



Banff Annual Seminar In Cognitive Science  
May 2-3, 2009  
Inns of Banff

## Friday May 1

4:30 PM Welcome and opening remarks

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

4:45 PM **Richard Ridderinkhof** (University of Amsterdam)

*Action and Desire: Affective Modulations of Adaptive Decision-Making*

Massive research efforts in cognitive neuroscience are now beginning to advance our understanding of the neural circuits that support cognitive control processes as involved in adaptive decision-making. Yet, the neural mechanisms underlying affective modulations of processes such as conflict detection, performance monitoring, learning from feedback, and reward-based decision-making, are still poorly understood. Moreover, we're only beginning to scratch the surface when it comes to studying changes in these neurocognitive processes as related to normal aging or Parkinson's disease. Here we will review the contributions of recent multi-method efforts, discussing recent studies and work in progress, and evaluating the potential advance yielded by such approaches.

6:15 PM Dinner break

8:00-11:00 PM Reception and poster session (Sponsored by the *Canadian Journal of Experimental Psychology* and the Canadian Psychological Association)

## Saturday May 2

8:30 AM Coffee, tea, juice, pastries

9:00 AM **Penny Pexman** (University of Calgary)

*It's Fascinating Research: The Cognition of Verbal Irony*

Verbal irony is nonliteral language that makes salient a discrepancy between expectations and reality and conveys an attitude indirectly; sarcasm is one form of verbal irony. Appreciation of verbal irony requires complex inferences about a speaker's beliefs and intentions. For researchers who study verbal irony, a critical question is: How do we grasp the meaning of ironic language? The parallel constraint-satisfaction approach holds promise as an answer to this question. By this account, multiple cues to ironic intent, such as tone of voice, incongruity, and knowledge of the speaker, are processed rapidly and in parallel and this information is coordinated with the utterance itself in order to construct a coherent interpretation which is the best fit for the activated information. Recently, we have tested the viability of this account using a variety of processing measures. Further, research with individuals who struggle with irony comprehension (typically developing children, individuals with autism spectrum disorder) has provided new clues about the complex process by which ironic meaning is inferred.

10:30 AM Coffee, tea, juice

## **BASICS 2009**

11:00 AM **Kenneth M. Prkachin** (University of Northern British Columbia)

### *The Nexus of Pain*

Understanding pain and its role in human functioning requires analysis at biological, cognitive, affective, behavioural and social levels. This presentation will outline concepts and findings from a program of research focused on a key pain phenomenon—behavioural expression. Pain expression can be conceived productively as a nexus, connecting basic determinants of pain to the social world in which it is broadcast and by which it is regulated, in part. The nexus model helps to frame questions about how pain can be inferred, what kinds of intrapersonal experiences influence it, how it regulates interpersonal interaction and the nature of the social forces it stimulates. The specific properties of pain signals will be described as will be recent technological developments that provide insight into their dynamic properties. Studies addressing the ways in which others respond to evidence of suffering will also be reviewed, including recent work on clinical “underestimation bias” and empathy.

12:30 PM Lunch break

2:00 PM **Jessica L. Tracy** (University of British Columbia)

### *The Nature of Pride*

One of the major findings in the behavioral and social sciences is the discovery that a small set of “basic” emotions have distinct, universally recognized, nonverbal expressions. This finding promoted widespread acceptance of Darwin’s (1872) claim that emotions are an evolved part of human nature, but also diverted attention away from emotions assumed to lack universal expressions, such as the unique class of “self-conscious” emotions. However, recent research suggests that at least one self-conscious emotion—pride—may fit within the Darwinian framework.

I will present a series of studies demonstrating that pride has a distinct nonverbal expression which is reliably and cross-culturally recognized by adults and children, through an automatic cognitive process. Furthermore, the recognizable pride expression is spontaneously displayed in response to success, by sighted and blind individuals across cultures. These findings suggest that the pride expression is likely to be an innate behavioral response to success, which may have evolved to serve a fundamental social function. In fact, new research suggests that the pride expression may function as a status signal, sending a message that is distinct from other positive and negative emotions, implicitly perceived, and powerful enough to override contradictory contextual information.

Other research on the psychological structure of pride supports this functionalist account. Analyses of the semantic meaning of pride, the dispositional tendency to experience pride, and actual pride experiences suggest that there are two distinct pride facets, consistent with the theoretical distinction between “authentic” and “hubristic” pride. These findings help explain how the experience of pride may serve a complementary adaptive function to its expression. Specifically, each facet of pride is linked to a distinct status-attainment and maintenance strategy (i.e., “dominance” vs. “prestige”), suggesting that the two facets may have evolved separately to motivate the divergent behaviors needed to attain each kind of status. Overall, research from my lab suggests that pride is a complex emotion that is closely linked to self-esteem, narcissism, achievement, and status, and may be an evolved—and certainly a fundamental—part of human nature.

