

In This Issue

Another Job for Dopamine

The dopaminergic neurons of the midbrain have caused much excitement of late, over the suspicious resemblance of their activity to the reward-minus-expected-reward signal featured in prominent reinforcement learning models. Egelman et al. (p. 623) propose that their output is used not only for learning, but also as a direct determinant of current behavior. The agreement of their network model's performance on a decision task with that of human subjects appears to support their claim.

They All Look the Same If You're Upside Down

Face recognition, ordinarily so effortless, is markedly impaired when the faces are viewed upside down. Other types of stimuli do not produce this effect. Parr et al. (p. 615) demonstrate the phenomenon in chimps, meanwhile jumping into—but far from settling—the melee over rival explanations.

Or If You're Blind

Unlike arguably more exotic agnosics who are unable to identify objects despite their vision being intact for all other purposes, “apperceptive” agnosics have perception compromised at a more basic level. Their typically widespread occipital damage has been viewed by some as underlying a general visual degradation, a kind of reticulate scotoma. Vecera and Gilds (p. 568) attempt to simulate the syndrome in normal subjects, finding instead that it may result from a breakdown of early perceptual grouping.

Another Man's Mocassins

A depressingly small deletion from chromosome 7 leads to Williams syndrome: elfin features, rapid apparent aging, and, usually, mental retardation. However, individuals typically have surprising verbal and musical aptitude and sensitivity to others, reflecting sparing of the neocerebellum and limbic areas from the underdevelopment affecting the rest of the brain. Tager-Flusberg et al. (p. 631) had Williams subjects match photographs of eye

expressions to their correct labels, demonstrating that they are indeed adept at interpreting others' mental states, and quantifying what had previously been reported anecdotally.

Autistics, by contrast, are distinctly bad at understanding others. Previous work has shown them to be perceptive of emotion due to obvious causes, and capable of abstract reasoning about the physical world, but lousy at inferring the perspective and resulting emotions of others. Stone et al. (p. 640) find orbitofrontal patients to be impaired in a manner similar to higher functioning autistics: successfully grasping rather complex constellations of others' beliefs, they are nevertheless consistently unable to recognize faux pas. Orbitofrontal cortex is thus implicated in translating the understanding of others' beliefs into an appreciation of their resulting emotions.

Disaster Averted

The elaborate psychology of word generation is addressed by Levelt et al. (p. 553), whose subjects named pictures while strapped to a magnetometer. Despite the “tragic disappearance” of a critical effect, the authors salvage their experiment with an alternative analysis and correlate their results with cognitive theory.

Deviants Demand Attention

Both Ritter et al. (p. 605) and Escera et al. (p. 590) explore automatic deviance detection, setting their electrode-festooned subjects either to reading books or to performing a trivial task, all the while pestering them with irrelevant auditory input. ERP deflections indicated attentional engagement by sounds that differed from ones the subjects had gotten used to. The fact that slightly novel and very novel noises had qualitatively different effects on the ERP and task performance leads Escera et al. to support the idea of two distinct detection mechanisms. Ritter et al. find that both intensity and frequency deviations draw attention, even after an extended delay following the normality-defining tone sequence. They therefore suggest that memory for such tones encodes various features separately.

Crossmodal Neglect

Right-hemisphere lesions often lead to neglect of the left hemiworld, especially when salient targets on the right demand attention. Seemingly unrelated, neurons have been found in macaque cortex which respond both to touch and to visual stimuli originating near their tactile receptive fields. These two fascinating phenomena are fused by Làdavas et al. (p. 581), who induce neglect of

tactile targets by presenting *visual* targets near the ipsilesional hand. The “peripersonal” visual space thus demonstrated is proposed to arise from the responses of such bimodal neurons.

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