Friday, May 13 *Cascade Room*

4:30 pm Welcome and opening remarks by Scott Allen (University of Lethbridge)

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

4:45 pm **Hervé Abdi** (University of Texas at Dallas)

The PCA Model for Face Recognition and Categorization: The First 20 Years

Principal components analysis (PCA for short) is a standard multivariate analysis technique whose origin can be traced to Cauchy (1815) for the mathematics and Galton (1877) or Pearson (1901) for the statistical or geometric aspect. In the mid and late 1980's, several researchers independently suggested that PCA could be used to analyze face images (i.e., Abdi, 1988; Sirovich & Kirby, 1987; Turk & Pentland,1991). From the beginning, the PCA model was seen both as a convenient way of analyzing the information in a set of images and as a model of human face recognition. From a psychological point of view, the PCA model insists on the relevance of the statistical properties of faces for human recognition. Because PCA can also be implemented as a statistical learning algorithm (e.g., such as neural networks), it has also been seen as a model of learning. These two interpretations of the PCA model (as a tool and as a model) will serve to structure this talk where I will review the first 20 years of the PCA model, mainly from a psychological point of view (computer vision applications are now too numerous to be reviewed).

6:00 pm Dinner Break

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

Saturday, May 14 *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 **Lorraine Allan** (McMaster University)

The Application of Psychophysics to the Perception of Contingency

We must often make a decision even though the information we have is ambiguous or uncertain. One such situation is illustrated by a patient being treated by an allergist. The patient sometimes, but not always, develops hives after eating strawberries. Moreover, the patient sometimes develops hives even when strawberries are not eaten. Another type of ambiguous situation is illustrated by the task confronted by the radiologist. The radiologist must decide whether or not an x-ray indicates the presence of lung cancer. The signals seen in the x-ray are ambiguous, some consistent with lung cancer and others inconsistent with lung cancer. Despite the obvious similarities between the tasks, they have been treated quite differently. The allergy task has often been used by researchers interested in contingency assessment; that is, how humans judge that a cue (strawberry ingestion) imperfectly signals an outcome. The cancer task has often been used by researchers interested in signal detection; that is, how humans make decisions about the presence of a signal (cancer symptoms) in a noisy background. Research concerned with contingency assessment and research concerned with signal detection have progressed independently, each with its own traditions and each motivated by different theoretical perspectives and models. I integrate these two lines of research by suggesting that contingency assessment is a form of signal detection. This psychophysical approach to the analysis of contingency judgment data provides insight into depressive realism and superstitious behaviour.

10:30 am Coffee, tea, & juice

11:00 am **Lee Brooks** (McMaster University)

Grounding in Concept Learning and Medical Education

Initial instruction in identifying medical disorders commonly takes the form of feature lists. Terms in these lists need to be grounded (related to perception) on two levels to function as intended. (1) General language: The initial reference of a term has to be sufficiently general to help a competent speaker. (2) Concept specific: The normal application of a term has to be concept specific to account for the person's judgments of appropriateness of reference. The knowledge that enables concept specific grounding is memory for the various ways the feature can look – knowledge of instantiated features. In decision making, the weighting of these two levels of terms, the general informational level and the more specific instantiated level, change with conditions. The learning involved in this adjustment seems to show some of the same cue interaction and blocking relations discussed in Lorraine Allan's talk.

The metacognitive side of this development of proficiency is that students have to learn to use the "rules" appropriately. Despite the official and normative status of the

stated rules, they cannot be treated as rules in a formal system. They provide the foci of attention for perceptual learning, not sufficient criteria for diagnosis. The diagnostic performance of beginners improves when instructed to "initially trust your sense of familiarity and then check for the full list of features." Diagnostic performance of experts falls if they are initially given a list of all the features (that they subsequently admit are present) in a case. Processing as if the case were a list of individual features is a disadvantage for both experts and beginners. This relation between description and practice may be common in education.

12:30 pm Lunch break

2:00 pm **Alan Lambert** (Washington University in St. Louis)

Everything in Context: Implications for Research and Theory on Automatic Stereotype Activation

Social psychologists often think of stereotypes as learned associations between a particular social category (e.g. Canadians, Mexicans, Blacks) and one's evaluative and/or cognitive appraisal of that group. Recent work in social cognition has shown, moreover, that one's attitude toward that group can be automatically activated upon mere presentation of a category label (e.g. BLACKS) or a prototypical exemplar (e.g. image of a Black man).