## **BASICS 2009**

3:30 PM Coffee, tea, juice, cake

4:00 PM **Adam K. Anderson** (University of Toronto)

### *Form and Function in Facial Expression of Emotion*

Facial expressions are instrumental in externalizing one's internal emotional state and thus in regulating social interactions. However, facial expressions not only “express” emotions but may also have adaptive functions for the sender beyond their established communicative value. Over 130 years ago, Darwin hypothesized that emotional expressions originated in a less appreciated functional role, to modify preparedness for perception and action. We examined whether the origin of facial expressions associated with different emotional states may serve to alter the function of sensory systems whose receptors reside on the face in the service of regulating sensory input. We present evidence for this thesis through a convergence of methods, including visual statistical modeling of expression appearance, visual and olfactory psychophysics, eye movement recording, and structural MRI. Our results provide evidence for two of Darwin's evolutionarily derived principles of emotional expressive behavior: 1) the principle of “serviceable associated habits” or “function”—whereby specific facial expressions originate in patterns of movement serving adaptive functions for the expresser, and 2) the principle of “antithesis” or “form”—whereby emotions with opposite functions are opposites in physical configuration. These convergent sources of evidence demonstrate that facial expressions are not arbitrarily shaped social signals, but may have differentiated from an underlying origin as sensory adaptations.

Our second thesis is despite these origins, facial expressions have likely been co-opted, maintained, and further shaped for their more primary role as social signals. Evidence for this exaptation or co-opting of an original sensory opposition for the purposes of social communication comes from two sources. First, using psychophysical scaling and face adaptation procedures, we show how oppositions in facial expression structure are mirrored in the representations of facial expression space supporting expression recognition. Specifically, we suggest facial expression recognition rests upon high-level opponent coding of two fundamental dimensions underlying expression space, similar to low-level opponent coding found in color perception. Second, in a case study of the exaptation of the sensory regulatory function of facial expressions toward social communication, we show how expressions of social and moral disgust in response to unfair treatment might originate from a primitive facial response to the rejection of bad tastes. This provides evidence for the oral origins of moral disgust. In sum, through examination of the putative sensory origins and present day communicative functions of emotions this research program demonstrates new insights into the architecture of affective representations.

5:30 PM Closing remarks

6:00-  
8:00 PM Reception and poster session

## Posters Friday 8:00-11:00

1. Maxine Crawford, Sandra Vermeulen (Thompson Rivers University), *The effects of self regulation on state anxiety*
2. Bob Uttl, Kelly Kisinger (Red Deer College), *Canadian avalanche accidents: Prevention values of obvious clues method*
3. Kelly Kisinger, Bob Uttl (University of Calgary), *Meaning of missing values in accident records*
4. Jacqueline Cummine, Carrie Esopenko, Gordon Sarty, Vasily Vakorin, Ron Borowsky (University of Saskatchewan), *The regularity x frequency effect on naming behaviour and fmri bold activation*
5. Heather L. Tiede, Murray Singer, Karen Mercure (University of Manitoba), *Feelings of knowing and subjective ease of retrieval*
6. Carrie Esopenko, J. Cummine, G. Sarty, R. Borowsky (University of Saskatchewan), *Evidence for graded somatotopic-semantic representations in the fronto-central regions: The effect input modality and action properties on semantic processing*
7. Rebecca Todd, Debbie Talmi, Adam K. Anderson (University of Toronto), *Emotional arousal enhances the vividness of perceptual experience and memory*
8. H. van Steenbergen, G.P.H. Band, and B. Hommel (Leiden University), *Emotional arousal drives reflexive saccades*
9. Tricia Lawrie, Katherine D. Arbuthnott (University of Regina), *The role of featural versus configural processing in the cross-race effect*
10. Adam M. Hughes, Tara Whitten, Clayton T. Dickson, Jeremy B. Caplan (University of Alberta), *Detecting cognitively relevant oscillations across species and brain states*
11. Brittany A. Weikum, Andrew J. Howell (Grant MacEwan College), *Psychological essentialism, stigma, and mental illness*
12. Johnathan Bown, Nicole D. Anderson (Grant MacEwan College), *The role of wakefulness on visual adaptation*
13. Enoch Ng, Eric L.G. Legge, Jeremy B. Caplan (University of Alberta), *The method of loci and the structure of verbal memory*
14. John Granzow, John R. Vokey (University of Lethbridge), *Making the pitch with a hum and a haw*
15. Nicole D. Anderson, Shauna Sam (Grant MacEwan College), *The effect of visual noise on grapheme-colour synaesthesia*
16. Jennifer Dahl, Penny Pexman, Ian Hargreaves, Jeremy Johnson (University of Calgary), *More pieces to the number of features puzzle in memory recall*
17. Cody Tousignant, Glen Bodner (University of Calgary), *Ratings of beauty are influenced by list context*
18. Daniel Greeve, Miranda Lucas, Rodney Schmaltz (Grant MacEwan College), *From Darwin to Dio: An investigation into the theoretical basis for musical preference*
19. Aimee L Skye (Grant MacEwan College), *Domain knowledge and specific instances affect indices of contingency learning*
20. Thomas Phenix, Ashley Marchi (University of Regina), *Do math beliefs affect math performance?*
21. Emma Climie, Suzanne Hala, Annik Mossiere (University of Calgary), *Processing speed in bilingual preschool children*
22. Brandon Yardy, Drew Rendall, Alan Nielsen (University of Lethbridge), *Sound symbolism and the bouba kiki phenomenon*
23. Mitchell LaPointe, John R. Vokey (University of Lethbridge), *The PCAs of natural scenes*
24. Holly-Anne Dalrymple, Jodie Jacob, Michele Wellsby, Paul Siakaluk, William Owen, (University of British Columbia), Penny Pexman (University of Calgary), *The embodied insult Stroop effect*

