

22ND ANNUAL JOSEPH R. ROYCE RESEARCH CONFERENCE

MARCH 7, 2008

Sponsored By:

Department of Psychology
Faculty of Arts

Faculty of Science
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PRESENTATIONS

8:30 - 10:00

10:15 - 11:45

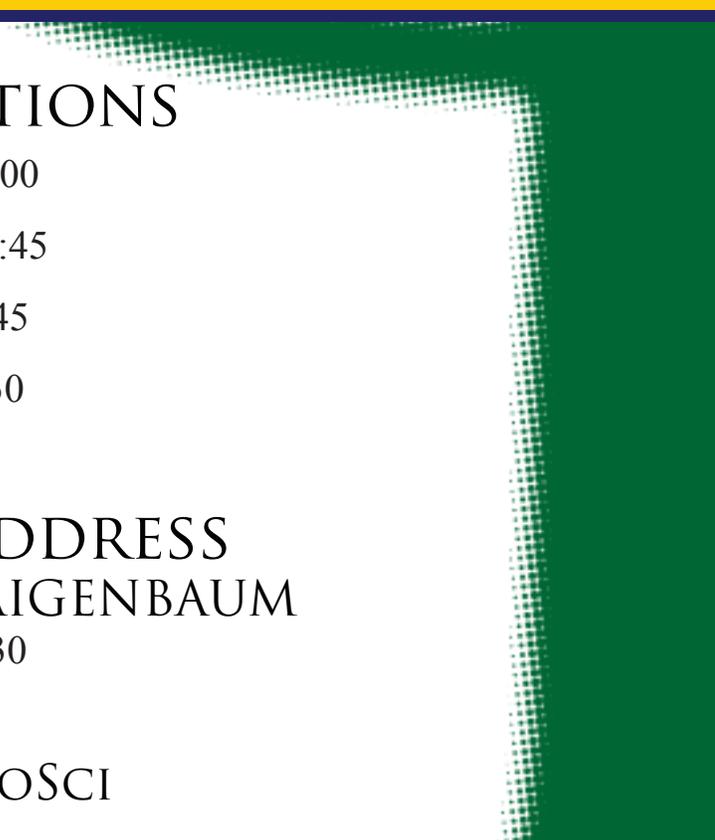
1:15 - 2:45

3:00- 4:30

KEYNOTE ADDRESS
DR. LONNIE ZWAIGENBAUM

3:00 - 4:30

CW410 BIOSCI



Schedule at a Glance

Morning Session 1 – CW 410 Biological Sciences Building

- 8:30** **Rehabilitation following intracerebral hemorrhage in rats**
A. Auriat & F. Colbourne
- 8:45** **'Synch'-ing to new depths: fast activity across layers of the hippocampus**
T. Whitten, T. Wolansky, & C.T. Dickson
- 9:00** **Associative Learning in a Sit-and-Wait Predator**
L. M. Guillette & K. L. Hollis
- 9:15** **Sex Offender Minimization and Denial: Implications for Clinical Practice**
S. Jung
- 9:30** **Use of imperfectly predictive categories in serial position estimation**
R. Latimer & N. R. Brown
- 9:45** **Differential Outcome Effects in Spatial Search Tasks**
E. L. G. Legge & M. L. Spetch

10:00 Break

Morning Session 2 – CW 410 Biological Sciences Building

- 10:15** **Player-informed Interactive Storytelling**
D. Thue, V. Bulitko, & M. Spetch
- 10:30** **The Discrimination of Facial Asymmetry in Synthetic Faces**
N. Anderson & C. Gleddie
- 10:45** **Reproductive status and GnRH soma size in convict cichlid (*Cryptoheros nigrofasciatus*) females**
S. A. Chee, D. Wong-Wylie, & P. L. Hurd
- 11:00** **Intra-hippocampal injections of a protein synthesis inhibitor depress neural activity**
C. Hughes & C. Dickson
- 11:15** **Walking in space: Optimizing parameter settings in co-occurrence models of meaning**
C. Shaoul & C. Westbury
- 11:30** **Behavioural and physiological outcome following the intraluminal model of subarachnoid hemorrhage in rats**
G. Silasi & F. Colbourne

11:45-1:15

Lunch and Poster Sessions – Main Foyer Biological Sciences Building

Afternoon Session – CW 410 Biological Sciences Building

- 1:15** **Do brain alternations under urethane look like sleep? Imaging state-dependent activity in the brainstem**
H. Lee, M. Avey, C. Sturdy, & C. Dickson
- 1:30** **Cerebral Lateralization and Social Behaviour in the Convict Cichlid**
A. R. Reddon & P. L. Hurd
- 1:45** **A Bettelheimian Investigation into the Psychodynamic Repercussions of Role-Playing**
C. Lepine & C. Baerveldt
- 2:00** **Timeline of injury following the collagenase model of intracerebral hemorrhage in rats**
H. D. Huynh, A. P. Nguyen, & F. Colbourne
- 2:15** **Effect of Hyperthermia on Edema Formation Following Intracerebral Hemorrhage**
M. Penner & F. Colbourne
- 2:30** **Organizational and Retrieval Accounts in Retrieval of Autobiographical Memories**
T. Uzer, P. J. Lee, & N. R. Brown

2:45 Break

3:00

Keynote Address – CW 410 Biological Sciences Building

Early development in autism: Recent insights from studies of high-risk infants

Dr. Lonnie Zwaigenbaum

Abstracts

Morning Session 1 CW 410 Biological Sciences Building

8:30 a.m.

