

or performing a skill. Indeed, as D E Broadbent shows in his paper, under the right conditions, people may become adroit at performing a task without being able to verbalize how they manage it. Under other conditions, people can learn to answer questions about a task correctly without being much good at the task. This leaves hapless knowledge engineers in something of a quandary. If they rely on experts to provide a knowledge base, they may wind up providing false, or at least useless feedback. On the other hand, there is often no alternative source of expert information. Fortunately, Broadbent reports that the way in which knowledge is probed determines the value of the response. His discussion of the interaction between task domains and methods for assessing expertise is worthwhile reading for any knowledge engineer.

Accountability and feedback are particularly important when something unexpected happens in a complex domain. Standard methods are rendered inappropriate and adaptability becomes crucial. D Dorner suggests that decision makers acquire a system of local rules that allow them to cope with specific problem situations when they occur. But the very existence of such local rules presupposes some level of preparedness. J Reason advocates continuous system monitoring; any sign of stress causing the system to switch to emergency mode. To the extent that this means invoking some predetermined emergency plan, it also requires that the unexpected event must somehow be anticipated. At the very least, expert systems should be self-conscious enough to be aware of their own limitations.

A combination of feedback and accountability in an interactive environment where the human decision maker is continuously kept informed of what the system is doing, and why, seems the safest way to avoid catastrophic errors. Yet, one still cannot help but wonder whether any fault detection system, any risk reduction system or any expert system presently in use would have warned the designers of the AS332 helicopter not to include two different types of altimeter. As some of the horror stories described in this book make clear, we are still a long way from codifying simple common sense.

Artificial intelligence and cognitive sciences by J Demongeot, T Herve, V Rialle and C Roche (eds.), Manchester University Press, Manchester, 1988, pp 407, £39.50.

While the title of this book is very broad and may suggest some sort of attempt to discuss the inter-relationships between cognitive science and artificial intelligence, the reader consulting this volume will instead find a rather loosely structured set of conference papers. This is the book of a conference held in Grenoble in 1987. It has 29 chapters written by some 50 authors, of whom 48 are based in France and two in Switzerland. Thus, the book provides an impression of French AI which may not usually find its way to UK readers. However, the chapters are very compressed, and as a result they are not easy to understand if the subject background is not already familiar. In addition, I am afraid that something may have been lost through translation in a number of cases.

The chapters are grouped into three sets, one focussing on object-oriented representation, one on (real and artificial) neural information processing, and one on medical expert systems. There is no more than a token integration between the sets (or indeed, within the sets). Of the papers, three stand out as being particularly interesting: the first is a paper by Axelrod on the importance of considering the complexities of real neural processing as against the unrealistic simplifications of currently popular artificial "neural networks"; the second is a paper by Tiberghien, which nicely compares and contrasts natural and artificial memory systems; and the third is a description by Chauvet of a medical diagnosis system with a built-in learning component which improved its own performance.

Overall, however, despite some useful chapters, I doubt whether any individual would wish to purchase this book. It is a possible library purchase, but I suspect that it would be rarely consulted.