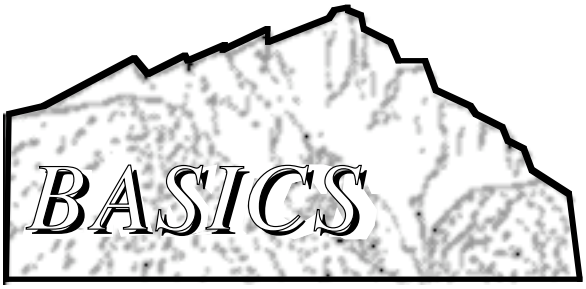

Banff Annual Seminar in Cognitive Science

April 30–May 1, 2004

Friday, April 30 *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 **Andrew P. Yonelinas** (University of California, Davis)
Introduced by Steve Lindsay (University of Victoria)

On the functional nature and neural substrates of recollection and familiarity

Recognition memory is supported by recollection of qualitative information about previous study events and by assessments of stimulus familiarity. Results from behavioral, neuropsychological and neuroimaging studies are reviewed that aim to determine the operating characteristics of these forms of memory and uncover their neural substrates. Various methods have been developed to measure these two forms of memory and have indicated that recollection and familiarity are functionally independent at both encoding and retrieval. Moreover, neuropsychological and neuroimaging results indicate that they rely on partially distinct brain regions.

6:00 pm Dinner Break

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

1. *Categorization and auditory negative priming*
   Launa Leboe, Todd Mondor
   University of Manitoba

2. *Code-switching in Punjabi-English bilinguals*
   Neru Sidhu, Elzbieta Slawinski
   University of Calgary

3. *Creation of new semantic association elicits frontotemporal connectivity*
   Todd S. Woodward, Beat Meier, Elton T. C. Ngan
   Riverview Hospital

4. *Using self-generation to reduce false recognition*
   Raymond W. Gunter, Glen E. Bodner
   University of Calgary

5. *Retrieval-induced forgetting in arithmetic: Distinguishing between inhibition and associative interference mechanisms*
   Thomas Phenix
   University of Saskatchewan

6. *Semantic processing: Is number of features as good as it gets?*
   Jamie Pope, Penny Pexman
   University of Calgary

7. *Retrieval induced forgetting: Inhibition or interference?*
   Andrea Hughes
   Simon Fraser University

8. *Prime validity biases masked priming*
   Norann T. Richard, Glen E. Bodner, Michael E. J. Masson
   University of Calgary

9. *Why all the pessimism? Investigations into the underconfidence-with-practice effect on judgments of learning*
   Heather Tiede, M. Lee, Launa C. Leboe, Jason P. Leboe
   University of Manitoba

10. *"Friends don't say that": Children's understanding of verbal irony and relationships*
    Andrea Krol, Tammy Yacyshen, Melanie Harris, Penny Pexman
    University of Calgary

11. *Thick ice and thin ice look the same: The effect of concreteness, familiarity, and context on proverb processing and comprehension*
    Stacey Ivanko, Penny M. Pexman
    University of Calgary

12. *On the psychophysics of fingerprint identification*
    John Vokey, Jeff Boychuk
    University of Lethbridge

13. *NUANCE: A new genetic programming environment for linear and nonlinear equation modeling*
    Geoff Hollis, Chris Westbury
    University of Alberta

Saturday, May 1 *Cascade Room*

8:30 am Coffee, tea, juice, and pastries

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

9:00 am **Dedre Gentner** (Northwestern University)
Introduced by Suzanne Hala (University of Calgary)

Analogical learning

Analogy—or more generally, structure-mapping—is a general learning process by which abstract knowledge can arise from experience. Carrying out a comparison invites a process of structural alignment and projection that fosters learning in at least four ways: they highlight common relational systems; they promote inferences; they call attention to potentially important differences between situations; and they lead to re-representations that maximize common structure. A key aspect of the human comparison process is that it is preferentially geared towards connected information; this contributes to its power as a learning process.

Most prior work focuses on analogy as a means of importing knowledge from a well-understood case to a less familiar one. This kind of mechanism cannot explain the origins of human learning without postulating a fund of initial knowledge. I focus here on another form of analogical learning -- analogical encoding -- in which comparison between two partly understood situations results in better understanding of both. Analogical encoding operates to bootstrap early learning; but it is also important in adult learners.

The power of analogy is amplified by language learning. Hearing a common label invites comparison between the referents, and this structure-mapping process yields insight into the meaning of the term. The mutual facilitation of analogical processing and language learning is a major reason that humans are so smart.

10:30 Coffee, tea, & juice

11:00 am **Piotr Winkielman** (University of California, San Diego)
Introduced by Jason Leboe (University of Manitoba)

Preferences with and without inferences: The interplay of feelings and beliefs in evaluative judgments

My talk will focus on mechanisms that underlie evaluations -- judgments of goodness and badness. Psychologists tend to examine how evaluations are influenced by descriptive information, or people's beliefs about the object. In contrast, I examine when and how subjective experiences, cognitive and affective feelings, contribute to evaluations. I will present three lines of work.

The first line of my work focuses on the feeling of difficulty triggered by recall of autobiographical memories. I will show that recall difficulty can dramatically change the evaluative implications of descriptive information retrieved from memory. I will also show that recall difficulty enters evaluative judgments via naïve meta-cognitive "theories" linking feeling to judgment.

The second line of my work focuses on the feeling of perceptual and conceptual fluency (processing ease). I will show that fluency is positively marked, perhaps through its automatic association with familiarity. The idea of positive marking of fluency explains some classic preference phenomena, such as the mere-exposure effect, beauty-in-averages effect, as well as predicts many new empirical findings, such as preference for primed, high contrast, high-duration and prototypical items.

