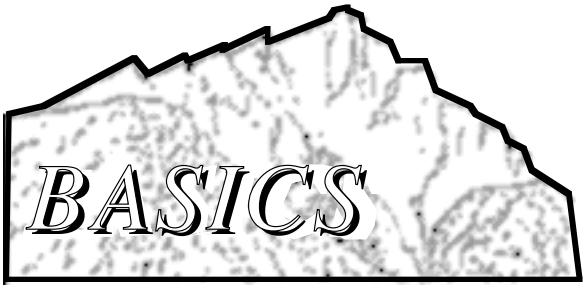

Banff Annual Seminar in Cognitive Science

May 9-10, 2003

Friday, May 9 *Cascade Room*

4:30 pm Welcome and opening remarks by Glen Bodner (University of Calgary)

Please register with Peter Dixon if you have not already done so ($70 for faculty, $25 for students and postdoctoral fellows).

4:45 pm **Peter Dixon** (University of Alberta)
Introduced by Chris Westbury (University of Alberta)

A Knowledge-Based Approach to Scientific Inference

The major portion of the literature on statistics and inference is prescriptive: It attempts to identify mechanical methods that dictate what kind of inferences are appropriate and what kinds of inferences are not. In contrast, I begin with the assumption that the inferences experienced researchers draw from their data are, by and large, sound, and that, in any event, the criterion against which these inferences must be measured is the consensus of the scientific community, not rigid rules. Thus, what is needed is a descriptive analysis of the kinds of inferences that are drawn and the circumstances surrounding those inferences. Two conclusions follow from such an analysis: First, there are a wide range of different types of inferences, and only a small portion of these are served by traditional methods. Second, what counts as a valid inference depends inextricably on knowledge of the theoretical and experimental context. I argue that the statistical procedures that best support these varying, knowledge-based inferences are those that provide a transparent rendering of the evidence provided by the data. In that regard, likelihood ratios are vastly superior to traditional significance tests. Likelihood ratios are easy to calculate, straightforward to interpret, and flexible enough to be adapted to a wide range of rhetorical contexts.

8:00-11:00 pm **Reception & Poster Session** *Cascade Salon*
Sponsored by the *Canadian Journal of Experimental Psychology* and the Canadian Psychological Association.

David G. Lane
University of Saskatchewan
False recall serial position effects

Blaine C. Mullins & Chris Moore
University of Alberta
Gaze viewed in negative contrast may not induce automatic shifts of visuospatial attention

Chris Kelland Friesen, Jennifer Phillips, Gordon E. Salty, & Ron Borowsky
University of Saskatchewan
The perception of gaze without awareness, and fMRI of schematic versus real faces: Some pilot data

Andrea D. Hughes & B. W. A. Whittlesea
Simon Fraser University
Change blindness: Attentional deficit or failure of remembering?

Erica Jeffery, John R. Vokey, & Scott W. Allen
University of Lethbridge
List context and repetition deficits in RSVP

Jody Maton & Valerie Thompson
University of Saskatchewan
An investigation of the effects of belief on the confidence-accuracy relationship in reasoning

Jodi Edwards & Craig Chambers
University of Calgary
The influence of syntactic form on incremental referential interpretation: Evidence from eye movements

Tina Shanahan & Jo-Anne LeFevre
Carelton University
Selection of strategies to solve multidigit addition in varying formats

Carl Hudson, Jodi Edwards, & Penny M. Pexman
University of Calgary
Homophone effects as a window on orthography-phonology interaction in visual word recognition

Jamie Campbell & Valerie Thompson
University of Saskatchewan
A power calculator for one degree of freedom

David McGill & William M. Petrusic
Carleton University
Interpolative modulation of time-order error in visual extent comparisons

Matthew A. Cook & Tammy A. Marche
University of Saskatchewan
Does group recall enhance eyewitness testimony reports?

Gregory Holyk, Penny M. Pexman, & Jennifer Trew
University of Calgary
Long-term phonological interference: How long can it last?

Saturday, May 10 *Cascade Room*

8:30 am Coffee, tea, & juice

Please register with Peter Dixon if you have not already done so.

9:00 am **David A. Balota** (Washington University)
Introduced by Kathleen B. McDermott (Washington University)

Single Syllable Visual Word Recognition in Young and Older Adults

The standard experimental paradigm for providing constraints on models of visual word recognition is to factorially manipulate a set of variables, while attempting to control for extraneous variables that may be related to the dependent measure. There are a number of potential concerns about this approach that have been identified in the recent literature. Item- and subject-level regression analyses will be presented on speeded word naming and lexical decision performance on over 2400 single syllable words for both younger adults and older adults. The results highlight task constraints on the influence of standard predictor variables, such as feedforward and feedback consistency, along with constraints for the viability of available models of lexical processing. Preliminary results will also be presented from a multi-site collaborative study designed to provide naming and lexical decision latencies for over 40,000 words and nonwords.

