consists of a sequence of projections from cortex, to striatum, to pallidum, to thalamus, and back to cortex. While this basic sequence is conserved across all loops, *segregated* circuits have been identified which relate to specific limbic and prefrontal sectors (namely, “complex” loops), while separate circuits relate specifically to cortical motor centers. The “complex” loops include segregated circuits relating to medial, dorso-lateral, ventrolateral, and orbital prefrontal sectors. These segregated circuits provide the anatomic basis for how basal ganglia dysfunction can disrupt cognitive and emotional processes normally associated with higher cortical regions.

This multiauthored volume, edited by David Lichter and Jeffrey Cummings, brings together in one place a succinct and well-written review of the current state of knowledge regarding frontal-subcortical circuits and their role in mediating normal neuropsychological function and neuropsychiatric disease. As such, this book may appeal to a broad spectrum of readers, including neurologists, psychiatrists, neuropsychologists, and researchers in neuroscience.

The first chapter by Lichter and Cummings provides a useful introduction and overview of the subject, and advances the thesis that both the motor and nonmotor functions of the basal ganglia arise from their position as crucial nodes within a series of parallel/segregated frontal-subcortical circuits. Chapters 2, 3, and 4 provide detailed presentations of the neuroanatomy, neurochemistry, and neurophysiology of frontal-subcortical circuits. This material serves as the foundation for subsequent chapters covering the cognitive, emotional, and behavioral functions of frontal-subcortical circuits (Chapters 5, 6, 7, 12, and 13), the role of these circuits in major neuropsychiatric illnesses (Chapters 8–14), and their treatment (Chapters 15–16).

Two chapters that were particularly well written were Chapter 2 by Middleton and Strick (who did much of the pioneering work elucidating the existence of multiple parallel segregated frontal-subcortical circuits) and Chapter 4 by Houk (on the neurophysiology of these circuits). These chapters make this basic science data—which can sometimes be complex and intimidating—accessible to readers with primarily clinical backgrounds. Even beyond this, these chapters convey a real sense of the elegance and beauty of brain organization.

Chapter 5 by Salmon, Heindel, and Hamilton examines executive function and associated cognitive abilities medi-

ated by the dorsolateral prefrontal cortex and its topographically related frontal-subcortical circuits. Chapter 6 by Litvan and Chapter 7 by Starkstein and Kremer review the personality and behavioral changes associated with frontal-subcortical dysfunction. These include the hyperactive-disinhibited syndrome related to orbital-ventral prefrontal circuit damage/dysfunction, and the hypoactive-apatetic syndrome associated with damage/dysfunction involving medial prefrontal circuits. These chapters provide a good review of these syndromes and their underlying anatomic substrates. Furthermore, this serves as a useful preparation for understanding symptom production in the various illnesses considered in subsequent chapters.

Clinical disorders covered in this book include depression (Chapter 8 by Mayberg), obsessive-compulsive disorder (Chapter 9 by Baxter, Clark, Iqbal, and Ackermann), addictions (Chapter 10 by Capote, Flaherty, and Lichter), movement disorders, including Tourette's syndrome (Chapter 11 by Lichter), and schizophrenia (Chapter 14 by West and Grace). In Chapter 12, Slattery, Garvey, and Swedo review the role of frontal-subcortical circuits in the ontogenetic development of emotional regulation and executive function, while Chapter 13 by Voeller examines developmental disturbances in these frontal-subcortical systems/functions as seen in attention deficit/hyperactivity disorder. The final chapters examine issues in pharmacologic treat-

ment (Chapter 15 by Bronstein and Cummings) and neurosurgical interventions (Chapter 16 by Weingarten and Cummings) involving components of frontal-subcortical circuits.

The clinical chapters were generally well written. Each chapter provided an overview of the disorder (phenomenology, diagnostic criteria, etc.) before considering evidence for the role of frontal-subcortical circuits in the disorder. As might be expected, the available data were compelling for some disorders while more tentative for others. Most of the clinical chapters provided a brief recapitulation of the relevant anatomic, neurochemical, and physiologic data that had been considered in detail in Chapters 1–4. Given the complexity of this material, I found this review to be a helpful feature rather than an unnecessary redundancy. For some readers, it will have the additional advantage of facilitating reading of only selected chapters of interest.

