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Although the BBS Commentary service is primarily devoted to original unpublished manuscripts, at times it will be extended to précis of recent books or previously published articles.

Published quarterly by the Cambridge University Press. Editorial correspondence to: Steven Harnad, Editor, BBS, Suite 240, 20 Nassau Street, Princeton, NJ 08542. All other correspondence to BBS, Journals, Cambridge University Press, 32 E. 57th Street, New York, NY 10022.

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The Groundwork of Cognition

Edited by Stevan Harnad

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Categorical Perception will be of interest to cognitive scientists, neuroscientists, developmental and comparative psychologists, behavioral biologists, linguists, anthropologists and philosophers—and anyone concerned with category representation.

1987 599 pp. 26758-7 \$59.50

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Stevan Harnad

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COMMENTS

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Jerry A. Fodor, Philosophy Department, CUNY Graduate Center

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George A. Miller, Psychology Department, Princeton University

"[A]n impressive volume. Harnad's introduction is a particularly clear, economical and thorough survey of the field, its current state and its importance, in his usual crisp and entertaining style."

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"CATEGORICAL PERCEPTION is essential reading for anyone interested in how we categorize what we perceive."

Philip N. Johnson-Laird, MRC Applied Psychology Unit, Cambridge

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Kin Recognition in Animals

Edited by DAVID J.C. FLETCHER, Department of Entomology, University of Georgia and CHARLES D. MICHENER, Departments of Systematics and Ecology, Entomology and Snow Entomological Museum, University of Kansas

Kin recognition — the differential treatment of kin and non-kin by an individual within a species — is one of the most interesting and quickly developing topics in modern biology. Researchers have been astonished and fascinated to discover the sophistication and subtlety of the ways individuals in even simple species, distinguish not only kin from non-kin, but also siblings, half-siblings and cousins. In many cases these forms of social behaviour appear to enhance the survival of the group rather than the individual and it is a matter of considerable sociological interest to establish how far such altruistic behaviour is the result of genetically predetermined traits, and how far it is learnt.

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Edited by J.W. BRADBURY, University of California, USA, and M. ANDERSSON, University of Gothenburg, Sweden

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Behavioral and Brain Sciences

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The service of Open Peer Commentary will be primarily devoted to original unpublished manuscripts. However, a recently published book, whose contents meet the standards outlined above, is also eligible for Commentary if multiply nominated by the BBS Associateship. A comprehensive, article-length précis accompanies the commentaries and response. In special cases, Commentary will also be extended to a position paper or an already published article dealing with particularly influential or controversial research. Submission of an article implies that it has not been published or is not being considered for publications elsewhere. Previously published articles appear by invitation only. The Associateship and professional readership of BBS are encouraged to nominate current topics and authors for Commentary.

In all the categories described, the decisive consideration for eligibility will be the desirability of Commentary for the submitted material. Controversiality *simpliciter* is not a sufficient criterion for soliciting Commentary. Nor is the mere presence of interdisciplinary aspects sufficient: general cybernetic and "organismic" disquisitions are not appropriate for BBS. Some appropriate rationales for seeking Open Peer Commentary are that an article (1) bears in a significant way on some current controversial issues in the behavioral and brain sciences; (2) substantively contradicts some well-established aspects of current research and theory; (3) criticizes the findings, practices, or principles of an accepted or influential line of work; (4) unifies a substantial amount of disparate research; (5) has important cross-disciplinary ramifications; (6) introduces an innovative methodology or formalism for consideration by proponents of the established forms; (7) significantly integrates a body of brain and behavioral data; or (8) places a hitherto dissociated area of research into an evolutionary or ecological perspective.

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considerably shorter); commentaries should not exceed 1,000 words. Spelling, capitalization, and punctuation should be consistent within each article and commentary and should follow the style recommended in the latest edition of *A Manual of Style*, The University of Chicago Press. It may be helpful to examine a recent issue of BBS. A title should be given for each article and commentary. An auxiliary short title of 50 or fewer characters should be given for any article whose title exceeds that length. Each commentary must have a distinctive, representative commentary title. The contributor's name should be given in the form preferred for publication, the affiliation should include the full institutional address. Two abstracts, one of 100 and one of 250 words should be submitted with every article. The shorter abstract will appear one issue in advance of the article; the longer one will be circulated to potential commentators and will appear with the printed article. A list of 5–10 keywords should precede the text of the article. Tables and figures (i.e., photographs, graphs, charts, or other artwork) should be numbered consecutively in a separate series. Every table and figure should have a title or caption and at least one reference in the text to indicate its appropriate location. Notes, acknowledgments, appendices, and references should be grouped at the end of the article or commentary. Bibliographic citations in the text must include the author's last name and the date of publication and may include page references. Complete bibliographic information for each citation should be included in the list of references. Examples of correct style for bibliographic citations are: Brown (1973); (Brown, 1973); (Brown 1973; 1978); (Brown 1973; Jones 1976); (Brown & Jones 1978); (Brown et al. 1979). References should be typed in alphabetical order in the style of the following examples. Journal titles must not be abbreviated.

