

## Latent Inhibition And Conditioned Attention Theory

The model system of eyeblink classical conditioning in humans has enormous potential for the understanding and application of fundamental principles of learning. This collection makes classical conditioning accessible to teachers and researchers in a number of ways. The first aim is to present the latest developments in theory building. Second, as background for the current directions, Eyeblink Classical Conditioning, Volume I presents an overview of a large body of previously published research on eyeblink classical conditioning. Last, the authors describe eyeblink classical conditioning techniques. Each chapter includes a highlighted methods section so that interested readers can replicate techniques for teaching and research.

Theories of associative learning have a long history in advancing the psychological account of behavior via cognitive representation. There are many components and variations of associative theory but at the core is the idea that links or connections between stimuli or responses describe important aspects of our psychological experience. This Frontiers Topic considers how variations in association formation can be used to account for differences between people, elaborating the differences between males and females, differences over the life span, understanding of psychopathologies or even across cultural contexts. A recent volume on the application of learning theory to clinical psychology is one example of this emerging application (e.g., Hazelgrove & Hogarth, 2012). The task for students of learning has been the development, often with mathematically defined explanations, of the parameters and operators that determine the formation and strengths of associations. The ultimate goal is to explain how the acquired representations influence future behavior. This approach has recently been influential in the field of neuroscience where one such learning operator, the error correction principle, has unified the understanding of the conditions which facilitate neuron activation with the computational goals of the brain with properties of learning algorithms (e.g., Rescorla & Wagner, 1972). In this Frontiers Research Topic, we are interested in a similar but currently developing aspect to learning theory, which is the application of the associative model to our understanding of individual differences, including psychopathology. In general, learning theories are monolithic, the same theory applies to the rat and the human, and within people the same algorithm is applied to all individuals. If so this might be thought to suggest that there is little that learning theory can tell us about the how males and females differ, how we change over time or why someone develops schizophrenia for instance. However, these theories have wide scope for developing our understanding of when learning occurs and when it is interfered with, along with a variety of methods of predicting these differences. We received contributions from researchers studying individual differences, including sex differences, age related changes and those using analog or clinical samples of personality and psychopathological disorders where the outcomes of the research bear directly on theories of associative learning. This Research Topic brings together researchers studying basic learning and conditioning processes but in which the basic emotional, attentional, pathological or more general physiological differences between groups of people are modeled using associative theory. This work involves varying stimulus properties and temporal relations or modeling the differences between groups.

Prepared as a tribute to Donald A. Riley, the essays that appear here are representative of a research area that has loosely been classified as animal cognition -- a categorization that reflects a functionalist philosophy that was prevalent in Riley's laboratory and that many of his students absorbed. According to this philosophy, it is acceptable to hypothesize that an animal might engage in complex processing of information, as long as one can operationalize evidence for such a process and the hypothesis can be presented in the context of testable predictions that can differentiate it from other mechanisms. The contributions to this volume represent the three most important areas of research in animal cognition -- stimulus representation, memory processes, and perceptual processes -- although current research has considerably blurred these distinctions.

Biological Psychology is the study of psychological processes in terms of biological functions. A major obstacle to understanding dialogue in the field has always been its terminology which is drawn from a variety of non-psychological sources such as clinical medicine, psychiatry and neuroscience, as well as specialist areas of psychology such as ethology, learning theory and psychophysics. For the first time, a distinguished international team of contributors has now drawn these terms together and defined them both in terms of their physical properties and their behavioural significance. The Dictionary of Biological Psychology will prove an invaluable source of reference for undergraduates in psychology wrestling with the fundamentals of brain physiology, anatomy and chemistry, as well as researchers and practitioners in the neurosciences, psychiatry and the professions allied to medicine. It is an essential resource both for teaching and for independent study, reliable for fact-checking and a solid starting point for wider exploration.

Most psychology research still assumes that mental processes are internal to the person, waiting to be expressed or activated. This compelling book illustrates that a new paradigm is forming in which contextual factors are considered central to the workings of the mind. Leading experts explore how psychological processes emerge from the transactions of individuals with their physical, social, and cultural environments. The volume showcases cutting-edge research on the contextual nature of such phenomena as gene expression, brain networks, the regulation of hormones, perception, cognition, personality, knowing, learning, and emotion.