Rehabilitation following intracerebral hemorrhage in rats

A. AURIAT & F. COLBOURNE

Department of Psychology, University of Alberta

Constraint induced movement therapy (CIMT) paired with rehabilitation training improves functional recovery and reduces lesion volume after striatal intracerebral hemorrhage (ICH) in rats. However, this form of rehabilitation requires extensive training and animals must be individually housed. We assessed whether environmental enrichment (EE) combined with skilled reaching would promote recovery after ICH. This rehabilitation method allows for animals to be socially housed through out the experiment. One week following a moderate sized striatal ICH rats were placed into a rehabilitation or control condition (standard group housing). Rehabilitation was given 5 days a week for 2 weeks and consisted of 15 hours of EE (during the dark cycle) and four 15-minute reaching sessions (during the light cycle). Walking, skilled reaching and forelimb asymmetry were repeatedly assessed. As expected, the rehabilitation treatment significantly improved outcome on skilled reaching and walking. Lesion volume was significantly reduced in the treatment group, although this effect could not be explained by differences in cortical thickness or corpus callosum volume. Identification of the mechanisms responsible for the functional and histological benefit seen in this study may lead to interventions that could potentially improve outcome in hemorrhagic stroke patients.

8:45 a.m.

'Synch'-ing to new depths: fast activity across layers of the hippocampus

T. WHITTEN, T. WOLANSKY, & C.T. DICKSON

Department of Psychology & Centre for Neuroscience, University of Alberta

The hippocampus has long been implicated in the processes of learning and memory, and has therefore been well-studied in terms of its anatomical and functional connections. One prominent feature of the hippocampus is the presence of rhythmic, oscillatory activity. These oscillations can define distinct brain states which are correlated with different behavioural states and might represent different modes of information processing. For example, theta-frequency activity (3-12Hz) in the hippocampus is characteristic of awake exploratory behaviours as well as REM sleep, while the slow oscillation (1Hz) is characteristic of non-REM sleep. Both of these rhythms are also evident in the hippocampus under urethane anaesthesia. Superimposed on these slow rhythms are faster, gamma-frequency oscillations (20-80Hz), which have been implicated in many higher-order brain functions including perception, consciousness and memory. In the present study, we characterize the expression of gamma oscillations within the hippocampus during different states of hippocampal activity in terms of frequency, distribution and laminar profile with the objective of understanding how gamma oscillations might dynamically coordinate activity within hippocampal networks and how this might play a differential role during different states of sleep.

9:00 a.m.

Associative Learning in a Sit-and-Wait Predator

L. M. GUILLETTE¹ & K. L. HOLLIS²

¹*Department of Psychology, University of Alberta,* ²*Department of Psychology & Education, Mount Holyoke College*

Previous research has demonstrated that a variety of insects are capable of learning to associate cues with forthcoming biologically important events, such as food or mates. However, this learning phenomenon has not yet been explored in insects that are passive foragers. This study examined the effects of associative learning on the feeding behaviour and fitness of a sit-and-wait predator, the larval antlion (*Myrmeleon crudelis* Walker). Subjects were matched for weight and assigned to either the learning (LRN) group, which received a vibratory cue just prior to food presentation, or the control (CTL) group, which received the same cue independent of food presentation. In the first experiment, animals in the LRN group displayed a conditioned behavioural response, namely, moving in response to the vibratory cue whereas CTL animals did not. In subsequent experiments, LRN animals constructed larger pits and extracted prey contents more quickly than CTL animals. Taken together, these studies demonstrate that larval antlions are able to utilize cues that predict the availability of food to gain a fitness advantage.

9:15 a.m.

Sex Offender Minimization and Denial: Implications for Clinical Practice

S. JUNG

Department of Psychology, Grant MacEwan College

Understanding the processes that underlie a sex offender's level of denial is vital to reducing the offender's risk of committing another sex offense. The rationale for this position is that admission to the sexual offence engenders openness to change, which is seen as essential for successful therapy with sex offenders. Moreover, recent research has offered evidence for a direct relationship between denial and recidivism for low risk sexual offenders. In the first part of this presentation, a new measure for sex offender denial will be introduced that measures behavioural and communicative aspects of denial and that treats denial as a multifaceted phenomenon. The second part of this presentation will examine a specific subset of this offending population, namely, internet child pornography users. Through their narrative accounts as reported in forensic assessment reports, patterns of excuses and cognitive distortions were explored with the intent to highlight the importance of acquiring technical knowledge and expertise in internet technology, which could lead to more effective assessment and cognitive treatment of child pornography users. Clinical and research implications and future directions stemming from this research will conclude the presentation.

9:30 a.m.

Use of imperfectly predictive categories in serial position estimation

R. LATIMER & N. R. BROWN

Department of Psychology, University of Alberta

Categories guide estimation and decision making in areas ranging from social groupings to judgments of shade to estimation of latitudes (E.g. Allport, 1954; Friedman & Brown, 2000; Huttenlocher, Hedges & Vevea, 2000). However, in the real world categories are often only imperfectly predictive. The authors present findings on how and when participants use imperfectly predictive categories in a serial position estimation task. Surprisingly, even slight imperfections in the predictiveness of categories drastically reduce participants' use of category information, resulting in high levels of error. The authors are able to increase reliance on category information by improving memory for the exceptions (imperfections) in the category structure. This effect may be the result of more accurate beliefs about the distribution of category members. Issues relating to distinctiveness processing are also discussed.

9:45 a.m.