However, nearly all of the evidence for automatic stereotype activation has been derived from studies presenting "decontextualized" activation of the category in question. For example, a very common prime in this literature consists of a severely cropped facial photo (Fig 1). Such primes are very effective in activating the superordinate category but this methodology raises important theoretical and practical issues as to how social context plays a role in such activation. For example, to what extent would a Black man activate stereotypically negative associations as a function of whether he is pictured in the context of a prison vs. corporate office? (Fig 2; see also Barden, Maddux, Petty, & Brewer, 2004).

Fig 1

Fig2

I will be presenting two lines of work in my talk. First, I will briefly present research that I, along with my colleagues Larry Jacoby and Keith Payne, have done on automatic activation of racial stereotypes using Jacoby's process dissociation procedure (e.g. Payne, 2001; Lambert, Payne, Jacoby et al. 2003). As I will discuss, the advantage of PD is that it allows decomposition of responses to the priming task into two components, automaticity and control. I shall then present the results of two recent studies that extend our paradigm into "contextualized" primes of the sort noted above. Specifically, we vary orthogonally the ethnicity of the prime along with the social context in which he appears. This work has revealed some new insights into the consequences of social context. For example, if context moderates stereotyping effects, our paradigm is able to show whether

this moderation is due to changes in controlled vs. automatic processes, something that previous priming paradigms in social cognition cannot do.

Along the way I shall discuss some larger implications of social context and its possible effects on automaticity. For example, extremists (e.g. terrorists, strong racists) represent examples of people who do not show context effects, that is, show the same automatized response, regardless of the setting in which group member is observed. Hence, showing the conditions under which context effects do not matter is just as important as showing when they do matter.

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

4:00 pm **Jim Tanaka** (University of Victoria)

Creating an Expert: The Cognitive and Neural Plasticity of Perceptual Expertise

In a blink of an eye, an expert birdwatcher can distinguish a Bachman warbler from a Tennessee warbler or a car expert can discern subtle differences between a '55 and a '56 Chevy. Consistent with these observations, the behavioural evidence indicates that experts identify objects in their domain of expertise at a more specific, subordinate level of categorization than novices. Although the performance of real-world experts has been fairly well characterized in the literature, less is known about how perceptual expertise unfolds over time and what its implications are for new learning. In this talk, I will discuss experiments that examine the acquisition and consequences of expertise employing behavioural measures and event-related potentials. In these experiments, participants learned to classify ten varieties of wading birds and ten varieties of owls at either the subordinate, species (e.g., "white crown heron," "screech owl") or family ("wading bird", "owl") level of classification. Pre- and post-training performance was measured in a "same/different" discrimination task in which participants judged whether pairs of bird stimuli belonged to the "same" or "different" species. Participants trained in species level discrimination demonstrated greater transfer to novel exemplars and novel species categories than participants trained in family level discrimination. A corresponding shift was found in the participant's electrophysiological response to familiar and new bird stimuli. Specifically, 250 msec after stimulus onset, stimuli learned at the species level elicited an enhanced negative deflection in posterior recording channels (N250) relative to stimuli learned at the family level. Mirroring the behavioural findings, the N250 generalized to new images of familiar subordinate level species and novel species. Collectively, the behavioural and neurophysiological evidence indicates that the expert has an advantage over the novice not only in regard to the recognition of objects from familiar expert categories, but also in the acquisition of new object categories in their domain of expertise.

5:30 pm Closing remarks by John Vokey (University of Lethbridge)

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

Poster Session I

Friday 8:00 - 11:00 pm

Sponsored by the *Canadian Journal of Experimental Psychology* and the Canadian Psychological Association.