Traditional theories of associative learning have found no place for the possibility that the way in which events are perceived might change as a result of experience. Evidence for the reality of perceptual learning has come from those studied by learning theorists. The work reviewed in this book shows that learned changes in perceptual organization can in fact be demonstrated, even in experiments using procedures (such as conditioning and simple discrimination learning) of the type on which associative theories have been based. These results come from procedures that have been the focus of detailed theoretical and empirical analysis; and from this analysis emerges an outline of the mechanisms responsible. Some of these are themselves associative; others require the addition of nonassociative mechanisms to the traditional theory. The result is an extended version of associative theory which, it is argued, will be relevant not only to the experimental procedures discussed in this book but to the entire range of instances of perceptual learning.

Since first described, multiple properties of classical conditioning have been discovered, establishing the need for mathematical models to help explain the defining features. The mathematical complexity of the models puts our understanding of their workings beyond the ability of our intuitive thinking and makes computer simulations irreplaceable. The complexity of the models frequently results in function redundancy, a natural property of biologically evolved systems that is much desired in technologically designed products. Experts provide the latest advancements in the field and present detailed descriptions of how the models simulate conditioned behaviour and its physiological bases. It offers advanced students and researchers examples of how the models are used to analyse existing experimental results and design future experiments. This volume is of great interest to psychologists and neuroscientists, as well as computer scientists and engineers searching for ideas applicable to the design of robots that mimic animal behaviour.

Provides a contemporary focus on the research, theory, and clinical application concerning conditioned taste aversion effects and methodology, and serves as a definitive perspective on the current state of research in this area.

The introduction of chlorpromazine in 1953, and haloperidol in 1958, into clinical practice dramatically altered the therapy of schizophrenic patients. Although representing by no means a cure for this severe psychiatric illness, it allowed, for the first time, to adequately control the severe hallucinations and delusional beliefs which prevent these patients from leading a more or less independent life. Indeed these antipsychotics (and the many congeners that were to follow) significantly reduced the number of chronic schizophrenic inpatients in psychiatric clinics all over the world. However soon after their introduction it became clear

that, like all other available drugs, antipsychotics were by no means miracle drugs. In fact, two major problems appeared. First, the antipsychotics had very little effect on the so-called negative or defect symptoms, like social isolation, apathy and anhedonia, and secondly virtually all antipsychotics produced a number of side-effects, of which the neurological (often called extra pyramidal) side-effects were the most troublesome. Especially the tardive dyskinesia, which occurred in about 15 to 20% of the patients after prolonged treatment, represented a major problem in the treatment of schizophrenic patients.

As cognitive models of behavior continue to evolve, the mechanics of cognitive exceptionalism, with its range of individual variations in abilities and performance, remains a challenge to psychology. Reaching beyond the standard view of exceptional cognition equating superior intelligence, the Handbook of Individual Differences in Cognition examines the latest findings from psychobiology, cognitive psychology, and neuroscience, for a comprehensive state-of-the-art volume. Breaking down cognition in terms of attentional mechanisms, working memory, and higher-order processing, contributors discuss general models of cognition and personality. Chapter authors build on this foundation as they revisit current theory in such areas as processing effort and general arousal and examine emerging methods in individual differences research, including new data on the role of brain plasticity in cognitive function. The possibility of a unified theory of individual differences in cognitive ability and the extent to which these variables may account for real-world competencies are emphasized, and commentary chapters offer suggestions for further research priorities. Coverage highlights include: The relationship between cognition and temperamental traits. The development of autobiographical memory. Anxiety and attentional control. The neurophysiology of gender differences in cognitive ability. Intelligence and cognitive control. Individual differences in dual task coordination. The effects of subclinical depression on attention, memory, and reasoning. Mood as a shaper of information. Researchers, clinicians, and graduate students in psychology and cognitive sciences, including clinical psychology and neuropsychology, personality and social psychology, neuroscience, and education, will find the Handbook of Individual Differences in Cognition an expert guide to the field as it currently stands and to its agenda for the future.

Latent Inhibition and Its Neural Substrates describes a neural network model of attentional processes during associative learning, mainly latent inhibition, and shows how variables in the model can be mapped onto different brain regions and neurotransmitters. The result is a neurophysiological model capable of generating predictions and descriptions of numerous experimental results using latent inhibition, including the effects of brain lesions, drug administration, and the combination of both. The model also explains the absence of latent inhibition in acute schizophrenia and its reinstatement by the administration of psychotropic drugs. This volume of proceedings contains papers, posters, and summaries of symposia presented at the leading conference that brings cognitive scientists together to discuss issues of theoretical and applied concern. For researchers and educators in the field. This clear and accessible textbook aims to introduce students to the brain's remarkable capacity for memory. It assumes little background knowledge from biology or psychology and is intended for use in graduate courses.