Differential Outcome Effects in Spatial Search Tasks

E. L. G. LEGGE & M. L. SPETCH

Department of Psychology, University of Alberta

Numerous studies have shown that differential outcomes (DO) enhance discrimination and retention accuracy in matching-to-sample tasks (see Urcuioli, 2005 for a review). Our studies tested whether the DO would also promote faster learning and more accurate searching in a spatial search task. Data from adult humans will be presented demonstrating a large DO effect on acquisition and accuracy of spatial search when the task included a working memory component. In several versions of a spatial search task that did not include a working memory component, humans showed only weak or absent DO effects. Thus, being able to form an expectation of which specific goal one is looking can facilitate spatial search, but the effect may depend on working memory load.

10:00 a.m.

Break

**Morning Session 2
CW 410 Biological Sciences Building**

10:15 a.m.

Player-informed Interactive Storytelling

D. THUE¹, V. BULITKO¹, & M. SPETCH²

¹ *Department of Computing Science, University of Alberta; Department of Psychology, University of Alberta*

In recent years, the fields of Interactive Storytelling and Player Modelling have independently enjoyed increased interest in both academia and the computer games industry. The combination of these technologies, however, remains largely unexplored. In this talk, we present PaSSAGE (Player-Specific Stories via Automatically Generated Events), an interactive storytelling system that uses player modelling to automatically learn a model of the player's preferred style of play, and then uses that model to dynamically select the content of an interactive story. Results from a user study evaluating the entertainment value of adaptive stories created by our system as well as two fixed, pre-authored stories indicate that automatically adapting a story based on learned player preferences can increase the enjoyment of playing a computer role-playing game for certain types of players.

10:30 a.m.

The Discrimination of Facial Asymmetry in Synthetic Faces

N. ANDERSON & C. GLEDDIE

Department of Psychology, Grant MacEwan College

Facial asymmetry is considered to be an important characteristic of face-specific visual processing, especially with respect to judgments of attractiveness and fitness. The extent to which facial asymmetry contributes to judgments of face identity, however, remains unclear. We evaluated sensitivity to facial asymmetry using synthetic faces (Wilson, Loffler, & Wilkinson, 2002) where the geometric shape of the face can be precisely controlled. Threshold performance in this paradigm is defined as the minimum geometric change that is required to reliably discriminate between faces. Thresholds for discriminating asymmetric from symmetric faces were measured using a 2IFC paradigm, and were compared to thresholds for discriminating faces with individuating identities from the mean face. Asymmetry thresholds were 2x lower than identity thresholds (3.1% ± 0.1% vs 6.9% ± 0.2% mean head radius respectively), demonstrating that

subjects were more sensitive to face asymmetry than geometric face identity. This advantage for asymmetry judgments was not observed when asymmetry and identity thresholds were evaluated with non-face shape patterns. Moreover, asymmetry thresholds were unaffected when inverted and non-mean faces were used, which are conditions known to impair identity thresholds. Together, these results suggest that judgments of face asymmetry and face identity may rely on functionally different neural mechanisms.

10:45 a.m.

Reproductive status and GnRH soma size in convict cichlid (*Cryptoheros nigrofasciatus*) females

S. A. CHEE, D. WONG-WYLIE, & P. L. HURD

Department of Psychology, University of Alberta

Previous research has demonstrated that social status manipulations in the fish *Haplochromis burtoni* alter the soma size of GnRH-secreting neurons located within the pre-optic area of the hypothalamus. Non-territorial *H. burtoni* males changed to territorial show an increase in GnRH soma size; conversely, these cells shrink if a territorial fish is made non-territorial. Whether these social status manipulations influence GnRH cells in *H. burtoni* females is unknown because these females are non-aggressive and have no social hierarchy. In *Archocentrus nigrofasciatus*, however, both sexes are aggressive and territorial. Therefore, their social status was experimentally manipulated. In males, social status has the same effect on GnRH soma size as in *H. burtoni* males; nevertheless, no significant difference in GnRH cell size was found between territorial and non-territorial females. As reproductive state regulates the size of *H. burtoni* female GnRH neurons (brooders have smaller cells than virgins and spawners), reproductive state was then manipulated in *A. nigrofasciatus* females. Fish were either controls, spawners, or brooders. The brooders appear to have smaller cells than the controls and spawners. These results indicate that the signal regulating these cells is sexually dimorphic in males, the cue is external (social status), and in females, internal (reproductive state).

11:00 a.m.

Intra-hippocampal injections of a protein synthesis inhibitor depress neural activity

C. HUGHES & C. DICKSON

Department of Psychology & Centre for Neuroscience, University of Alberta

For the past 20 years, protein synthesis inhibitors such as anisomycin (ANI) have been used extensively to distinguish different biological phases of mnemonic encoding. Using this paradigm, it has been proposed that the consolidation of new memories requires de novo protein synthesis in a crucial time frame following training. Despite the now popular use of direct intra-cerebral microinfusions of ANI, there have been no studies examining its effects on spontaneous neural activity. Thus, we examined the influence of intra-hippocampal infusions of ANI on different activity states in the urethane-anaesthetized rat. ANI depressed the amplitude of both theta and slow oscillation which was found to correspond to a near-complete loss of generating dipoles and current flow in the HPC. Furthermore, multi unit activity in both the CA and dentate regions was also abolished. Control infusions of vehicle had no such effects. This suggests that the amnesic effects of intra-hippocampal ANI may well be mediated by neural silencing and not simply protein synthesis blockade per se.

11:15 a.m.

Walking in space: Optimizing parameter settings in co-occurrence models of meaning

C. SHAOUL & C. WESTBURY

Department of Psychology, University of Alberta

High-dimensional models of semantic space use the global co-occurrence frequency of words in a large text corpus as the basis for their representation of semantic memory. One aspect of these models that is problematic is that they are highly parameterized, but they lack theoretical or empirical justification for many of the parameter settings. A family of related models can be

defined by altering the parameters that define any single model. We have explored a family of models stemming from the HAL model, in order to find the set of parameters that maximizes the fit between semantic density measures and behavioral measures of lexical access.