In conclusion, this work fulfilled the promise of its editors to provide “a comprehensive, integrated, state-of-the-art overview of the topic of frontal-subcortical circuits and their relevance to normal and disordered neurologic and psychiatric functioning.” It may read through some beginning to end as a comprehensive course on the subject, yet the organization permits selective reading of specific topics of interest, and use of the remainder as a reference book.

Hit or Miss? Insight into Executive Functions

DOI: 10.1017/S1355617703230162

Delis-Kaplan Executive Functions System, by D. C. Delis, E. Kaplan, and J. H. Kramer. 2001. San Antonio, Texas: The Psychological Corporation. \$415.00 + \$40.00 shipping (Complete Kit), \$520.00 + \$40.00 shipping (Complete Kit with Scoring Software).

Reviewed by MICHAEL SCHMIDT, Ph.D., *Private Practice, Colorado Springs, CO.*

The term *executive functions* denotes the higher-order, meta-abilities necessary for appropriate social functioning, goal-directed behavior, planning, insight, foresight, and self-regulation that are loosely correlated with frontal lobe functioning. Although dysexecutive syndromes are clinically significant and scientifically fascinating, their measurement and quantification has proven elusive. The Delis-Kaplan Executive Functions System (D-KEFS) is an attempt to fill this need, providing “for comprehensively assessing higher-level cognitive functions” (Examiner's Manual, p. 1).

The D-KEFS consists of nine tests, mostly adaptations of existing procedures, that may be administered individually or as a battery. In modifying the tests, the authors emphasized extending their ranges, providing additional opportunities for dysexecutive errors to occur, and increasing their

cognitive switching and higher cognitive function demands. A good place to start the review is with a description of the tests.

Several of the tests are fairly straightforward adaptations of tests and procedures in the scientific literature, including the Sorting Test (Delis et al., 1995), Tower Test (Krikorian et al., 1994; Shallice, 1982), Twenty Questions Test (Denney & Denney, 1973, 1982), Word Context Test (Reitan, 1972), and Proverb Test (Gorham, 1956). For the Proverb Test, it is unclear how ratings of “common” and “uncommon” were made for test items; for example, whether data from Benjafield et al. (1993) were used. An “abstractness” score is included but not a potentially useful “literalness” score (Hertler et al., 1978). The Color-Word Interference Test is a shortened version of the Comalli et al. (1962) Stroop Test with an additional switching task. A substan-

tially modified version of the classic Trail Making Test is included. A Verbal Fluency Test includes a semantic-switching task but not a phonemic-semantic switching task (Gourovitch et al., 1996). A Design Fluency Test includes a switching task that may be more pertinent to executive functions than the visual distractions used in the Ruff Figural Fluency Test (Ruff, 1988).

The test materials are generally of good quality and consist of an Examiner's Manual, Technical Manual, Stimulus Booklet with an integrated easel, sorting tokens, and the Tower apparatus. Scoring software is available. The 40-page answer book for the full battery does not include a much-needed summary page. There are also individual answer forms for each test. Although most test directions are contained in the Stimulus Booklet, some are in the answer booklet, and switching back and forth can be inconvenient. The Tower apparatus would be made more portable if it could be disassembled. Some errors were noted in the materials (e.g., Tables 2.16 and 2.18 in the Technical Manual are mislabeled).

The utility of some of these tests for assessing executive functions may be questioned. The Color-Word Interference Test switching task, modeled after a procedure developed by Bohnen et al. (1992), has been shown to be sensitive to mild closed head injury, where deficits in attention and memory rather than in executive functions predominate. The Word Context Test is similar to the Word Finding Test, which is thought to be a general measure of neuropsychological integrity rather than a specific test of executive functions (Reitan et al., 1988). A recent study of frontal lesion patients found no clear evidence for incremental validity for switching conditions used in the fluency tests (Baldo et al., 2001).

Additional comments about the Proverb Test are pertinent. Proverb interpretation has been described as a general neuropsychological measure (Van Lancker, 1990), although a recent study found greater impairment in frontotemporal dementia than in Alzheimer's disease (Moretti et al., 2001). Proverb interpretation is also influenced by a number of extraneous factors, such as familiarity, socioeconomic status, education, and reading proficiency (Nippold et al., 2001; Penn et al., 1988). It is not clear whether proverb interpretation is as useful for assessing executive functions as fable interpretation, a task suggested by Luria (1966).