10:30 Coffee, tea, & pastries

11:00 am **Michael C. Anderson** (University of Oregon)
Introduced by Jamie Campbell (University of Saskatchewan)

Inhibitory Control and the Regulation of Awareness

Sustaining focused attention on an idea or memory requires the ability to prevent potentially distracting representations from entering awareness. In this talk, I will argue that the capacity to control the focus of conscious awareness is subserved in part by executive control processes widely studied in cognitive neuroscience that are recruited to suppress distracting mental representations. In support of this, I will review a program of research that shows that inhibitory processes are recruited (a) during long-term memory retrieval to overcome distraction from competing mental representations, (b) when attention must be sustained on a single idea over a long time, in the interests of some delayed cognitive task, and (c) when the episodic retrieval process itself is to be intentionally terminated in order to prevent an unwanted memory from entering awareness. In each

case, the act of rejecting the unwanted contents from awareness causes a deficit in the later ability to recall the information when it is desired. Based on these findings, it is argued that the capacity to regulate the focus of consciousness may depend in part on inhibitory control mechanisms functionally similar to those used to override prepotent motor responses.

12:30 Lunch

2:00 pm **Stephen J. Lupker** (University of Western Ontario)
Introduced by Penny M. Pexman (University of Calgary)

Evaluating the Impact of a Time-Criterion in Speeded Response Tasks

When designing an experiment, one issue that every researcher must deal with is whether to present each condition of the experiment in a separate block of trials (a "pure block" design) or whether to combine all the conditions in a single block of trials (a "mixed block" design). The choice can have considerable consequences for the ultimate interpretation of the results. That is, pure blocks provide the optimal opportunity for the use of condition-specific strategies, which can lead, at the very least, to quite different levels of performance in the pure versus mixed block situations. A common finding from mixed block designs is that there is a mixing cost (Los, 1996). Each condition has longer latencies than when those same conditions are presented in pure blocks. In word/nonword naming tasks, however, a different, "homogenization," pattern emerges. While there is a mixing cost for the easier stimuli, there is a mixing benefit for the harder stimuli (Lupker, Brown & Colombo, 1997). The present talk will discuss the generality of the homogenization pattern and its implications for models of word recognition. A number of possible explanations of these types of results will be considered, including the pathway-selection/route-emphasis account (Monsell, Patterson, Graham, Hughes & Milroy, 1992; Zevin & Balota, 2000), the input gain hypothesis (Kello & Plaut, 2000) and our own, time-criterion, account (Lupker et al., 1997).

3:30 pm Coffee, tea, & refreshments

4:00 pm **Kathleen B. McDermott** (Washington University)
Introduced by David A. Balota (Washington University)

From the Cognitive Psychology Laboratory to the Operating Room: How Basic Research in Cognitive Psychology is Having Implications for Neurosurgery

I will describe a research program in human memory and its evolution into the clinical domain. Since the early 1990s, I have been pursuing a line of work directed at understanding the mechanisms underlying the creation of false memories. Much of this work has used what has been called the DRM (Deese-Roediger-McDermott) paradigm of inducing false memories, in which people encode related words (e.g., *bed, rest, awake*) and later misremember having heard a nonpresented, related word (e.g., *sleep*). The implications of this work for real-life false memories have been debated, and I will touch on this issue; the real-life implications of this work in other domains, however, is becoming increasingly compelling. That is, in collaboration with colleagues at Washington University (Jeff Ojemann, Steve Petersen, Jason Watson), I have been combining my theoretical understanding of the origins of this memory illusion with a knowledge of functional neuroimaging techniques and a rudimentary understanding of some of the problems neurosurgical colleagues face when planning cortical resections. The outcome is that a theoretical understanding of the DRM memory illusion is – in a fairly direct way – beginning to change the way neurosurgeons plan surgery.

5:30 pm Closing remarks

6:00-8:00 pm **Reception & Poster Session** *Cascade Salon*
Sponsored by the *Canadian Journal of Experimental Psychology* and the Canadian Psychological Association.

Janeen Loehr & Tammy Marche
University of Saskatchewan
Omitting details from post-event information impairs true but not false memory

Norann T. Richard & Glen E. Bodner
University of Calgary
How contagious is the subliminal mere exposure effect?

B. W. A. Whittlesea & M. E. J. Masson
Simon Fraser University
The prototype illusion and repetition blindness: Activation and inhibition or construction and attribution?

Thomas Phenix & Jamie I. D. Campbell
University of Saskatchewan
Effects of multiplication practice on the lure effect: Integrated structures model or retrieval-induced forgetting?

Jennifer Trew & Penny M. Pexman
University of Calgary
Social and cognitive aspects of proverb comprehension

Jennifer Phillips & Ron Borowsky
University of Saskatchewan
Phonological lexical access: Effects of frequency and lexicality in English-French bilinguals

Sara J. Unsworth, Chris Sears, & Penny M. Pexman
University of Calgary
Cultural influences on categorization

Darryl Schneider & Peter Dixon
University of Alberta
Pictures can support situation models in working memory following interruption of reading

Myra Fernandes & Cheryl Grady
Rotman Research Institute
Memory for categorized word lists under divided attention

Eyvind Ohm & Valerie Thompson
University of Saskatchewan
Making inducements effective: Conditional probability, reasoning, and behavioural change

Marcie Penner-Wilger & Jo-Anne LeFevre
Carleton University
Procedure use in basic arithmetic: Developing an objective indicator

Greg Kraushaar, Ron Borosky, Robert Griebel, Sheri Harder, & Gordon Sarty
University of Saskatchewan
Comprehensive fMRI: From pre-operative cognitive localization to post-surgical prognistication

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