11:30 a.m.

Behavioural and physiological outcome following the intraluminal model of subarachnoid hemorrhage in rats

G. SILASI & F. COLBOURNE

Centre for Neuroscience, University of Alberta

Subarachnoid hemorrhage (SAH) is a severe form of stroke that is caused by the bursting of a blood vessel on the surface of the brain, thus resulting in the accumulation of blood in the subarachnoid space. A commonly used animal model for SAH is the intraluminal suture model, where a nylon suture is advanced into the cranium through the internal carotid artery and is used to perforate a blood vessel at the base of the brain. The current study aimed to characterize the short-term physiological, and long-term behavioural outcomes following the intraluminal perforation model of SAH. Physiological measures indicated that blood pressure (BP) and intracranial pressure (ICP) are immediately altered following the induction of SAH, however neither ICP or BP were found to be reliable indicators of final hemorrhage size. Detailed behavioural analyses for 6 weeks post-lesion indicated that SAH rats had a significant cognitive deficit but no detectable motor impairments. Based on these findings it can be concluded that while the intraluminal model of SAH is optimal for investigating the efficacy of treatments that could potentially reduce the volume of the initial bleed, treatment effects on functional outcome would be difficult to determine.

11:45 a.m. – 1:15 p.m.

Lunch and Posters

Main Foyer Biological Sciences Building

1. The success of prolonged hypothermia in reducing morbidity following focal ischemia

D. CLARK, M. PENNER, I. ORELLANA-JORDAN, & F. COLBOURNE

Department of Psychology, University of Alberta

Hypothermia has provided significant neuroprotection in rodent models of ischemic brain damage. The ideal hypothermic profile has yet to be determined for acute stroke. In this study we examined differing hypothermic treatment durations on outcome after permanent middle cerebral artery occlusion (pMCAO). We compared 12, 24 and 48hrs of hypothermia beginning one hour after pMCAO. To approximate edema, brain water content (BWC) was measured in hypothermic groups at 1 and 3 days following pMCAO while normothermic animals were assessed for 5 days post-stroke. Histological and behavioral outcome was evaluated at one week after pMCAO. Hypothermia for 24 and 48 hours improved walking ability and all three durations reduced neurological deficit compared to controls. Only 24 and 48 hours of hypothermia reduced infarct size. BWC was elevated in the affected cortex for 5 days following stroke and for the first three days in the ipsilateral striatum. Hypothermia reduced BWC in the affected cortex and striatum on day 1 and only in the striatum on day 3 post-stroke. Our results indicate that hypothermia, even with delay, may provide significant functional recovery as well as reduced edema and infarct size, and this appears to be at least somewhat dependant on length of cooling.

2. Predictive Representations as a Computational Model for Mediated Conditioning

A. KOOP & E. A. LUDVIG

Department of Computing Science, University of Alberta

Understanding how an intelligent agent might construct an internal representation of the world is a crucial question in both artificial intelligence and psychology. One relatively new approach to constructing this representation is the predictive representation framework, wherein the internal representation is largely composed of predictions about future experience. This work illustrates how these predictive representations provide a mechanism for modeling behaviours in animals that involve mediated conditioning. Mediated conditioning occurs when two previously unrelated stimuli gain a relationship through their associations with a third stimulus. One example of this type of learning is sensory preconditioning, where a light that has always been followed by a tone elicits a fear reaction after that tone has been paired with a shock, even if the light itself has never been directly paired with the shock. In the prediction representation model, animals learn to predict stimuli using both their immediate sensations and their internal representations. Thus, in sensory preconditioning, prediction of the tone mediates the association between the light and the shock. We demonstrate simulation results from the predictive representation model that closely match empirical data from several experiments, including sensory preconditioning, acquired equivalence, and mediated reward devaluation.

3. Proximity to an edge affects choice of search strategy

E. BATTY & M. SPETCH

Department of Psychology, University of Alberta

While most past research has found that human adults tend to use a relational, or rule-based, strategy when searching for a hidden goal, recent research has suggested that proximity to a boundary may influence search strategy. The present study examined how university students searched for a hidden goal in a simple working memory computer task. Participants were shown an initial display containing a goal location that was presented at varying distances from the edges of a square search area. After a brief delay with a blank screen, a test display was presented and participants were required to reproduce the location of the goal. During test trials, the search area could be expanded horizontally, vertically or diagonally. On trials in which the goal location was initially presented close to an edge, participants were more likely to 'match' the initial distance. In contrast, on trials with a central goal location, participants were more likely to use a relational strategy.

4. Epileptiform activities are modulated by the phase of hippocampal slow oscillations

F. NAZER & C. DICKSON

Department of Psychology & Centre for Neuroscience, University of Alberta

Endogenous oscillatory patterns like circadian rhythms and ultradian arousal cycles are known to modulate the probability of spontaneous seizure events in epilepsy. For example, previous work has shown that medial temporal lobe seizures are more prominent during the non-REM stages of the sleep cycle. As well, other forms of epilepsy can be modulated by the ongoing rhythmic expression of particular forms of EEG activity. We have recently shown that stimulation-induced hippocampal seizures have a lowered threshold during the slow oscillation, a form of activity which is the most prominent during deep stages of non-REM (i.e., slow-wave) sleep. However, we were unable to show any phase-dependent modulation of thresholds. Using local intra hippocampal infusions of penicillin (a pro-epileptic manipulation which results in spontaneous epileptiform activity) in urethane-anaesthetized rats, we show that interictal spikes show a pronounced phase relationship to ongoing SO. This, combined with our previous work on excitability changes in the hippocampus across the phase of the SO suggests that spontaneously expressed epileptiform events are modulated by ongoing rhythmic SO activity. Thus, a spontaneous state-dependent physiological pattern in the hippocampus can promote pathological epileptiform activity.