## Posters Saturday 6:00-8:00

1. Mekale Kibreab, Bob Uttl (University of Calgary), *Prospective memory questionnaires are reliable but not valid*
2. Dylan Smibert, Bob Uttl (University of Calgary), *Student teaching evaluations: What is on student minds when they rate their professors?*
3. Chelsea Quinlan, Tracy L. Taylor (Dalhousie University), *The effects of emotional valence on item-method directed forgetting*
4. Janel Fergusson, Peter Graf (University of British Columbia), *Individual differences in prospective memory: Time flies sometimes*
5. Cyrus Shaoul, Chris Westbury (University of Alberta), *Agreeing with Google: We are sensitive to the relative orthographic frequency of phrases*
6. Mamata Pandey, Chris Oriet (University of Regina), *The nature of the response set*
7. Lee-Ann McKay (University of Calgary), Sophie Jacques (Dalhousie University), *Labels or attributes: Preswitch rule learning strategies and their effects on postswitch performance on the DCCS*
8. Kristine A. Peace, Jeff Harder (Grant MacEwan College), *Fragmentation or flashbacks?: The features and consistency of PTSD versus non-PTSD trauma narratives*
9. Michelle Chan, Yang Liu, Bernhard Ross, Guy Earle, Jeremy B. Caplan (University of Alberta), *Effects of instruction on memory judgments of order*
10. Deanna L. Forrester, Kristine A. Peace (Grant MacEwan College), *From sobs to sentencing...: The effects of gender and emotionality in victim impact statements on sentencing outcomes*
11. Mayank Rehani, Jeremy B. Caplan (University of Alberta), *Associative interference in human memory*
12. Leanna Cruikshank, Jeremy Caplan, Anthony Singhal (University of Alberta), *Human theta: A neural mechanism for sensorimotor integration?*
13. Juanita Whalen, Penny M. Pexman, Alastair J. Gill, Scott Nowson (University of Calgary), *A comparison of irony use in two computer-mediated settings*
14. Brian Duffels, Peter Dixon (University of Alberta), *The use of allocentric information in reorientation*
15. Aaron A Brown, Glen E. Bodner (University of Calgary), *Masked nonword priming: Does backwards processing eliminate the fluency bias?*
16. Jody E. Arndt, Esther Fujiwara (University of Alberta), *Trait emotion regulation promotes attentional vigilance for negative information*
17. Christopher R. Madan, Christine S. M. Lau, Jeremy B. Caplan, Esther Fujiwara (University of Alberta), *Emotion hinders relational learning*
18. Catherine Ortner, Adam K. Anderson, Philip D. Zelazo (Thompson Rivers University), *Mindfulness as an emotion regulation strategy: A pilot study of its effects on self-report and cognitive performance*
19. Kristin Newman, Jennifer Ference, Charmaine Thomas, Jeremy Johnson, Christopher Sears (University of Calgary), *Eye fixations to emotional images in the dysphoric and the nondepressed*
20. Laura Gothreau, Doug P. VanderLaan, Nancy H. Bartlett, Paul L. Vasey (University of Lethbridge), *Sexual orientation differences in childhood separation anxiety in Canada*
21. Laura Ewert, Michael Woloszyn (Thompson Rivers University), *Recall for facial expressions is affected by the emotional quality of music presented during study*
22. Kasia Pisanski, Drew Rendall (University of Lethbridge), *The effects of voice pitch and timbre on judgments of body-size, attractiveness, and masculinity*
23. Shawn Tan, Peter Dixon (University of Alberta), *The SNARC effect, magnitude representation, and crosstalk*

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## **Notes**