In This Issue

Word Processing

On page 235, Bentin et al. examine the dynamics of language comprehension with some scalp electrodes and a set of oddball tasks. Their subjects kept silent count of how many visually presented words were oddballs, which were defined in different ways for different tasks, which in turn were designed to probe different levels of processing. Thus, on the most superficial tasks, targets were twice as large as distractors, while deeper tasks required attention to phonological or semantic attributes. Cleverly, the authors examined ERP resulting from nontargets, the target-correlated signatures being swamped by "aha"-type events. They find support for the commonly assumed division of labor between modules specialized for processing different linguistic attributes and, of course, describe scalp signatures apparently correlated with each.

Theorists will be further reassured by Brown et al.'s (p. 261) comparison of ERPs to open- and closed-class words—roughly, semantic "content" words and syntactically structural ones, respectively. The brain is found to respect notions of the different processing role that each word class plays. The authors do not find a short-latency signature exclusively correlated with one of them as has been proposed by others, however. Instead they find only a slight latency modulation of an early component between word types. They do find a closed-class-characteristic slower signal, in agreement with extant literature.

Neither Confirm Nor Deny

Tommi Raij's (p. 282) subjects journey into their imaginations, monitored by his magnetometer as they visualize letters in response to symbolic auditory cues. He finds some promising behavior in the STS and posterior parietal but no measurable activation of V1. However, he remains "agnostic" on the V1 issue, observing that a variety of factors may have prevented such activity's detection.

Quelching Diversity

Presenting of a disruptive "mask" immediately after a visual stimulus is well known to interfere with recognition. Pursuing this lead in monkeys, Rolls et al. (p. 300) earlier showed that temporal neuronal firing rates are reduced by such masking. Here they carry this exploration further, showing that the neurons' response specificities—and thus the information carried by their spike trains—are decreased even more than their firing rates. Yet their truncated trains still carry an appreciable fraction of the information available in the unquelched case, despite response durations that are cropped by 90% or more. That neuronal responses can be reduced to a handful of spikes with disproportionately meager effects on information transmittal, and on recognition ability as behaviorally assessed, is of profound importance for understanding the nature of neural representation.

Skeptical in Sydney

Last year this very journal harbored a report of a connectionist model of category-specific agnosia. Conrad Perry (p. 312) lambasts that report in this issue. The model, which ostensibly lent support to a feature-correlation account of selective deficits, in Perry's hands is found to generalize poorly in a menagerie of ways and to learn new exemplars in a manner in fundamental disagreement with psychophysics. He thus concludes that the earlier results are corrupted by the idiosyncrasies of the model. He has hope, however, that modeling remains a useful approach to the problem but favors ART architectures over the attractor network that he so energetically excoriates.

Arousing Accessories

Content-free additional stimulation shortens reaction times to more mundane and meaningful stimuli in a host of experimental situations. This is assumed to be due to a generalized arousal, but the means of its action are unclear. In an earlier report, Hackley and Valle-Inclán (p. 321) demonstrated that this facilitation is not due to a reduction in the time elapsed between the appearance of the "lateralized readiness potential"—the differential activation of one hemisphere's Rolandic region versus the other's as the subject prepares to respond with the

appropriate hand—and the execution of the movement. Here they follow up on this work. By crafting their stimuli so that subjects noted which hand to use—thus inducing the LRP—before fully deciding upon the other details of the response, Hackley and Valle-Inclán attempted to move much decision-making into the LRP-motor response interval. However, they find that accessory stimulation did not cause any shortening of this interval. This suggests that the accessory stimuli facilitated the hand-selection component of response selection but none of the subsequent decision, an omission for reasons unknown.

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