5. Spelling and Instant Messaging

G. P. MCFALL, C. K. VARNHAGEN, N. PUGH, H. SUMIDA-MACDONALD, L. ROUTLEDGE, & T. KWONG

Department of Psychology, University of Alberta

Are children becoming poor spellers due to the use of instant messaging and texting? Popular media tells us so! We were interested in the relationship children's spelling ability had with the number of "errors" they make in instant messaging communications. We collected MSN messages from 40 adolescents. Then we administered a standardized spelling test, the WRAT-3 Spelling subtest, to each participant. Taking a 100-word sample from each participant, we counted several kinds of "errors" or new language usage. These included such things as *prolly* for *probably*, *wanna* for *want to*, *lol* for *laughing out loud*, *2morrow* for *tomorrow*, insider words such as *hottie* and *fugly*, capitalization errors, and words used to express emotion such as *hahaha*, and ;-). We also counted typing errors such as *knwo* for *know* and spelling errors like *hungary* for *hungry*. We found there were some gender differences when it came to the number of new language words used but that the only type of error that correlated with the WRAT-3 was actually spelling errors. If you are a poor speller, you make spelling errors on your WRAT-3 and in your instant messages.

6. Imagination inflation: Influence of processing fluency and feature similarity

I. LINDNER¹, G. ECHTERHOFF², M. BRAND² & W. HUSSY¹

¹*Department of Psychology, University of Cologne;* ²*Department of Psychology, Bielefeld University*

The more often people imagine performing actions, the more often they falsely remember having performed them - a phenomenon called imagination inflation. It has been argued that either a misattribution of processing fluency or of feature similarity might drive the effect. To disentangle the influence of these two mechanisms, we used the three-stage paradigm introduced by Goff and Roediger (1998), but modified the type of processing action statements in the second stage. In the first stage, participants read simple action statements and were asked to actually perform some of them, but not others. In the second stage, old and new action statements were either imagined, observed, read, or generated from anagrams. In the third stage two weeks later, a recognition as well as a source memory test were administered. It was found that higher frequencies of processing action statements led to higher rates of illusory memories of self-performance in the imagination and observation conditions, but not in the read and generate conditions. Our results thus indicate that feature similarity is critical for imagination inflation. Possible similarities between action imagination and observation are discussed with reference to the source-monitoring framework as well as to recent accounts of mental simulation.

7. Effects of Ketamine on Hippocampal EEG Activity

A. SHARMA & C. DICKSON

Departments of Psychology, Physiology, & Centre for Neuroscience, University of Alberta

The hippocampal (HPC) slow oscillation (SO), an EEG pattern prominent during non-REM sleep and characterized by a ≤ 1 Hz rhythm, is dynamically coordinated with neocortical (nCTX) SO and plays a possible role in memory consolidation. Given the transitory nature of the HPC SO in both natural sleep and under urethane anaesthesia, studying it and its relation to the well established nCTX SO is difficult. The anaesthetic ketamine has previously been shown to induce long-lasting and quasi-stationary epochs of nCTX SO. However, the nature of HPC activity under ketamine and its coordination with nCTX sites is undetermined. We directly compared HPC SO activity induced by ketamine and urethane in acutely anaesthetized rats using single-electrode and laminar profile EEG analyses. There was a high level of similarity between ketamine and urethane in terms of both frequency components and coordination of HPC SO with nCTX SO. As well, the dipole arrangement and thus the generation of SO activity also appeared to be similar. We conclude that ketamine appears to be a representative model of the HPC SO found in both urethane anaesthesia and natural sleep.

8. Three ways of not being single-minded: A phenomenological study of reflective awareness in dreams

M. LEE, D. KUIKEN, & J. CZUPRYN

Department of Psychology, University of Alberta

Dreaming is usually single-minded (Rechtschaffen, 1978), i.e., the dreamer experiences events and circumstances within the dream as a fully constituted world. However, dreamers sometimes become aware of dreaming while dreaming, and such “lucidity” regularly entails recall of events prior to dream onset. In a phenomenological study of impactful dreams, we systematically documented this and other aspects of reflective awareness during dreaming (e.g., remembering events prior to dream onset, anticipating events following dream termination, making attentional adjustments within the dream). Dreams of one type were single-minded, i.e., reflective awareness was limited to what occurred within the dream. Three other types of dreams involved explicit awareness of events that occurred prior to dream onset. In one type, the events remembered prior to the dream were mundane and routine. In another type, recall of routine events prior to the dream was accompanied by dual perspectives (e.g., déjà vu; shifting perspectives). In a third type, recall of events prior to the dream was accompanied by the recognition of similarity between events within and prior to the dream, including the thoughts and feelings of others. This study suggests that departures from the single-mindedness of dreams come in different forms, manifesting very different styles of first-person reflectiveness.