The extensive norms and detailed description of basic psychometric properties are strengths of the battery. Age-stratified norms are available for a huge array of performance, error, and contrast scores based on a large, nationally representative sample ($N = 1750$, age range 8 to 89 years). Test-retest data (retest interval $M = 25$ days, range 9 to 74 years, $N = 101$) are provided. Alternative forms are available for Sorting, Twenty Questions, and Verbal Fluency (at an additional cost of \$63.00) and norms for these were developed on a fairly large sample ($n = 286$).

There are some problems with the psychometric data. Education effects, which are routinely examined for neuro-

psychological tests, are not presented although there is mention that demographically corrected norms are in preparation. Reliability scores are generally below the minimum value of .80 that has been suggested for both internal consistency and test-retest stability (Anastasi, 1988; Nunnally, 1978; Sattler, 1988). Only 53 of the 316 reliability values presented (17%) met this standard and none met this level for Design Fluency or Word Context. The authors noted that reliability may be lowered by constricted ranges of scores among normal participants, but this seems contrary to the emphasis they placed on expanded ranges and task difficulty during test development. Alternatively, several of the tests are fairly short, which may adversely affect reliability (e.g., Color-Word Interference, Proverb, Twenty Questions, and Word Context) and sensitivity (e.g., Color-Word Interference is the shortest commercially available Stroop Test). Finally, a major benefit of conorming tests is the ability to make direct comparisons of performances across tests and the lack of data for this purpose is disappointing.

Evidence regarding validity is extremely weak. Data are presented for two small clinical groups (Alzheimer's disease and Huntington's chorea, both $n = 9$) that are of questionable usefulness in demonstrating specific deficits in executive functions. The review of the scientific literature supporting each procedure is cursory. There are, however, extensive tables of intratest and intertest correlations as well as between the D-KEFS and the California Verbal Learning Test-II and the Wisconsin Card Sorting Test. No factor analyses were done.

Meaningful neuropsychological evaluation requires the ability to make clear inferences from test scores to specific theoretical constructs of interest (McFall & Townsend, 1998). However, the D-KEFS was not developed in accordance with any explicit model of executive functions. The authors gave several reasons for this: theories of executive functions are in their infancy, they are very complex, and they are often obscure. This level of pessimism does not seem entirely justified (Lezak, 1995; Malloy et al., 1993; Malloy & Richardson, 1994; Tranel et al., 1994). A number of core components of executive functions have been identified in the literature, such as working memory, planning, decision making, judgment, behavioral organization, apathy, and disinhibition. Interestingly, several of these elements are missing from the D-KEFS.

Although lacking in explicit theory, numerous assumptions and implicit constructs were incorporated into the D-KEFS. This is seen in the manual covers, which depict several abilities that are often cited as components of executive functions (e.g., flexibility of thinking, creativity, planning, and impulse control); in the guidelines for test interpretation; and in the description of test design, which notes the importance of cognitive switching and being stimulus bound. The authors emphasized inclusion of both verbal and visual tests in the D-KEFS, which may have value for assessing patients with special needs (e.g., aphasics and those with sensory or motor deficits) and lateralized lesions. However, a distinction between visual executive

functions and verbal executive functions seems less useful. There is strong reliance on the Boston process approach (Kaplan, 1988), which may be particularly appropriate for dissecting the complex processes subsumed under executive functions. However, it is not clear which of the supplemental tasks and the nearly bewildering array of scores generated from the tests will prove to be clinically useful. Given the lack of formal theoretical underpinnings, there is no rationale as to why these nine particular tests were included and other promising procedures were not (e.g., behavioral ratings, divergent thinking, estimation tasks, gambling procedures, homophone generation, Verbal Concept Attainment Test, Possible Jobs).

