FUL, HARMFUL OR NEUTRAL IN RECOVERY OF FUNCTION? Timothy Schallert. Department of Psychology and Institute for Neuroscience, University of Texas at Austin.

The research to be described is concerned with mechanisms of recovery of function after focal brain damage. Novel treatment strategies for affecting anatomical events and influencing the rate of recovery are being developed based on this research. For example, after cortical damage rats were treated with Cl^- ion channel blockers, glutamatergic (NMDA) antagonists or drugs which tend to open Cl^- ion channels. The first two classes of drugs facilitate recovery of function, but by different mechanisms. The latter class, including certain anticonvulsant and antianxiety drugs that currently are being administered to many brain damage patients, can severely and chronically disrupt recovery of function. Depending on the timing of drug administration, remote degeneration secondary to the brain damage may be exaggerated or attenuated. However, it will be demonstrated that only careful behavioral assessment coupled with a comprehensive anatomical analysis permits one to evaluate the potential functional significance of a given manipulation.

YOUNG PSYCHOPHARMACOLOGIST AWARD AND INVITED ADDRESS

Chair: *Larry Byrd,* Yerkes Regional Primate Research Center, Emory University, Atlanta, GA.
Awardee: Robert S. Mansbach, Medical College of Virginia.
"A Startle Response Model of Sensorimotor Gating Deficits in Schizophrenia."

SYMPOSIUM

Commonalities in Stimulus Equivalence and Drug Discrimination Research
Chair: *Warren K. Bickel,* University of Vermont, Burlington, VT.
Discussant: *Chris-Ellyn Johanson,* Uniformed Services University of the Health Sciences, Bethesda, MD.

FUNCTIONAL ANALYSIS OF CONTEXTUAL STIMULUS CONTROL. Richard W. Serna and Gina Green. E. K. Shriver Center for Mental Retardation, Inc.

Behaviors are determined in part by the contexts in which they are emitted. A complete understanding of contextual control requires careful experimental analysis, which in turn requires defining the possible controlling events operationally and manipulating them systematically. Some recent analyses of contextual control of discriminated performances—namely conditional discriminations that may give rise to stimulus equivalence—have raised an important question about the definition and function of contextual stimuli: Are they discrete events that exert conditional control over conditional discriminations, or are they elements of compound stimuli that exert simpler discriminative control? In this paper we discuss the practical and theoretical significance of this question, suggest methodology for investigating these two types of contextual stimulus control, and summarize data from our attempts to address this question experimentally.

CURRENT ISSUES IN STIMULUS CLASS RESEARCH. K. J. Saunders, R. R. Saunders and J. E. Spradlin. University of Kansas.

Accounting for stimulus-stimulus and stimulus-response relations that have not been trained directly provides an important challenge for the science of behavior. The recent explosion of research on stimulus classes has uncovered a range of empirical and theoretical issues that are only beginning to be systemized. The present discussion outlines these issues, with the goal of identifying potentially fruitful areas for future research. Much research is currently being done on stimulus equivalence classes. One reason is an apparent relation with language; the thorough explication of this relation is an important issue for future research. Also at issue is the relationship between stimulus equivalence classes (which involve stimulus-stimulus relations) and functional stimulus classes (which involve stimulus-response relations). Both of these issues may find some resolution in the study of stimulus classes in nonhuman primates and in verbally limited humans. This strategy may also uncover the critical prerequisites for equivalence class formation, the most fundamental unresolved issue.

FUNCTIONALLY EQUIVALENT STIMULUS CONTROL OVER RESPONDING BY INTEROCEPTIVE AND EXTEROCEPTIVE STIMULI. R. J. DeGrandpre, W. K. Bickel, S. T. Higgins and J. R. Hughes. University of Vermont.

Conditional relations between drug (interoceptive) stimuli and visual (exteroceptive) stimuli were taught to 4 normal humans. Following this training, a stimulus equivalence procedure was used to test whether emergent relations between these two types of stimuli would develop. The drug stimulus effects were produced by 0.32 mg/70 kg triazolam and placebo (lactose filled capsules). The emergence of equivalence classes that contained interoceptive and exteroceptive stimuli occurred in all four subjects. Responding was 100 percent correct for three of the four subjects. This experiment provides the first demonstration that interoceptive and exteroceptive stimuli can achieve, without explicit training, equivalent discriminative-stimulus control over behavior. Theoretical and clinical implications are discussed.

FUNCTIONALLY EQUIVALENT STIMULUS CONTROL OVER RESPONDING BY EXTEROCEPTIVE STIMULI AND INTEROCEPTIVE STIMULI FROM STIMULANT AND SEDATIVE DRUG CLASSES. W. K. Bickel, R. J. DeGrandpre, S. T. Higgins and J. R. Hughes. University of Vermont.

In this study, conditional relations between drug (interoceptive) stimuli and visual (exteroceptive) stimuli were taught to normal humans. The drug stimulus effects were those produced by 110–560 mg/70 kg caffeine, 0.10–0.56 mg/70 kg triazolam, and placebo (lactose filled capsules). Following this training, a stimulus equivalence procedure was used to merge the drug effects produced by caffeine with the stimulus effects produced by triazolam via a common visual stimulus. This test assessed whether topographically distinct interoceptive stimuli can gain joint membership with visual stimuli and thus exert functionally equivalent stimulus control over behavior. The implications of such findings are relevant to drug-discrimination research in behavioral pharmacology and more generally to the study of drug-taking.

SYMPOSIUM

Future Directions in the Treatment of Nicotine Addiction
Chair: *Dorothy K. Hatsukami,* University of Minnesota, Minneapolis, MN.
Discussant: *Neil Grunberg,* Uniformed Services University of the Health Sciences, Bethesda, MD.

IS NICOTINE MORE ADDICTIVE THAN HEROIN OR COCAINE? Jack Henningfield, Caroline Cohen, John Slade and Stephen Goldberg. NIDA Addiction Research Center, Baltimore, MD.