9. Multiple Paths to Conceptually Advanced Solution Procedures

R. WATCHORN¹, J. BISANZ¹, L. FAST², J. LEFEVRE², B. SMITH-CHANT³, S. SKWARCHUK⁴, & D. KAMAWAR²

¹Department of Psychology, University of Alberta; ²Department of Psychology, Carleton University; ³Trent University; ⁴University of Winnipeg

Well beyond the time at which children become competent at addition and subtraction, many children fail to use the principle of inversion, that $a + b - b$ must equal a , in solving arithmetic problems. Application of this fundamental mathematical concept renders computationally difficult problems easy and demonstrates an understanding of the inverse relation between addition and subtraction. Although some children show some understanding of this principle prior to formal schooling, many children fail to apply it in symbolic contexts through Grade 5. Gilmore (2005) suggested a developmental path such that children’s use of inversion increased before their calculational skill. Watchorn et al. (2006) found a cluster of children with high calculational skill but low inversion use, suggesting some there may be multiple paths in the development of inversion use. To test this hypothesis, we examined longitudinal data over one year to track children’s inversion use and calculational skill in Grades 2-4. We found evidence of children moving from the low calculational skill and low inversion use cluster in 2006 to both the high calculational skill and low inversion use cluster, and the low calculational skill and high inversion use cluster. This finding provides evidence of multiple paths to the development of inversion use.

10. Broadening the Patient Safety Agenda to Include Safety in Long-Term Care

T. B. RUST¹, L. M. WAGNER¹, M. ROWE¹, I. NEUMANN¹, & C. HOFFMAN¹

¹Department of Psychology University of Alberta; ²Baycrest Centre for Geriatric Care; ³Capital Health; ⁴CapitalCare; ⁵Canadian Patient Safety Institute

The recent patient safety literature has placed more of an emphasis on acute care than long-term care (LTC). The Canadian Patient Safety Institute, Capital Health (Edmonton), and CapitalCare (Edmonton) have collaborated to create a research and action agenda for improving resident safety in Canadian LTC settings. This collaboration resulted in the development of a background paper highlighting the current state of the science, 14 key-informant interviews with stakeholders across Canada, and an invitational roundtable discussion. Findings from the key-informant interviews and roundtable discussion are described here.

11. Using shaping to speed up reinforcement learning on complex tasks

A. WHITE & E. A. LUDVIG

Department of Computing Science, University of Alberta

In the future, robots will be used in many homes, offices, and construction sites. These uses will require methods that allow non-technical people to train robots and help those robots to learn complex tasks. In animal learning, shaping is a popular technique for training animals to perform tasks that would otherwise be highly improbable. Shaping involves giving the animal intermediate rewards for successive approximations to a goal behaviour. For example, Skinner famously trained pigeons to bowl using these shaping techniques. Here, we take the idea of shaping and apply it to speeding up learning in artificial agents. These agents were trained using a reinforcement-learning (RL) framework, whereby they learned the consequences of their actions from interaction with their environment. We demonstrate that shaping produced a several-fold improvement in initial learning for these agents in several domains, including a chain world and a box-pushing world. Shaping proved particularly useful in environments with many possible states or actions.

12. Staff and Patient Attitudes Following a Smoking Ban in a Psychiatric Facility

E. ZAHN, D. SCHARF, & J. REDDON

University of Alberta

The research was conducted in a psychiatric treatment facility following the introduction of a smoking ban which prohibited smoking indoors and on the grounds. Patient and staff surveys were developed and conducted to assess the current situation and future needs of the organization in regards to smoking issues. Surveys collected quantitative and qualitative data. Questions were designed to capture attitudes and behavioural changes since the smoking ban. 68 patients participated in the survey. Data collected indicated the ban had little effect on their perceived quality of life. 57% of patients reported not discussing tobacco use with a healthcare provider and 53% would not use nicotine replacement. 42% reported either reducing or quitting tobacco use. 79 staff completed surveys. From the qualitative data, many staff felt frustrated because the ban was not enforced and felt this caused new problems without sufficient preparation. Many staff were uncomfortable offering nicotine replacement treatment to patients for transient nicotine withdrawals. Inconsistent practices between the treatment team were reported. Results indicated a lack of knowledge from both staff and patients about using nicotine replacement treatment. Future needs identified include improved consistency in delivering smoking reduction interventions to patients and ongoing tobacco education for patients and staff.

13. The timing of reward-prediction errors in a computational model of dopamine neurons

E. A. LUDVIG, R. S. SUTTON, & E. J. KEHOE

Department of Computing Science, University of Alberta and School of Psychology, University of New South Wales

The neurotransmitter dopamine is important for reward-related processing in the brain. Dopamine neurons fire in response to both unpredicted rewards and cues that predict upcoming rewards, and they show depressed firing rates when expected rewards are omitted. This pattern of firing by dopamine neurons has been interpreted as encoding a reward-prediction error. Computationally, this reward-prediction error has often been equated with the error signal in temporal-difference (TD) learning algorithms. Most previous TD models have used a complete-serial-compound stimulus representation, whereby each moment in a trial is assumed to be a unique stimulus. In this work, we evaluate how refining certain assumptions of this stimulus representation influences the time course of the TD error. Most prominently, we assume that every stimulus, including rewards themselves, is represented as a set of internal microstimuli that become weaker and broader over time. This representation allows for generalization across nearby time points, resulting in reward predictions that change more slowly over the course of a single trial. These modifications produce a better fit for the TD model with empirical data from dopamine neurons in several experiments, including reward omission and early reward. We suggest novel experiments that would empirically test different components of our stimulus representation.

14. Well-being Predicts Quality of Health, Sleep and Relationships, and Psychopathology

A. SHEPTYCKI & A. HOWELL

Department of Psychology, Grant MacEwan College

Keyes (2005) operationalized flourishing as elevated emotional, psychological, and social well-being. In past research, we revealed that flourishing has achievement-related correlates reflective of self-regulated functioning among undergraduate students. Specifically, students classified as flourishing, relative to those classified as moderately mentally healthy or as languishing, were less likely to adopt an entity view of ability or to procrastinate and were more likely to endorse mastery-approach goals, to report high self-control, and to obtain high grades. In the current research, we extended the nomological net of flourishing to health-related and relationship-related domains reflective of self-regulated functioning. The association of psychopathology and well-being were also assessed in terms of a lack of or ineffective use of self-regulation. Results from a sample of 216 undergraduates show that flourishing correlates positively with self-reported sleep quality, relationship satisfaction and physical health, and that flourishing is associated inversely with self-reported depression, anxiety, and personality disorders.

