



Banff Annual Seminar in Cognitive Science
May 14-16, 1999

The Reconstructive Nature of Memory and Knowing

Friday, May 14 7:30 pm - 10:00 pm: Reception & Poster Session (*Glacier Lounge*)

- Sponsored by the *Canadian Journal of Experimental Psychology* and the Canadian Psychological Association.
- Drink ticket available in registration packet.
- Register with Peter Dixon if you have not already done so (\$60 for faculty, \$20 for students and postdoctoral fellows).

Poster Presentations

Glen Edward Bodner & D. Stephen Lindsay (University of Victoria), *Crossing the border between the states of remembering and knowing*

Peter Dixon (University of Alberta), *Degrees of freedom or arbitrary constraints?*

Mark Fenske & Philip M. Merikle (University of Waterloo), *The effects of attention and stimulus quality on awareness*

Jonathan Fugelsang (University of Saskatchewan), *Beliefs and empirical evidence: The effect of order on cue salience*

William J. Owen (University of Saskatchewan), *Testing the assumption of independent reading processes: An analysis of reading errors*

Paul Siakaluk (University of Calgary), *The effects of nonword orthographic neighborhood size on lexical decision*

Steve Smith (University of Waterloo), *Memory for unconsciously perceived information*

Todd S. Woodward (University of British Columbia), *Dominant task suppression in task switching*

Saturday, May 15 8:30 am - 5:30 pm: Invited Presentations (*Black Bear Room*)

8:30 am Coffee, tea, & pastries

- Register with Peter Dixon if you have not already done so.

8:45 am Welcome and opening remarks by Bruce Whittlesea (Simon Fraser University)

9:00 am **Marcia K. Johnson** (Princeton University)
Introduced by Scott Allen (University of Lethbridge)

"Cognitive and Brain Mechanisms of True and False Memories and Beliefs"

Many, perhaps most, memory distortion reflects failures to identify the sources of mental experience. For example, people sometimes confuse what they inferred or imagined and what actually happened, what they saw or read and what was suggested to them, what one person said and what another said, what they recently heard and what they previously knew, and fiction and fact. Reality monitoring failures are an especially interesting class of memory distortion in which people confuse information derived from perceptual processes and information derived from reflective or self-generated processes. According to the source monitoring framework (e.g., Johnson & Raye, 1981; Johnson, 1991; Johnson, Hashtroudi, & Lindsay, 1993), source confusions arise because activated information is incomplete or ambiguous and because the evaluative processes responsible for attributing such information to sources are imperfect. Both accurate and inaccurate source attributions result from heuristic processes that evaluate a mental experience for various qualities such as amount and type of perceptual, contextual, affective, semantic, and cognitive detail, and from more reflectively complex processes that retrieve additional supporting or disconfirming evidence and evaluate plausibility given general knowledge, schemas, assumptions, and biases. Recent experimental evidence from our lab regarding cognitive mechanisms of source memory and underlying brain structures will be discussed.

10:30 am Coffee & tea

11:00 am **D. Stephen Lindsay** (University of Victoria)
Introduced by Philip Higham (University of Northern British Columbia)

"Postevent Misinformation Effects"

Participants asked to remember an event often erroneously report having witnessed details that had in fact merely been mentioned in postevent information. Throughout the mid 1980s debate focused on whether postevent suggestions impair

ability to remember what was actually witnessed. In the 1990s, researchers have emphasized the question of whether or not misled individuals have the phenomenological experience of remembering witnessing details that were merely suggested to them. It is clear that many false reports in the standard Loftus paradigm reflect aware uses of postevent information (e.g., the individual thinks, "I don't remember what tool I saw in the event, but I remember that I was later told it was a hammer, so I'll say 'hammer'"). It is also clear, however, that some false reports reflect illusory memories of witnessing suggested details. My talk will review research from my lab exploring the conditions that foster such illusory memories of witnessing, including recent experiments (a) using Jacoby's process-dissociation procedure to estimate aware versus unaware uses of postevent information at test, (b) examining intrusions from postevent information that is versus is not "about" the witnessed event, and (c) exploring suggestion-induced false memories for relatively complex and naturalistic autobiographical events.