1. **Are there modality-specific verb/noun access dissociations in normals?: Evidence from a syntactic priming task**
   Signy Sheldon, Chris Westbury
   University of Alberta

2. **Mapping out the relationships between 15 variables involved in lexical access**
   Geoff Hollis, Chris Westbury
   University of Alberta

3. **Accommodation and the interpretation of presupposition during referential processing**
   Valerie San Juan, Craig G. Chambers
   University of Calgary

4. **Meaning matters! The matter of meaning in children's use of word order for adjective/noun phrases and noun/noun compounds**
   Gail Moroschan, Elena Nicoladis
   University of Alberta

5. **Picture processing provides a window on semantic representation**
   Ian Hargreaves, Penny Pexman
   University of Calgary

6. **Influence of orthographic frequency of words on the HAL model of semantic space**
   Cyrus Shaoul, Chris Westbury
   University of Alberta

7. **Semantic facilitation, semantic inhibition, and response competition in the Stroop task**
   James R. Schmidt, Jim Cheesman
   University of Saskatchewan

8. **Electroencephalographic investigation of auditory scene analysis**
   J. Boychuk, M. Tata, S. W. Govenlock, R. J. Sutherland
   University of Lethbridge

9. **Time enough to reason**
   Jody M. Shynkaruk, Valerie A. Thompson
   University of Saskatchewan

10. **The effect of internal validity on cue selection: A post-Brunswikian interpretation of adaptive decision-making**
    Peter James Lee, Norman R. Brown
    University of Alberta

11. **Does left-to-right processing account for branching preferences in 3N compounds? Evidence from Romance languages**
    Anamaria Popescu, Elena Nicoladis
    University of Alberta

12. **False recall serial position effects**
    David Lane, Tammy A. Marche
    University of Saskatchewan

13. **Estimated event counts, sex and recall strategy**
    Walter A. Espinoza, Peter L. Hurd, Norman R. Brown
    University of Lethbridge

14. **Effects of blocking and instructions on recognition of event details**
    Denise Richardson, Glen E. Bodner
    University of Calgary

15. **Retrieval processes for event-cued prospective memory tasks**
    Jie Gao, Peter Graf
    University of British Columbia

16. **Plans for success: Planning strategies supporting prospective memory**
    Daniel Siu, Peter Graf
    University of British Columbia

17. **Prospective memory in obsessive-compulsive checkers**
    Carrie Cuttler, Peter Graf
    University of British Columbia

Poster Session II

Saturday 6:00 - 8:00 pm

Sponsored by the *Canadian Journal of Experimental Psychology* and the Canadian Psychological Association.

18. **Retrieval-induced forgetting: A case of interference**
    Andrea Hughes
    Simon Fraser University

19. **Retrieval induced forgetting: Release from interference**
    Antonia Kronlund, Andrea D. Hughes
    Simon Fraser University

20. **Voluntary memory suppression**
    Stanley W. Govenlock, John R. Vokey
    University of Lethbridge

21. **Fingerprint matching and naïve observers**
    Megan Torry, John R. Vokey
    University of Lethbridge

22. **What happens to masked priming effects under cognitive load?**
    Stephanie Stalinski, Glen E. Bodner
    University of Calgary

23. **The long and short of priming from word body neighbors**
    Jennifer L. Trew, Penny M. Pexman
    University of Calgary

24. **Masked priming for implicitly paired associates**
    Andreas Breuer, Glen E. Bodner
    University of Calgary

25. **Neighbourhood frequency effect in masked priming**
    Mariko Nakayama, Cristopher R. Sears
    University of Calgary

26. **Emerging irony comprehension and executive functioning in school-aged children**
    Cara Tsang, Suzanne Hala, Kristin Rostad, Valerie San Juan
    University of Calgary

27. **Frequency-based judgments of contingency are not biased by outcome density**
    Matthew Crump, Lorraine G. Allan, Samuel Hannah
    McMaster University

28. **The relation between source monitoring and executive functioning in preschool aged children**
    Marcia Gordeyko, Suzanne Hala, Valerie San Juan, Kristin Rostad
    University of Calgary

29. **Is it funnier if I mock you directly or indirectly?**
    Jill Green, Penny M. Pexman
    University of Calgary

30. **The inferential basis of attitudinal responding**
    Rehman Mulji, Bruce W. A. Whittlesea
    Simon Fraser University

31. **"How would you order a beer?" Cultural differences in the use of conventional gestures for numerals**
    Simone Pika, Elena Nicoladis, Paula Marentette
    University of Alberta

32. **Judging probable truth and perceived effectiveness for conditional statements**
    Eyvind Ohm, Valerie A. Thompson
    University of Saskatchewan

33. **Evidence for No Effect**
    Peter Dixon
    University of Alberta

34. **Readability of text on a personal digital assistant**
    Hiroe Li, Peter Graf
    University of British Columbia

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