15. An investigation into the psychometric utility of a new semantic classification paradigm: progressive implicit concept mapping.

E. GAGLIARDI

Department of Psychology, University of Alberta

In developing a new paradigm that is capable of teasing apart theoretically driven characteristics of semantic processing, it is necessary to integrate theories from reading comprehension, psycholinguistics, classification theory, and cluster analysis in order to interpret the multi-dimensional nature of the data. The present study uses a modified version of the Implicit Concept Mapping paradigm (Aidman & Egan, 1998) where participants are required to classify lists of words along experimentally controlled dimensions (e.g., related vs. unrelated). The task is now progressive, which places additional demands on working memory, and it collects continuous data. More importantly, it is now possible to state a null hypothesis a priori. Some descriptive and qualitative findings are presented where half the groups classified concrete words and the other half classified abstract words. Two patterns emerged: First, when given a random set of statistically controlled word lists, participants are capable of classifying words along novel linguistic dimensions and impose structure that is relatively stable within groups. Second, it is possible to observe group differences in semantic structure by selecting target words, which make some semantic features more salient than others. Finally, the results are discussed in relation to general reading comprehension along with implications regarding future research.

16. Chestnut-backed Chickadee Communication: A Bioacoustical Approach

M. HOESCHELE¹, D.E. GAMMON², M.K. MOSCICKI¹, & C.B. STURDY¹

¹Department of Psychology, University of Alberta; ²Biology Department, Elon University

One of the first steps to understanding how a species communicates acoustically is to identify, categorize and finally quantify the important features of the elements that make up their vocalizations. We sorted the "chick-a-dee" call notes of the chestnut-backed chickadee into four call note categories, A, C, D, and Dh notes, based on their acoustic structure as observed in sound spectrograms. We then identified twenty-five syntactical variations of the call, which we predict could be used to convey different meanings. Using quantitative measures, we determined which aspects have the potential to be important in discriminating note types and identifying individuals. Our findings were in line with previous research in chickadees with similar note types and fairly fixed syntactical structure. Overall this information will form a foundation for future research on chestnut-backed chickadee vocalizations and will lead to an excellent comparison for other chickadee species that have already been studied.

17. Alexithymia, Dissociation, and Social Desirability: Investigating Individual Differences in the Narrative Content of False Allegations of Trauma

K. A. M. BOUVIER & K. A. PEACE

Grant MacEwan College

This study examined the potential influence of alexithymia, dissociation, and social desirability on the narrative features associated with truthful and fabricated traumatic events. Participants (N = 291) wrote narratives describing both genuine and fabricated traumas and completed scales measuring individual differences. Alexithymia was associated with less plausible reports (independent of veracity) and differential reporting of emotional details between narratives. Higher levels of dissociation were related to less coherent and plausible reports, and less contextual detail in fabricated reports. Further, coherence and plausibility ratings fluctuated between low, moderate and high social desirability groups. These results suggest that individual difference factors are important considerations in the forensic assessment of the veracity of trauma reports.

18. Does Type 2 Diabetes Affect Cognitive Performance in Older Adults?

A. L. FISCHER¹, S. E. YEUNG², & R. A. DIXON¹

¹*Department of Psychology, University of Alberta;* ²*Department of Psychology, Simon Fraser University*

Type 2 diabetes is associated with exacerbated aging-related declines in cognitive performance. We examined whether such effects are systematic (broad or selective), affected by age (young-old vs. old-old), or influenced by subtle longitudinal status transitions. We assembled data from the Victoria Longitudinal Study (VLS) Sample 3 (Wave 1 initial n=570; age=53-90 years). We present two main phases of analysis in which we examine performance on 17 VLS indicators of episodic and semantic memory, neurocognitive speed, and executive function. In Phase 1, we tested health status (diabetes [n=41] vs. healthy controls [n=424]) and age while accounting for all recommended concurrent health confounds. Phase 2 comprised an exploratory follow-up check considering transitional exclusionary criteria including impending cognitive impairment (Wave 2 MMSE < 24 or significant decline), terminal decline (impending death prior to Wave 2), or attrition. Cross-sectional results revealed significant differences (controls > diabetic patients) primarily in semantic speed and executive functioning. Phase 2 underscores the importance of considering status transitions and impending decline when evaluating the clinical implications of diabetes and cognition. A third phase of longitudinal analyses is presently underway to examine 3-year changes in task performance.

19. Memory for Words as Holistic Units: HOGWASH and HEARSAY?

K. BOULTON, C. L. GAGNE, & J. CAPLAN

Department of Psychology, University of Alberta

In episodic memory tasks, subjects treat pairs of unrelated words (A-B) more like holistic units than separate associations (A->B and B->A). We asked whether the same would hold for compound words, which are similar to verbal paired associates but are expected to be more unitised than unrelated word pairs. The cued recall task consists of providing part of the stimulus, such as ROSE _____ (forward probe) or _____ BUD (backward probe). If performance on forward and backward probes is highly correlated, the holistic model of association-learning is supported. We tested this with compound words, pseudocompounds, multimorphemic words, and word pairs, as well as manipulating transparency (transparent: meaning is evident from constituents, e.g., ROSEBUD; opaque: whole-word meaning is not directly evident from constituents, e.g., HOGWASH). Results show that some compound word types are remembered holistically, similar to unrelated nouns pairs; but other classes of compounds exhibit a significantly and substantially reduced forward-backward probe correlation, suggesting that words can have strong directionality. The reduced correlation may partly result from competition with words that overlap with their constituents. Thus, compound words may start largely unitised, but because words are embedded within a lexicon, episodic retrieval may be impeded, resulting in retrieval direction influencing recall probability.