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Behavioral and Brain Sciences

To appear in Volume 10, Number 3 (1987)

Offprints of the following forthcoming BBS treatments can be purchased for educational purposes if they are ordered well in advance. For ordering information, please write to Journals Department, Cambridge University Press, 32 East 57th Street, New York, NY 10022.

Neuroethology of releasing mechanisms: Prey-catching in toads

J.-P. Ewert, Universität des Landes Hessen, Kassel

Toads discriminate prey from nonprey by certain spatiotemporal stimulus features. The stimulus-response relations are mediated by innate releasing mechanisms with recognition properties partly modifiable by experience. Excitatory and inhibitory interactions among feature-sensitive tectal and pretectal neurons specify the perceptual operations involved in distinguishing prey from background, selecting features, and discriminating prey from predator; other connections indicate location. This information is transmitted by specialized neurons from the tectum to bulbar/spinal motor systems, providing a sensorimotor interface. Specific combinations of these projective neurons form "command releasing systems" that activate corresponding motor pattern generators for appropriate prey-catching action patterns.

With Commentary from MA Arbib; GP Baerends; JM Camhi; CM Comer; D Dennett; RW Doty; SOE Ebbesson; G Ehret; MA Goodale; P Grobstein; GA Harridge; D Ingle; SL Kondrashev; KA Stevens; G Székely; and others.

Levels of modeling of mechanisms of visually guided behavior

M. A. Arbib, University of Southern California

To bridge from complex behaviors to neural circuitry, we argue for schemas as intermediate functional constructs, and for neural layers as intermediate structural units. We discuss perceptual schemas for high-level vision and motor schemas for the control of dextrous hands. We introduce *Rana computatrix*, the computational frog, and argue that it can do for the study of neural circuitry what *Aplysia* has done for the study of subcellular mechanisms of learning. We analyze approach, avoidance, and detour behavior in terms of interacting schemas, and prey-recognition and depth perception in terms of interacting neural layers.

With Commentary from W Baird; J-P Ewert; K Gunderson; PIM Johannesma; P Langley; D Lloyd; AK Mackworth; N Matsumoto; G Székely; YQ Tang; JK Tsotsos; C van Leeuwen; W von Seelen; J Wagemans; HTA Whiting; and others.

Methodologies for studying human knowledge

J. R. Anderson, Carnegie-Mellon University

One must distinguish between mental algorithms and their implementation. Mental algorithms are abstract specifications of procedures that are executed in the mind. Implementational issues concern the speed and reliability with which these procedures run. Issues at the algorithmic level can only be explored by studying across-task variation. This contrasts with psychology's dominant methodology of looking for within-task generalities, which is only appropriate for studying implementational issues. Research at the algorithmic level promises more opportunities for scientific progress. The best way to study the algorithmic level is to look for differential learning outcomes in pedagogical experiments that manipulate instructional experience. The intelligent tutoring paradigm provides a particularly fruitful way to implement such experiments.

With Commentary from MA Arbib; KA Ericsson; J-P Ewert; R Glaser; AI Goldman; J Hendler; C Mortensen; AV Reed; P Smolensky; EP Stabler, Jr.; K Stenning; MM Taylor & RA Pigeau; DS Touretzky; JT Townsend; and others.

Among the articles to appear in forthcoming issues of BBS:

KR Rao & J Palmer, "The anomaly called PSI: Recent research and criticism"

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EM Macphail, "The comparative psychology of intelligence"

Multiple book review of D Sperber & D Wilson, *Relevance: Communication and Cognition*

P Smolensky, "The hypotheses underlying connectionism"

CP Benbow, "Sex differences in mathematical reasoning ability in intellectually talented preadolescents: Their nature, effects, and possible causes"

AI Houston & JM McNamara, "A framework for the functional analysis of behavior"

II Glezer, MS Jacobs & PJ Morgane, "Implications of the 'initial brain' concept for brain evolution in cetacea"

Multiple book review of D Laming, *Sensory Analysis*

Cambridge University Press

The Pitt Building, Trumpington Street, Cambridge CB2 1RP

32 East 57 Street, New York, N.Y. 10022

10 Stamford Road, Oakleigh, Melbourne 3166, Australia

Printed in the United States of America
by Capital City Press, Montpelier, Vermont