The third line of my work examines basic affective reactions elicited by briefly presented emotional facial expression. I will show that these basic affective reactions influence evaluative judgments without producing a consciously "felt" subjective experience. Accordingly, in this last line of work, the influence of basic affect on judgment resists mis-attributional interventions targeting conscious feelings (which reliably eliminate the effects of recall difficulty and fluency experiences). This finding raises the possibility that some evaluations are driven by unconscious affective states.

In discussing all three lines of my research, I will raise the question of when a psychological process gives rise to a subjective experience and when people rely on the experience to make a judgment.

12:30 Lunch break

2:00 pm **Diane Poulin-Dubois** (Concordia University)
Introduced by Susan Graham (University of Calgary)

The foundations of the animate-inanimate distinction in infancy: How motion gets babies off the ground

A fundamental cognitive ability is the capacity to recognize and categorize things in one's surroundings as animate beings (humans and other animals) or as inanimate objects (artifacts and natural kinds). The animate-inanimate distinction appears to have neurophysiological correlates, is universal, and is central to a broad range of more complex conceptual understandings. Given the centrality of the concept of animacy, how knowledge about animacy develops is of critical importance. From as early as 3 months of age human children distinguish between motion patterns generated by moving inanimate objects and motion patterns generated by moving animate objects. By that age, infants can also distinguish between members of each of these broad categories. I have recently argued that one of the ways entities are classified as animate or inanimate is by analysis of dynamic information, such as movement. Dynamic cues relevant to the animate-inanimate distinction include onset of motion, trajectory, and causal roles. In this talk, I will present the results of a set of experiments showing that, by the end of the first year, infants are able to associate dynamic cues with featural information characteristic of an animal or an artifact. For instance, infants as young as 12 months consider a computer-animated vehicle that follows a nonlinear trajectory to be an anomalous event (e.g., a bus jumping over a wall). By 14 months, infants can also make inductive inferences about the motion trajectory of a wide range of animate objects (e.g., animals and people can jump). I will also discuss the mechanisms involved in the development of the animacy distinction after the infancy period.

3:30 pm Coffee, tea, juice, & light snack

4:00 pm **Mike J. Dixon** (University of Waterloo)
Introduced by Chris Westbury (University of Alberta)

Roses are red, and sixes are blue: The basics of grapheme-colour synaesthesia

In synaesthesia, ordinary stimuli can elicit extraordinary experiences. For example when people with grapheme-colour synaesthesia are shown black digits or letters, they perceive not only the black graphemes, but also perceive highly specific colours called photisms (e.g., 5 is green, 2 is red, C is blue). Not all grapheme-colour synaesthetes experience photisms in similar fashion. For "projector" synaesthetes, photisms are perceived in external space as coloured overlays that sit atop the digits or letters. For "associator" synaesthetes, photisms are not experienced in external space but rather "in my mind's eye" or "in my head". First, I will present data from "projector" synaesthetes tested on perceptual grouping, backward masking, and object substitution masking tasks. These data that show that projected coloured overlays can influence synaesthetes' ability to identify ordinary black graphemes. Second, I will present data from various Stroop-type tasks that suggest that photisms are an automatic consequence of viewing black graphemes. Third, I will show that "projector" and "associator" synaesthetes can be distinguished using not only by their self reports, but also by their patterns of results on these Stroop-type tasks. Fourth I will present data from an experiment using "ambiguous" graphemes (e.g., a scoreboard 5 that can be interpreted as the digit 5 or the letter S). The results indicate that both the form of the grapheme, and the meaning of the grapheme (whether it is interpreted as a digit or letter) ultimately determines the colour of photisms. Finally I will present data showing that photisms can have a profound influence on memory.

5:30 pm Closing remarks by Scott Allen (University of Lethbridge)

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

1. *What does meta-metacongnition tell us about metacognition?*
   Bruce W. A. Whittlesea
   Simon Fraser University

2. *How prime awareness affects masked priming*
   Kristen A. Dunfield, Glen E. Bodner
   University of Calgary

3. *Fluency contrast and feelings of familiarity*
   Geoffrey Palmer, Jason Leboe
   University of Manitoba

4. *The time course of phonological intereference and acilitation effects in a word naming task*
   Jennifer L. Trew, Penny M. Pexman, Gregory G. Holyk
   University of Calgary

5. *Surprise! Surprise! A recent unexpected event eliminates novel popout*
   James W. Karle, Goeff J. Palmer, Launa C. Leboe, Jason Leboe
   University of Manitoba

6. *Memory conformity and source attributions: Is not seeing believing?*
   Elisabeth Musch, Glen E. Bodner
   University of Calgary

7. *On misattributing good remembering to a happy past: An investigation into the cognitive roots of nostalgia*
   Tamara L. Ansons, Jason P. Leboe
   University of Manitoba

8. *The point of knowing return: Presupposition and referential prediction in real-time sentence comprehension*
   Valerie San Juan, Craig G. Chambers
   University of Calgary

9. *Language typology in spatial language acquisition and cognitive development: Beyond cognitive determinism*
   Kristine Jensen de López, Mariko Hayashi
   University of Aalborg

10. *The interaction of age and attention on driving performance*
    Mona Motamedi, Elzbieta B. Slawinski, Jane F. MacNeil
    University of Calgary

11. *Dysfunctional lateralization processes generate drug-related approach behavior in dependence*
    Hannah Pazderka-Robinson, Pierre Flor-Henry
    University of Alberta & Alberta Hospital

12. *The relationship between students' cognitive style and child-rearing method in their parents*
    Rasool Kord Noghbi, Maryam Ashkan, Elzbieta Slawinski
    University of Calgary & University of Allameh Tabatabayee

8:00 Conference ends

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