Latent inhibition is a phenomenon by which exposure to an irrelevant stimulus impedes the acquisition or expression of conditioned associations with that stimulus. Latent inhibition, an integral part of the learning process, is observed in many species. This comprehensive collection of studies of latent inhibition, from a variety of disciplines including behavioural/cognitive psychology, neuroscience and genetics, focuses on abnormal latent inhibition effects in schizophrenic patients and schizotypal normals. Amongst other things, the book addresses questions such as, is latent inhibition an acquisition or performance deficit? What is the relationship of latent inhibition to habituation, extinction, and learned irrelevance? Does reduced latent inhibition predict creativity? What are the neural substrates, pharmacology, and genetics of latent inhibition? What do latent inhibition research and theories tell us about schizophrenia? This book provides a single point of reference for neuroscience researchers, graduate students, and professionals, such as psychologists and psychiatrists.

Latent inhibition is an exquisitely simple, robust, and pervasive behavioural phenomenon - the reduced ability of an organism to learn new associations to previously inconsequential stimuli. It has been demonstrated in a variety of animals, including humans, across many different learning tasks.

For a few decades, the puzzle of consciousness, which for centuries was analysed by philosophers, has been finding a wide interest in the scientific field, where previously it was not entitled to be a member. It has become one of the most-debated problems in the cognitive sciences. The anatomical bases, neurophysiological correlates and elementary mechanisms underlying complex processes arising with consciousness have been compared with the psychological (perceptive, cognitive, volitive, emotional) aspects of conscious expressions, in normal and pathological conditions. Various theories, which attempt to fit systematically and coherently neural and psychological data, have been debated, proving the emergence of the phenomenon of consciousness.

This text gives several mechanistic descriptions of complex cognitive behaviors, and shows how neural networks permit the development of useful brain models.

This book is the first to bring together researchers in individual differences in personality and temperament to explore whether there is any unity possible between the temperament researchers of infancy and childhood and the major researchers in adult personality. Prior to the workshop which resulted in this volume, the existing literature seemed to document a growing consensus on the part of the adult personality researchers that five major personality dimensions -- the "Big Five" -- might be sufficient to account for most of the important variances in adult individual differences in personality. In contrast to this accord, the literature on child and infant individual differences seemed to offer a wide variety of opinions regarding the basic dimensions of difference in personality or temperament. The editors believed that they could encourage researchers from both the adult and child areas to consider the importance of a lifespan conceptualization of individual differences by discussing their research in terms of a continuity approach. Written by some of the most distinguished scholars from Great Britain, continental Western Europe, and Eastern Europe as well as the United States and Canada, the chapters present a cross-cultural view of both adult personality and temperament in infancy and childhood. By sharing their recent data, techniques, and theoretical speculations, the chapter authors communicate the research enthusiasm engendered by the growing consensus of the adult "Big Five" as well as the exciting prospects of an integrative program of research from infancy to adulthood that will clarify and consolidate what is now a disparate set of methods, theory, and findings across the lifespan. The editors suggest that this volume will have considerable heuristic value in stimulating researchers to conceptualize their work in developmental, lifespan approaches that will lead to a consolidation of individual differences research at every age.

Learning: A Behavioral, Cognitive, and Evolutionary Synthesis provides an integrated account of the psychological processes involved in learning and conditioning and their influence on human behavior. With a skillful blend of behavioral, cognitive, and evolutionary themes, the text explores various types of learning as adaptive specialization that evolved through natural selection. Robust pedagogy and relevant

examples bring concepts to life in this unique and accessible approach to the field.

First published in 1986. Routledge is an imprint of Taylor & Francis, an informa company.

Of the myriad tasks that the brain has to perform, perhaps none is as crucial to the performance of other tasks as attention. A central thesis of this book on the cognitive neuroscience of attention is that attention is not a single entity, but a finite set of brain processes that interact mutually and with other brain processes in the performance of perceptual, cognitive, and motor skills. After an introductory part I, the book consists of three parts. Part II, Methods, describes the major neuroscience methods, including techniques used only with animals (anatomical tract tracing, single-unit electrophysiology, neurochemical manipulations), noninvasive human brain-imaging techniques (ERPs, positron emission tomography, and functional magnetic resonance imaging), and studies with brain-damaged individuals. This part also includes a chapter on the computational modeling of attention. Part III, Varieties of Attention, looks at three major components of attention from the cognitive neuroscience perspective: selection, vigilance, and control. It also discusses links to memory and language. Finally, part IV, Development and Pathologies, discusses the application of findings from the previous sections to the analysis of normal and abnormal development and to pathologies of attention such as schizophrenia and attention deficit disorders. Contributors Edward Awh, Gordon C. Baylis, Jochen Braun, Dennis Cantwell, Vincent P. Clark, Maurizio Corbetta, Susan M. Courtney, Francis Crinella, Matthew C. Davidson, Gregory J. DiGirolamo, Jon Driver, Jane Emerson, Pauline Filipek, Ira Fischler, Massimo Girelli, Pamela M. Greenwood, James V. Haxby, Mark H. Johnson, John Jonides, Julian S. Joseph, Robert T. Knight, Christof Koch, Steven J. Luck, Richard T. Marrocco, Brad C. Motter, Ken Nakayama, Orhan Nalcioglu, Paul G. Nestor, Ernst Niebur, Brian F. O'Donnell, Raja Parasuraman, Michael I. Posner, Robert D. Rafal, Trevor W. Robbins, Lynn C. Robertson, Judi E. See, James Swanson, Diane Swick, Don Tucker, Leslie G. Ungerleider, Joel S. Warm, Maree J. Webster, Sharon Wigal