12:30 pm Lunch

2:00 pm **Jeffrey P. Toth** (Georgia Institute of Technology)
Introduced by Philip Merikle (University of Waterloo)

"The (De)construction of Subjective Experience"

A fluency heuristic has been proposed to underlie feelings of familiarity in recognition memory; all things being equal, items processed more fluently are more likely to be judged "old" regardless of their true episodic status (Whittlesea, 1993). Importantly, however, fluent processing need not support only episodic (context-specific) memory judgments, but can also influence more general judgments concerning world knowledge (Kelley & Lindsay, 1993), personal preferences (Kunst-Wilson & Zajonc, 1980), and other perceptual and interpretive judgments based on subjective experience (Jacoby, Kelley, & Dywan, 1989). What are the 'rules' and operating characteristics by which fluency, derived from prior experience, will have such effects? We examined this question in a series of experiments requiring subjects to make judgments about general word frequency. We found that a single exposure of a word could significantly alter its judged (acontextual) frequency at a later time. However, numerous conditions were also identified in which such alterations of judged frequency did not occur. Possible explanations for the presence and absence of these episodic influences on subjective experience are explored including conscious uses of memory, the availability of an analytic judgment strategy, and the subjects' point of view at the time of judgment. These dimensions may be useful in explaining a variety of reconstructive memory phenomena.

3:30 pm Coffee, tea, & refreshments

4:00 pm **J. Don Read** (University of Lethbridge)
Introduced by Peter Dixon (University of Alberta)

"Judgments About Childhood Memories: Remembering Whether We Always Remembered"

The claim that traumatic experiences have amnesic effects has been based on survivors' observations that there were periods of time in which they did not well remember the experience(s). In turn, the current availability of information and the respondents' perception that it was previously unavailable has been taken as evidence of both the prior loss and subsequent recovery of memory for some event(s). However, these data derive from retrospective judgments about what was available to recall at a particular time in the past, judgments that are likely to be affected by cognitive heuristics and biases. Our research explores these kinds of judgments for childhood autobiographical events and suggests that memory retrieval activities increase the likelihood that respondents will overestimate the extent of their prior memory impairments.

5:30 pm Announcement of the winner of a copy of the complete 1998 volume of *Canadian Journal of Experimental Psychology* .
All registered graduate students and postdoctoral fellows are eligible.

Sunday, May 16 8:30 am - 12:30 pm: Invited Presentations (*Black Bear Room*)

8:30 am Coffee, tea, & pastries

9:00 am **Janet Metcalfe** (Columbia University)
Introduced by Michael Masson (University of Victoria)

"A Hot/Cool System Analysis of Emotional Memory and the Dynamics of Willpower"

The relations among stress, learning, and remembering have a puzzling if not paradoxical history, with research from various laboratories indicating enhanced memory under stress, impaired memory under stress, flashbulb memory under stress, and even no change in memory as a function of stress. Two closely linked systems are postulated here: a cool, hippocampally-based, cognitive 'know' system which maintains complex, bound memories of episodes replete with contextual details, and a hot, amygdala-based, emotional 'go' system which processes and remembers unbound, fragmentary emotional trigger stimuli producing conditional fear responses. The cool system is cognitive, emotionally neutral, contemplative, flexible, integrated, coherent, spatio-temporal, slow, episodic, strategic. It is also the seat of self-regulation and self-control. The hot system is the basis of

emotionality, fears as well as passions-- impulsive and reflexive-- initially controlled by innate releasing stimuli (and thus literally under 'stimulus control'), it is fundamental for emotional (classical) conditioning, and undermines efforts at self-control. The balance between the hot and cool systems is determined by stress, developmental level, and the individual's self-regulatory dynamics. The interactions between these systems allow prediction and explanation of stress-related memory findings. We review relevant evidence--from the cellular and neurohormonal level, to the systems and behavioral level--relating this two-system framework to human memory phenomena exhibited under conditions ranging from mild arousal to traumatic stress. If time permits we will extend this framework to account for the findings on goal-directed delay of gratification and willpower.

10:30 am Coffee & tea

11:00 am **Jonathan W. Schooler** (University of Pittsburgh)
Introduced by Norman Brown (University of Alberta)

"Lost in Translation: Verbal Overshadowing of Non-Verbal Memories"

Considerable research has demonstrated that verbalizing non-verbal memories can impair subsequent memory performance. For example, describing a previously seen face can interfere with individuals ability to correctly identify that face in a line up. This talk will review the evidence that this form of memory interference, termed verbal overshadowing, results from a mismatch between the nonverbal perceptual information associated with the original memory and the verbal information associated with the act of verbal retrieval. Three distinct predictions of the modality mismatch assumption will be considered. 1) The generality of verbal overshadowing - If verbalization disrupts the application of nonverbal knowledge, then the effects of verbalization should generalize across domains that rely on nonverbal knowledge. 2) Processing differences - If it is specifically the language component of verbal rehearsal that produces the interference, then the effects of rehearsal on nonverbal stimuli should be shown to specifically depend on whether or not verbal processes are engaged. 3) Expertise differences - If verbalization specifically disrupts the application of nonverbal knowledge then its effect should depend on individuals' relative verbal and nonverbal expertise. Evidence in support of all three of these predictions will be provided.

12:30 pm Closing remarks by Peter Dixon (University of Alberta)

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