



BASICS 2013
May 3-4
Inns of Banff

32nd Banff Annual Seminar In Cognitive Science

Friday May 4

5:00 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).

5:15 pm Jody Culham (University of Western Ontario), “The treachery of images”: How real objects affect human, brain processing during action, perception, and cognition tasks

For reasons of convenience and experimental control, neuroimaging studies, like most studies in cognitive neuroscience more generally, typically employ two-dimensional images as stimuli. But are images a valid proxy for the real objects that they represent? My lab has developed new apparatus (the Delivery of Real Objects for Imaging Device or DROID) to rapidly present real objects and 2D photographs of those same objects as stimuli in functional magnetic resonance imaging (fMRI) studies. Across several experiments, we have found that the brain does not process photos and real objects as equivalent. First, two fMRI techniques that examine neural coding (fMRI adaptation and multivoxel pattern analysis) have revealed differences in the representations of photos and real objects in brain areas implicated in object recognition. Second, even in a high-level cognitive task of assigning value to stimuli, neural signals are modulated by stimulus realness. Specifically, a neural signal in ventromedial prefrontal cortex shows a stronger valuation-correlated signal for real objects than photos. Taken together, these results suggest that real objects have important features, perhaps including their potential for interaction, that affect brain responses across a range of action, perception and cognition tasks.

6:45 pm Dinner break

8:30 pm Reception and poster session

10:30 pm Adjourn

Saturday May 5

8:30 am Coffee, tea, juice, pastries

9:00 am **Paul Siakaluk** (University of Northern British Columbia), *Embodiment effects in lexical processing*

Embodied cognition is the idea that knowledge gained through sensorimotor and emotional experience underlies much conceptual knowledge. Within the past ten to fifteen years, there has been considerable interest in examining embodiment effects in language processing. My research efforts are primarily concerned with examining embodiment effects in the processing of single words and insults. In this talk, I will present evidence that: (1) sensory and motor knowledge (as measured by the dimensions of imageability and body-object interaction, respectively) are integral aspects of lexical conceptual knowledge for concrete nouns; (2) emotional knowledge (as measured by emotional experience) is an integral aspect of lexical conceptual knowledge for abstract nouns; and (3) bodily knowledge is an integral aspect of lexical conceptual knowledge for many English insults. These sources of evidence have been obtained from a variety of word recognition tasks (e.g., lexical decision, semantic categorization, Stroop). I will propose that my research findings are consistent with several

independent but inter-related theoretical frameworks, including Barsalou's (1999) *perceptual symbol systems framework*, Vigliocco, Meteyard, Andrews, and Kousta's (2009) *semantic representation framework*, and Hino and Lupker's (1996) *semantic feedback activation framework*.

10:30 am Coffee, tea, juice

11:00 am **Jessica Grahn** (University of Western Ontario), *The perception of musical rhythm: Auditory and motor system involvement*

Moving to musical rhythm is an instinctive, often involuntary activity. Even very young children move to the beat without any special musical training, but how does the brain produce this behaviour? In this talk I will describe how perception of musical rhythms activates a network of cortical and subcortical motor areas, even when no movement is made. Converging evidence will be shown from fMRI studies of musicians and non-musicians and neuropsychological studies of patients with Parkinson's disease demonstrating that the basal ganglia play a special role in beat perception. Finally, individual differences in rhythmic ability will be considered.

12:30 pm Lunch break

2:00 pm **William Hirst** (New School for Social Research), *Conversational influence on memory and the construction of collective memories*

People often communicate with other about the past. In some instances, one person informs others of something new to them. In other instances, the conversation concerns a past event that was experienced by all participants. This latter form of communicative remembering is perhaps unique to humans. How do conversations about a shared past reshape the memory of conversational participants? And do changes in memory increase the degree of mnemonic convergence across participants? If it does, then conversations can serve as a means of building collective memories within a community. Although there are many possible ways a conversation can reshape participant's memory, the present talk focuses on silences that arise within the conversation. That is, conversational remembering is usually selective: some memories are retold, while others go unmentioned. The talk explores how this selective remembering can induce forgetting of the silenced material, the conditions under which such socially shared retrieval-induced forgetting might be expected to occur, and the consequences this has for the formation of collective memories.

