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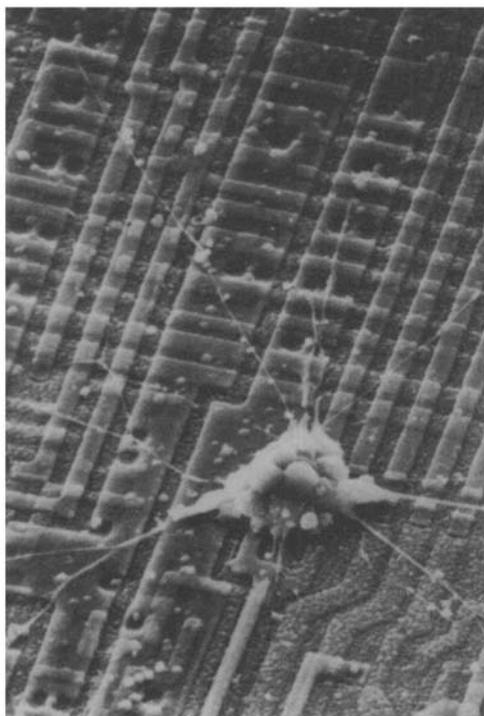
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# Behavioral and Brain Sciences

To appear in Volume 11, Number 3 (1988)

## Event-related potentials and cognition: A critique of the context updating hypothesis and an alternative interpretation of P3

Rolf Verleger, West Germany

P3 is the most prominent of those electrical potentials of the human electroencephalogram that are sensitive to psychological variables. P3 is widely interpreted as reflecting the updating of working memory and as being evoked by unexpected events. However, these interpretations are not supported by the available evidence. It is argued that P3s are evoked by stimuli that the subject is awaiting; they thus appear as a consequence of the subject's combining successive stimuli into larger units. P3s may be physiological indicators of excess activation released from perceptual control areas.

**Precommentary by** E Donchin & MGH Coles

**With Commentary from** N Birbaumer & T Elbert; D Brandeis & E Callaway; D Friedman; E Helgren; RE Hampson & SA Deadwyler; GV Jones; MR Jones; HJ Markowitsch; P Rabbitt; F Rösler; WT Roth & JM Ford; M Rugg; AF Sanders & W Collet; MN Verbaten; and others.

## Feedforward vs. Feedbackward: An ethological alternative to the law of effect

R. Allen Gardner & Beatrix T. Gardner, University of Nevada

The results of operant conditioning appear regardless of and often in spite of response contingent consequences. Experiments designed to measure a residual effect of consequences contain an inevitable *ex post facto* error that vitiates all versions of this design; experiments on the effect of predictive contingency in Pavlovian conditioning contain a corresponding error. This indicates that there is a fundamental logical defect in all contingency models of the learning process. Modern developments in ethology and in computer science provide a parsimonious feedforward model for the learning of both adaptive and maladaptive behavior under laboratory and field conditions. Research on teaching new and challenging tasks to free-living, well-fed subjects such as children and cross-fostered chimpanzees illustrates the wide applicability and practical effectiveness of feedforward over feedbackward principles.

**With Commentary from** RJ Andrew; A Dickinson & NJ Mackintosh; J Dinsmoor; G Graham; PN Himeline; P Lieberman; FJ Odling-Smee & H Plotkin; BF Skinner; JER Staddon; F Toates; M Tomasello & C Snow; E Wasserman; and others.

## Multiple book review of *The Intentional Stance*

Daniel C. Dennett, Tufts University

The intentional stance is the strategy of prediction and explanation that attributes beliefs, desires, and other "intentional" states to organisms and devices and predicts future behavior from what it would be rational for an agent to do, given those beliefs and desires. Any device or organism that regularly uses this strategy is an "intentional system," whatever its innards might be. The strategy of treating parts of the world as intentional systems is the foundation of "folk psychology," but it is also exploited (and is virtually unavoidable) in artificial intelligence and cognitive science in general, as well as in evolutionary theory. An analysis of the role of the intentional stance and its presuppositions supports a naturalistic theory of mental states and events, their "content" or "intentionality," and the relation between "mentalistic" levels of explanation and neurophysiological or mechanistic levels of explanation. As such, the analysis of the intentional stance grounds a theory of the mind and its relation to the body.

**With Commentary from** R Amundson; D Cheney & R Seyfarth; P Churchland; A Cussins; F Dretske; DR Griffin; G Harman; P & P Kitcher; W Lycan; A Rosenberg; A Sloman; MP Smith; SP Stich; C Taylor; and others.

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TD Johnston, "Developmental explanation and the ontogeny of birdsong: Nature/nurture redux"

H Davis & R Pérusse, "Numerical competence in animals: Definitional issues, current evidence, and a new research agenda"

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JS Turkkan, "Classical conditioning: The new hegemony"

LE Krueger, "Reconciling Fechner and Stevens: Toward a unified psychophysical law"

DM Buss, "Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures"

LR Caporael, RM Dawes, JM Orbell & AJC van de Kragt, "Selfishness examined: Cooperation in the absence of egoistic incentives"

WR Uttal, "On the meaning of models of visual processes"

S Chevalier-Skolnikoff, "Spontaneous tool use and sensorimotor intelligence in *Cebus* compared with other monkeys and apes"

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