It is difficult to consider the D-KEFS to be a comprehensive system, as the authors suggest. Rather, it is an interesting collection of tests whose strengths are extensive norms and generally good quality materials. Unfortunately, there are also several serious flaws. It seems inexcusable that the manuals do not provide information about education effects, as these are a basic consideration in neuropsychology. Reliabilities are generally weak and intertest comparison data are absent. The promise of demographically adjusted norms in the future (probably at additional cost) is of little help at present. Factor analytic data and studies with clinical samples are lacking, although this may be addressed by future research. Overall, the D-KEFS is a courageous attempt to address a significant need in neuropsychology. Unfortunately, it appears to have missed the mark and I cannot recommend it for clinical use at present.

REFERENCES

- Anastasi, A. (1988). *Psychological testing* (6th ed.). New York: Macmillan.
- Baldo, J.V., Shimamura, A.P., Delis, D.C., Kramer, J., & Kaplan, E. (2001). Verbal and design fluency in patients with frontal lobe lesions. *Journal of International Neuropsychological Society*, 7, 585–596.
- Benjafeld, J., Frommhold, K., Keenan, T., Muckenheim, R., & Mueller, D. (1993). Imagery, concreteness, goodness, and familiarity ratings for 500 proverbs sampled from the Oxford Dictionary of English Proverbs. *Behavior Research Methods, Instruments and Computers*, 25, 27–40.
- Bohnen, N., Jolles, J., & Twijnstra, A. (1992). Modification of the Stroop color word test improves differentiation between patients with mild head injury and matched controls. *Clinical Neuropsychologist*, 6, 178–184.
- Comalli, F.E., Wapner, S., & Werner, H. (1962). Interference effects of Stroop color-word test in childhood, adulthood, and aging. *Journal of Genetic Psychology*, 100, 47–53.
- Delis, D.C., Kaplan, E., & Kramer, J. (1995). *California Card Sorting Test*. San Antonio, Texas: Psychological Corporation.
- Denney, D.R. & Denney, N.W. (1973). The use of classification for problem solving: A comparison of middle and old age. *Developmental Psychology*, 9, 275–278.
- Denney, N.W. & Denney, D.R. (1982). The relationship between classification and questioning strategies among adults. *Journal of Gerontology*, 37, 190–196.
- Gorham, R. (1956). A proverbs test for clinical and experimental use. *Psychological Reports*, 2, 1–12.
- Gourovitch, M.L., Goldberg, T.E., & Weinberger, D.R. (1996). Verbal fluency deficits in patients with schizophrenia: Semantic fluency is differentially impaired as compared with phonological fluency. *Neuropsychology*, 10, 573–577.
- Hertler, C.A., Chapman, L.J., & Chapman, J.P. (1978). A scoring manual for literalness in proverb interpretation. *Journal of Consulting and Clinical Psychology*, 46, 551–555.
- Kaplan, E. (1988). A process approach to neuropsychological assessment. In T. Boll and B.K. Bryant (Eds.), *Clinical neuropsychology and brain functioning: Research, measurement, and practice* (pp. 129–167). Washington, DC: American Psychological Association.
- Krikorian, R., Bartok, J., & Gay, N. (1994). Tower of London procedure: A standard method and developmental data. *Journal of Clinical and Experimental Neuropsychology*, 16, 840–850.
- Lezak, M.D. (1995). *Neuropsychological assessment* (3rd ed.). New York: Oxford University Press.
- Luria, A.R. (1966). *Higher cortical functions in man*. Oxford, England: Basic Books.
- Malloy, P.F. & Richardson, E.D. (1994). Assessment of frontal lobe functions. *Journal of Neuropsychiatry and Clinical Neurosciences*, 6, 399–410.
- Malloy, P., Bihrl, A., Duffy, J., & Cimino, C. (1993). The orbito-medial frontal syndrome. *Archives of Clinical Neuropsychology*, 8, 185–201.
- McFall, R.M. & Townsend, J.T. (1998). Foundations of psychological assessment: Implications for cognitive assessment in clinical science. *Psychological Assessment*, 10, 316–330.
- Moretti, R., Torre, P., Antonello, R.M., & Cazzato, G. (2001). Fronto-temporal dementia versus Alzheimer disease. *Archives of Gerontology and Geriatrics (Suppl.)*, 7, 273–278.
- Nippold, M.A., Allen, M.M., & Kirsch, D.I. (2001). Proverb comprehension as a function of reading proficiency in preadolescents. *Language, Speech, and Hearing Services in Schools*, 32, 90–100.
- Nunnally, J.C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.
- Penn, N.E., Jacob, T.C., & Brown, M. (1988). Familiarity with proverbs and performance of a black population on Gorham's proverbs test. *Perceptual and Motor Skills*, 66, 847–854.
- Reitan, R.M. (1972). Verbal problem solving as related to cerebral damage. *Perceptual and Motor Skills*, 34, 515–524.
- Reitan, R.M., Hom, J., & Wolfson, D. (1988). Verbal processing by the brain. *Journal of Clinical and Experimental Neuropsychology*, 10, 400–408.
- Ruff, R. (1988). *Ruff Figural Fluency Test: Administration manual*. San Diego, California: Neuropsychological Resources.
- Sattler, J. (1988). *Assessment of children* (3rd ed.). San Diego, California: Author.
- Shallice, T. (1982). Specific impairments of planning. *Philosophical Transactions of the Royal Society of London: Series B: Biological Sciences*, 298, 199–209.
- Tranel, D., Anderson, S.W., & Benton, A. (1994). Development of the concept of 'executive function' and its relationship to the frontal lobes. In F. Boller and J. Grafman (Eds.), *Handbook of neuropsychology*, Vol. 9 (pp. 125–148). Amsterdam, The Netherlands: Elsevier.
- Van Lancker, D. (1990). The neurology of proverbs. *Behavioural Neurology*, 3, 169–187.