3:30 pm Coffee, tea, juice, cake

4:00 PM **Scott Glover** (Royal Holloway University of London), *Planning versus online control in real and imagined actions*

Discrete movements such as reaching and grasping can be divided into two stages. Prior to movement initiation, a planning stage selects an appropriate motor program whereas during execution, an online control stage monitors and if need be adjusts the action in flight. An interesting functional distinction between these two stages is that whereas planning processes are largely accessible to consciousness, online control processes are automatic and unconscious, a fact that has implications for how planning and control are represented in motor imagery. In recent studies we have shown that whereas motor imagery is accurate at representing the output of action planning, the output of online control relies instead on

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biased cognitive time estimation processes. A planning-control account of motor imagery is also able to explain many of the other discrepancies between real and imagined actions.

5:30 pm Closing remarks

6:00 pm Reception and poster session

8:00 pm Adjourn

Posters Friday 8:30-10:30

- 1 Donald Atkin, Anthony Singhal, Peter Dixon (University of Alberta), *Response selection and the LRP*
- 2 Sarah Reith, Elaine Waddington Lamont (Thompson Rivers University), *The effect of chronotype, locus of control and conditions of temporal certainty and uncertainty on subjective stress levels*
- 3 Abbey McAuley, Michael Woloszyn (Thompson Rivers University), *The effect of pre-task visualization on task performance*
- 4 Taeh Haddock, Suzanne Hala, Lee-Ann McKay (University of Calgary), *The influence of distracter items on source monitoring performance in 4-year-olds*
- 5 Marla Mickleborough, Layla Gould, Paul Babyn, Ron Borowsky (University of Saskatchewan), *Neural networks of attention in migraineurs between headache attacks*
- 6 Joshua Gallup, Allison Myggland, Melike Schalomon, Trevor Hamilton (Grant MacEwan University), *An investigation of episodic-like memory in zebrafish*
- 7 Tony Chaston, Kyle Gardiner (Mount Royal University), *The effect of route complexity and encroachment on time and distance perception of virtual outdoor routes*
- 8 Lei Zhang, Weimin Mou (University of Alberta), *Dissociate the position error and heading error of spatial updating during physical and visual locomotion*
- 9 Nicole Netelenbos, Jordan Bartlett, Mackenzie Hanna, Yelin Hu, Melissa Paulgaard, Yanjun Shi, Fangang Li (University of Lethbridge), *Speech production of French immersion children*
- 10 Adam Holcombe, Adam Howorko, Russ Powell, Melike Schalomon, Trevor Hamilton (Grant MacEwan University), *Care for a drink? Differing types of ethanol consumption alter zebrafish behaviour during withdrawal*
- 11 Austen Smith, Izabela Szelest, Lorin Elias (University of Saskatchewan), *Target finding while the sun is moving*
- 12 Russell A. Powell, Rodney M. Schmaltz, Thomas Bailie, Brett Mercier (Grant MacEwan University), *Just get started: Strategies for preventing procrastination*
- 13 Kelly McManus, Lauren D. Goegan, Gina L. Harrison (University of Victoria), *"Things I know about writing": Measuring metacognitive knowledge in elementary school writers*
- 14 Kelsey Berntson, Samantha Alcock, Cheryl Techentin (Mount Royal University), *Is there a sarcastic facial expression?*
- 15 Brianne Debler, Dave Saraswat, Simbarashe Nyazika, Michelle Chan, Anthony Singhal (University of Alberta), *The relationship between physical activity and driving performance: Keeping your heart rate up may make a difference*
- 16 Alexander Taikh, Glen E. Bodner (University of Calgary), *Evaluating the basis of the between-subject production effect*
- 17 James Farley, Peter Dixon (University of Alberta), *Mind wandering, reading, and logical inference*
- 18 Cory Tam, Oliver Schweickart, Norman R. Brown (University of Alberta), *Understanding the anchoring effect: The role of the comparison question*
- 19 A. Nicole Burnett, Glen E. Bodner (University of Calgary), *Generating better readers and/or generators across study-test blocks*
- 20 Shaylah Swan, Megan Duffy, Cheryl Techentin (Mount Royal University), *The lighter side of contempt: Comparing sarcastic and contemptuous facial expressions*