This unique two-volume set provides detailed coverage of contemporary learning theory. Uniting leading experts in modern behavioral theory, these texts give students a complete view of the field. Volume I details the complexities of Pavlovian conditioning and describes the current status of traditional learning theories. Volume II discusses several important facets of instrumental conditioning and presents comprehensive coverage of the role of inheritance on learning. A strong and complete base of knowledge concerning learning theories, these volumes are ideal reference sources for advanced students and professionals in experimental psychology, learning and learning theory, and comparative physiology.

The two Animal Models in Psychiatry volumes are loosely organized by subject. The first volume contains a number of chapters concerned with schizophrenia, psychosis, neuroleptic-induced tardive dyskinesias, and other disorders that may involve dopamine, such as attention deficit disorder and mania. The second volume deals with affective and anxiety disorders, but also includes chapters on subjects not easily classified as either psychotic, or affective, or anxiety-related, such as aggression, mental retardation, and memory disorders. Four chapters on animal models of schizophrenia or psychoses are included in the present volume because of the importance of these disorders in psychiatry. Likewise, three chapters in the subsequent volume deal with depression. The first of the two volumes begins with an introduction by Paul Willner reviewing the criteria for assessing the validity of animal models in psychiatry. He has written extensively on this subject, and his thorough description of the issues of various forms of validity provides a framework in which to evaluate the subsequent chapters. As will be seen, the remaining chapters in both volumes will refer frequently to these issues. The second chapter, by Melvin Lyon, describes a large number of different procedures that have been proposed as potential animal models of schizophrenia. This is a departure from the usual format, consisting of detailed descriptions of specific models.

In these two experiments using autoshaping procedures in pigeons, the reverse latent inhibition effect was explored. Results are discussed in terms of implications for conditioned attention theory and the legitimacy of the reverse latent inhibition phenomenon.

First published in 1979. Routledge is an imprint of Taylor & Francis, an informa company.

Interest in the concept of time has a long history and has been a topic of study for a wide range of investigators. No change can take place without specification of time. While philosophers and physicists have been intrigued by the concept of subjective perception of time and its relationship to real time, natural scientists have been concerned mainly with investigating time as a factor in understanding the behaviour of animals from the migratory habits of birds to the periodical breeding cycles. The immense bulk of temporal perception studies, the variety of approaches, methods of measurement and even terminology has led to a difficulty in reaching a global interpretation of the results. This book aims to give an integrative approach of time sense and to focus the analysis on temporal factors in the processing of movement, trying to link temporal perception studies in the final common pathway, that is motion. To give some clues of human brain integrative processes at higher levels. And, finally, to clarify the neurophysiological substrate of these operations.

Here is a broad overview of the central topics and issues in psychopharmacology, biological psychiatry and behavioral neurosciences, with information about developments in the field, including novel drugs and technologies. The more than 2000 entries are written by leading experts in pharmacology and psychiatry and comprise in-depth essays, illustrated with full-color figures, and are presented in a lucid style. This book examines a variety of psychological disorders from the perspective of the psychology of learning. Grounded in the study of classical and instrumental conditioning, learning theory provides an explanatory framework for the way in which humans acquire information, and when applied, how abnormalities in learning may give rise to clinical conditions. This edited volume addresses a wide range of clinically relevant issues in chapters written by international experts in each field. Individual chapters present experimental research into the neuropsychological basis of the acquisition of fears, phobias and clinical aversions, the placebo and nocebo effects, the psychology of drug addiction and relapse following clinical treatment, as well as the role of learning in Tourette's syndrome, depression and schizophrenia. This book will be particularly useful for undergraduate and postgraduate students of clinical psychology, behavioural neuroscience and those studying the applications of learning theory to clinical or psychiatric research.

