Right hemisphere contributions to attention and intention

One of the hallmarks of circumscribed brain damage is that behaviour is selectively impaired for just a subset of cognitive abilities. A frequent concomitant of acute damage to the right hemisphere in humans is the disorder of unilateral neglect, in which patients lose awareness for sensory events arising from the left (contralesional) side of space. Such neglect has been attributed to an impairment of selective attention, the capacity by which relevant sensory inputs get selected from competing irrelevant ones for further processing by the brain. Contralesional sensory events that are not selectively attended generally elude the patients’ awareness, as sometimes happens with neurologically healthy people when they miss relevant target information from one location if distracted by a salient, but irrelevant, event elsewhere.

Despite recent progress in understanding neglect, several important questions remain: Does neglect only impair processing of information from the contralesional side of space, or are ipsilesional inputs compromised too? Does it affect patients’ intentions to make limb movements towards the contralesional side (for example, while using their ipsilesional hand to perform cancellation and line bisection tests), over and above any purely perceptual bias? Can selective attention, intention, and awareness be localised to specific brain regions? These questions are tackled in the paper by Kim et al (this volume, pp 35–8). They report data on five right hemisphere patients who apparently had neglect which was more severe on the right (ipsilesional) side than on the left, as measured by spatial errors on a horizontal-line bisection test. Importantly, the authors did not see any such “ipsilesional neglect” on a visual cancellation test, implying that the phenomenon is task-specific. Moreover, some patients showed contralesional neglect acutely, but then switched to a pattern of ipsilesional neglect as they recovered. Thus the attentional impairments shown by a given patient may not be characteristic of a particular kind of neglect. Rather, they probably reflect a combination of factors, both neurological (such as diaschisis and hypoperfusion within the damaged hemisphere) and cognitive (such as any compensatory strategies), which evolve over the immediate period after stroke.

A particularly innovative aspect of the study by Kim et al is their technique for dissociating attentional and intentional contributions to neglect. Patients viewed a video monitor of their own hand as they performed their bisections. The visual feedback they received via the monitor was either spatially congruent (such that a hand move-
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