Posters Saturday 6:00-8:00

- 1 Kailee Moir, Catherine Ortner (Thompson Rivers University), *Emotion regulation under different levels of certainty and the cognitive effort required*
- 2 Camille C. Weinsheimer, Mark J. Huff, Glen E. Bodner (University of Calgary), *Protecting memory from misinformation: Take two tests and recall me in the morning*
- 3 Renee B. Matsalla, Cody Tousignant, Glen E. Bodner (University of Calgary), *Effects of playlist construction on music evaluations*
- 4 Bob Uttl, Carmela A. White, Daniela Wong Gonzalez, Joyce M. Hodgson (Mount Royal University), *Measurement of prospective memory*
- 5 Natalie de Bruin, Claudia Gonzalez (University of Lethbridge), *Spatial attention biases in visually guided grasping*
- 6 Carmela A. White, Bob Uttl, Alain Morin (Mount Royal University), *The numbers tell it all: Students don't like numbers!*
- 7 Andrew Nicholson, Penny M Pexman, Juanita M Whalen (University of Calgary), *Children's processing of verbal irony: The earliest moments*
- 8 Layla Gould, Kathryn Anton, Ron Borowsky (University of Saskatchewan), *Extending the dual-route model of reading: Where words and pictures interact*
- 9 Sarah Elke, Diya Shi, Mahsa Khoei, Aamena Kapasi, Sandra A. Wiebe (University of Alberta), *Neural correlates of response conflict and emotional regulation in middle childhood*
- 10 Lisa Pascal, Alan Scoboria (University of Windsor), *Exploring the cross-race effect using police lineups: A preliminary analysis*
- 11 Christopher Madan, Anthony Singhal (University of Alberta), *Introducing TAMI: An objective test of ability in movement imagery*
- 12 David M. Sidhu, Rachel Kwan, Penny M. Pexman (University of Calgary), Paul D. Siakaluk (University of Northern British Columbia), *Effects of relative embodiment in lexical processing of English verbs*
- 13 Daniela Wong Gonzalez, Bob Uttl, Kayla Mathison (Mount Royal University), *Meta-analyses meta-analyzed: A few conform to PRISMA and MARS guidelines*
- 14 Andrea T. Shafer, Sasha Vulic, Vivian Chan (University of Alberta), Lihong Wang (Duke University), Jessica Van Vliet, Sunita Vohra (University of Alberta), Florin Dolcos (University of Illinois Urbana-Champaign), Anthony Singhal (University of Alberta), *Effects of mindfulness training on emotional distraction and attentional control in adolescents with mental health disorders*
- 16 Jason Flindall, Claudia Gonzalez (University of Lethbridge), *Grasp-to-eat: An analysis of handedness*
- 17 Jennifer L. Briere, Jamie Campbell (University of Saskatchewan), *Subtraction of briefly displayed dot patterns: What counts?*
- 18 Amanda Ward-Sutherland, Giancarlo Diano, Fangfang Li (University of Lethbridge), *The development of gendered-differentiated speech in adolescence*
- 19 Janeen Loehr (University of Saskatchewan), *Sensory attenuation for jointly produced action effects*
- 20 Ruojing Zhou, Weimin Mou (University of Alberta), *What does environment shape tell us: Goal localization and environment configuration*

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Notes