

wrongs make a right) and flimsy pseudo-psychological arguments. Sentences like "Since we all have many areas in which we are experts, we have the necessary data, so let's look and see how adults learn new skills" do not belong in a book on Cognitive Science.

I have left alone three chapters on parsing, and a review by John Mayer of some of the effects of mood on cognition. Two of the parsing chapters (Ford, Mitchell, and Zagar) rely on lexical functional grammar, which readers will need to bone up from a different text. The third, by Christopher Riesbeck, eschews any grammatical model, yet addresses similar issues of lexical ambiguity. We clearly have a case of different frameworks in operation here, but I was annoyed that the authors were not encouraged to make some reference to each other's perspectives, or to lay out the ground on which the frameworks might compete.

Mayer's review is much more the stuff of book chapters, in my opinion. It is integrative, and it covers a field in which current "advances in cognitive science" look to be genuinely possible. If a collection of such topics could have been defined, then this book might have been more worthwhile.

To summarize with a football metaphor: this is a Manchester United of a book, not a Liverpool. "And twelve individuals don't make a team, do they, Brian?"

Stephen Rayne  
University of Lancaster

#### REFERENCE

Marr, D. (1982). *Vision*. San Francisco: W.H. Freeman.

**Language, Aphasia, and the Right Hemisphere**, by Chris Code. Chichester: John Wiley and Sons, 1987, ix + 205 pages. ISBN 0-471-91158-5 (hardcover).

formed when Paul Broca made the revolutionary discovery that most aphasics also had a right-sided hemiplegia, and hence must have suffered left-sided cerebral damage. The deceptively simple conclusion, that language is usually located in the left hemisphere, raised a host of still unanswered questions about hemispheric interrelations. In particular, what does the *right* hemisphere do in left-dominant individuals? The initial answer was simply *nothing*, although Hughlings Jackson soon developed the idea of complementary specializations—that the non-dominant hemisphere does *something else*, a something nowadays interpreted in terms of visuo-spatial, holistic, gestalt, or other non-linguistic forms of processing. The present book explores a further possibility, that the right hemisphere is an *extra-linguistic processor*, so that both hemispheres are involved in understanding language, albeit in different ways.

Why should such a notion be necessary? The renaissance of interest in right-hemisphere language derives from split brain studies in which there is clear evidence that verbal information presented tachistoscopically to just the right hemisphere is processed linguistically. However, as the present author correctly points out in a useful chapter that considers the methodological problems of the various methods of studying laterality, long standing epilepsy, usually secondary to early anoxic damage, makes commissurotomy studies difficult to interpret because of probable bilateralization of language. Despite these interpretative difficulties, many other studies have assessed the linguistic abilities of the right hemisphere by a host of methods, and these are comprehensively and critically reviewed by Code, who concludes eventually that there is some, often weak, evidence that the right hemisphere is involved in language.

If the right hemisphere is involved in

The notion of cerebral dominance was

processing language, then the greatest practical implications should be for recovery from aphasia. A long-running problem has been that if the left hemisphere's language-processing centers are damaged because of stroke, and recovery subsequently occurs, then how can this be taking place? One seductive possibility is that existing, or even new, centers in the right hemisphere are taking over the linguistic functioning of the now-defunct left hemisphere, and Code gives a useful but less critical summary of the various ways in which recovery of function might occur. If the right hemisphere indeed takes over language, then a second stroke in the right hemisphere should once again render the patient asphasic. Such cases have been reported, particularly by Nielsen in the 1940s, although as Code points out, "... there appear to have been few of the bilateral lesion cases ... reported in recent years. Why this should be so is unclear." Indeed, particularly given that these cases are of peculiar theoretical interest. A systematic study could give useful returns.

Despite such evidence from second strokes, and from Kinsbourne's unrepeated work using amytal in recovered aphasics, it is not clear to me that there is sufficient evidence for the right hemisphere having a specific form of language processing which either is normally silent, or else is functionally different, from that of the left hemisphere. The greatest conceptual weakness of the book lies in its confusion of two separate meanings of right hemisphere (RH), a confusion which is an extension of the problem that human brains are laterally polymorphic and interpretations of single cases or based on double dissociation are then fundamentally flawed (McManus, 1987). RH<sub>1</sub> we can take to be the hemisphere on the right-hand side of the skull: the one to the east when the patient faces north. RH<sub>2</sub>, by contrast is the non-dominant hemisphere, the one that in most individuals is

opposite to the one involved in language processing. For a majority of the right-handed population, RH<sub>1</sub> and RH<sub>2</sub> are probably equivalent. However this is not always the case, and studies that simply take "right-handers" as a study population, and only consider average performance from RH<sub>1</sub> and LH<sub>1</sub>, will include some individuals for whom RH<sub>2</sub> is actually in LH<sub>1</sub>, and LH<sub>2</sub> is in RH<sub>1</sub>. Consequently there will be evidence for RH<sub>1</sub> involvement in language performance. But this is not the same as RH<sub>2</sub> involvement. The convenient verbal shorthand of referring to "right-hemisphere tasks" must not let us confuse RH<sub>1</sub> with RH<sub>2</sub>, even though most studies do do so. A further neglected theoretical complexity which can account for many aspects of aphasia (McManus, 1985) is that in a substantial proportion of individuals there is true bilateralization of language i.e., the same functions are present in both hemispheres, and hence allow recovery of function.

This is a useful book, comprehensively summarizing a wide range of literature (513 references), which will be of interest to both specialists and students. Regrettably, it has been poorly proofread, and is replete with typographical errors, one of which, the misspelling of "maize" as "maise" (p.140), fundamentally confuses the account of deep dyslexia.

## REFERENCES

- McManus, I.C. (1985). "Handedness, language dominance, and aphasia: a genetic model." *Psychological Medicine, Monograph supplement*, No.8.  
 McManus, I.C. (1987). Book Review: "Left, right, hand and brain: the right shift theory" by M. Annett, *Psychological Medicine*, 17, 523-525.

Chris McManus  
 University College, London