Now available in paperback. This revised and updated edition of the definitive resource for experimental psychology offers comprehensive coverage of the latest findings in the field, as well as the most recent contributions in methodology and the explosion of research in neuroscience. Volume Three: Learning, Motivation, and Emotion, focuses on the role of learning in the operation of motivational systems in human cognitive development.

Although many professionals in psychology (including the sub-disciplines of human learning and memory, clinical practice related to psychopathology, neuroscience, educational psychology and many other areas) no longer receive training in learning and conditioning, the influence of this field remains strong. Therefore, many researchers and clinicians have little knowledge about basic learning theory and its current applications beyond their own specific research topic. The primary purpose of the present volume is to highlight ways in which basic learning principles, methodology, and phenomena underpin, and indeed guide, contemporary translational research. With contributions from a distinguished collection of internationally renowned scholars, this 23-chapter volume contains specific research issues but is also broad in scope, covering a variety of topics in which associative learning and conditioning theory apply, such as drug abuse and addiction, anxiety, fear and pain research, advertising, attribution processes, acquisition of likes and dislikes, social learning, psychoneuroimmunology, and psychopathology (e.g., autism, depression, helplessness and schizophrenia). This breadth is captured in the titles of the three major sections of the book: Applications to Clinical Pathology; Applications to Health and Addiction; Applications to Cognition, Social Interaction and Motivation. The critically important phenomena and methodology of learning and conditioning continue to have a profound influence on theory and clinical concerns related to the mechanisms of memory, cognition, education, and pathology of emotional and consummatory disorders.

This volume is expected to have the unique quality of serving the interests of many researchers, educators and clinicians including, for example, neuroscientists, learning and conditioning researchers, psychopharmacologists, clinical psychopathologists, and practitioners in the medical field.

"What mechanisms are involved in enabling us to generate predictions of what will happen in the near future? Although we use associative mechanisms as the basis to predict future events, such as using cues from our surrounding environment, timing, attentional, and configural mechanisms are also needed to improve this function. Timing mechanisms allow us to determine when those events will take place. ... Written for graduates and researchers in neuroscience, computer science, biomedical engineering and psychology, the author presents neural network models that incorporate these mechanisms and shows, through computer simulations, how they explain the multiple properties of associative learning"--Provided by publisher.

In this groundbreaking handbook, more than 60 internationally respected authorities explore the interface between intelligence and personality by bringing together a wide range of potential integrative links drawn from theory, research, measurements, and applications. Organisms survive and succeed because of their ability to learn and adapt to changing circumstances and new demands. As discussed in the chapters of the present volume, an appreciation of the mechanisms and principles of learning and conditioning is fundamental to any analysis of normal behavior as well as to an informed understanding of our well being (including examination of such issues as anxiety and fear, brain-immune system interactions, drug addiction and abuse, emotional learning, and social behavior) and mental health (for example, autism, depression, helplessness and schizophrenia). The twenty-three chapters in this volume, written by a distinguished collection of internationally renowned scholars, articulate the basic, yet sophisticated, way in which learning and conditioning processes influence our everyday behaviors, both normal and maladaptive, and help explain a variety of clinically important phenomena and disorders.

Attention and learning are two of the most important topics in contemporary cognitive psychology and behavioural neuroscience. Of even more interest is how the two interact. Meaningful stimuli and their meaningful effects are invariably embedded in a complex background of meaningless information. Yet, in order to learn about meaningful relationships between events, an organism needs to be able to extract the relevant from the irrelevant. The ability to direct attention selectively to some stimuli and away from others is one fundamental mechanism by which this filtering of information can occur. But what controls this selective attention? Why are certain stimuli selected and others rejected? What are the neural mechanisms underlying this ability? Are they the same in humans as in other animals? And what are the consequences of damage to this attentional system? These are the questions that this book aims to answer. The idea of an interaction between attention and learning has experienced a huge surge of interest in recent years. Advances in behavioural neuroscience have made it possible to investigate the neural basis of attention mechanisms; advances in connectionist modelling techniques have allowed us to implement and test more complex computational models of the operation of these mechanisms; and recent studies have implicated impairments in the ability to deploy selective attention appropriately in disorders such as schizophrenia and Parkinson's Disease. This book brings together leading international learning and attention researchers to provide both a comprehensive and wide-ranging overview of the current state of knowledge of this area as well as new perspectives and directions for the future. There are coherent themes that run throughout the book, but there are also, inevitably, fundamental disagreements between contributors on the role of attention in learning. Together, the views expressed in this book paint a picture of a vibrant and exciting area of psychological research, and will be essential reading for researchers of learning and attention.

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Psychology of Learning and Motivation

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