A “Third-Generation” Neuropsychology Textbook?

DOI: 10.1017/S1355617703240169

Neuropsychology: From Theory to Practice, by D. Andrewes. 2001. East Sussex, UK: Psychology Press, Ltd. 608 pp., \$49.95 (HB).

Reviewed by MARK E. McCOURT, Ph.D., *Department of Psychology, North Dakota State University, Fargo, ND 58105.*

As a discipline, neuropsychology has burgeoned over the past decade. As the field has grown in popularity, so has the demand for current and accessible textbooks. Yet another has arrived on the scene, self-described as taking a “third-generation” approach. According to the author the organization of “first-generation” texts was focused on anatomy, progressing from lobe to lobe. “Second-generation” texts were organized around functional systems, such as memory, language, attention, and so on. The “third-generation” approach, on the other hand, emphasizes links between functions. Intrigued, and expecting dramatic novelty, I was somewhat surprised to discover a rather traditional “second-generation” organization to this text. Thus, Chapter 1 deals with historical issues, followed by chapters with disorders of perception (Chapter 2), executive function (Chapter 3), attention (Chapter 4), memory (Chapter 5), cerebral symmetry (Chapter 6), language (Chapter 7), movement (Chapter 8), and emotion (Chapter 9). Chapters 10 and 11 cover recovery of function and rehabilitation, respectively. Chapter 12, entitled “Integration between neuropsychological functions,” finally addresses specific links between functions, and reiterates the conceptual value of a “third-generation” approach. Being a mere four pages in length, however, this chapter only scratches the surface of what might (or might not) prove to be a useful meta-organizational principle.

The text is up-to-date and compares favorably with its competition (e.g., Cytoic (1996), *The Neurological Side of Neuropsychology*; Rains (2002), *Principles of Human Neuropsychology*; Kolb & Whishaw (1996), *Fundamentals of Human Neuropsychology*, 4th ed.; Zillmer & Spiers (2001), *Principles of Neuropsychology*; and Walsh (1994), *Neuropsychology, A Clinical Approach*, 3rd ed.). Despite being 608 pages in length, the text reads easily, and is written to an advanced undergraduate audience. The Subject and Author Indices appear comprehensive. Students and instructors alike will, however, bemoan the lack of a Glossary, which in my experience is one of the most useful features of neuropsychology textbooks, since it is a convenient and concise source of information in a field plagued by excessive terminology, bordering on jargon. The quality of the artwork and figures is only just adequate. Color plates and/or images are lacking, and the succession of black and white illustrations, while plentiful, seem monotonous and dull. Finally, given the breathtaking advances in the use of functional neuroimaging to understand brain–behavior relations over the past decade, I am dismayed by the relative scarcity of fMRI images and/or data in this (and other) modern neuropsychology texts.