20. The Influence of Associative Interference on Cued Recall of Word Pairs

M. REHANI & J. B. CAPLAN

Department of Psychology, University of Alberta

Recent evidence suggests that paired-associates learning (PAL) relies on the same cognitive processes as serial list learning (SL). However, Murdock and Franklin (1984) suggested that PAL and SL represent distinct modes of learning. We asked whether holistic-like learning, a robust property of PAL, sets pairs apart from lists. The critical measure is the correlation between forward (A-?) and backward (?-B) probes of the same pair (AB). This correlation is typically quite close to 1 for verbal paired-associates learning. This high correlation is considered evidence for the holistic nature of pairs. Using the double-function paradigm (AB, BC, CD, DA), a PAL paradigm that includes a substantial level of associative interference, we tested whether interference can influence the apparent holistic character of pairs in the same way as has been argued for short serial lists such as triples (ABC, DEF, GHI). Our results suggest that, far from being distinct forms of learning, interference has a comparable effect on PAL as on SL, lending further support to the more parsimonious unified theoretical framework that explains memory for pairs and lists using the same cognitive processes.

21. The Social Creation of Dependency in Old Age: A Review

T. RUST & S. KWONG SEE

Department of Psychology, University of Alberta

Dependency is viewed negatively in individualistic cultures. The cultural, social and physical environment, health status (physical, cognitive and mental), and socioeconomic status all contribute to dependency in old age. This review examines the effects that the social environment, when guided by negative age stereotypes, has on dependency. The social creation of dependency can be the result of non-contingent environments (learned helplessness), contingent environments (learned dependency), social policies and structures (structural dependency), or exposure to age stereotypes (ageist dependency when it is the result of other people's beliefs, or self-stereotype activation dependency when it is the result of the activation of older adults' internalized age self-stereotypes). By focusing on how dependency can be socially created, over and above dependency created by biological decline, effective interventions can be identified.

22. Culture and Perception of Emotion: Comparing the Patterns of Attention between European-Canadians, Asian-Canadians, Asian International Students, and the Japanese

H. WANG¹, T. MASUDA¹, & K. ISHII²

¹Department of Psychology, University of Alberta, ²Hokkaido University, Japan

Previous studies have shown that East Asian people tend to incorporate more contextual information in their attention patterns while North American people are more likely to focus their attention to the salient objects (Masuda, & Nisbett, 2001; Masuda, Ellsworth, Mesquita, Leu, Tanida, & van de Veerdonk, in press). In this study we examined whether such an effect could be observed even when using realistic pictures of human emotional expressions while testing among four different cultural groups: European-Canadian, Asian-Canadian, Asian International and Japanese students. We had hypothesized that: (1) the degree of contextual effect would be the greatest among Japanese participants, and the weakest for European-Canadian participants, and (2) Asian-Canadian and Asian International data would fall between these two patterns, but show their own characteristics which would differ from the other two groups. Based on the findings, we maintain that although the contextual effect of Asian-Canadian and International Student data became weaker compared to their Japanese counterparts, the data still displayed distinct patterns of attention dominance characteristic of East Asians. These results also suggest a possibility that judgment (deliberate thinking) and patterns of eye-movement (automatic behavior) are processed independently.

23. Emotional Enhancement of Memory in Parkinson's Disease

L. MCGHAN, P. DAVIDSON, D. TALMI, R. CAMICOLI

Department of Psychology, University of Alberta

In the real world, many of our most important memories have emotional content, but neuropsychological research has tended to study memories devoid of emotion. We sought to study the potential effects of emotion on memory in people with Parkinson's Disease (PD). PD is a neurodegenerative disease characterized by motor dysfunction, but it can also cause memory impairment. The brain structures that undergo significant deterioration in the disease include the hippocampus (which supports memory), and the amygdala (which supports emotional modulation of memory). Thus, we expected that PD patients would show 1) general memory decline compared to healthy controls, and 2) an attenuated effect of emotion on memory. We tested a dozen PD patients and a group of matched healthy controls using a standard paradigm: a slide show containing both neutral and emotional elements. Based on preliminary analyses, we found that PD patients showed impaired recognition memory overall, and an attenuated effect of emotion on memory.

24. Children on the Web: Online Safety Education in Grades 3-6

L. M. YANG & S. PACKIANAYAGAM

Department of Psychology, University of Alberta

This study addressed the value of teaching Internet safety to children between ages of 8 to 12. Although existing educational research directs online safety education toward children thirteen or older, we hypothesized that a younger demographic could benefit from elementary education into internet safety as well. We developed a workshop for children in grades 3-6 on Internet safety using a comic book developed by Child Find Manitoba. The comic book and our workshop encourage various types of Internet communication while discouraging hasty name or contact information exchanges. We found that the workshop led to some change in willingness to self-disclose certain personal information as well as differences between younger and older children in their perception of safety on the web. Children as young as 8 years of age can benefit from Internet safety instruction.

25. Motivation for Learning Chinese among Heritage and Non-heritage Learners

R. COMANARU & K. A. NOELS

Department of Psychology, University of Alberta

This study examined 110 heritage and non-heritage learners of Chinese in order to better understand immigrants' motivation to learn or maintain a heritage language, in light of Self-Determination Theory. It was hypothesized that students who were motivated because they found learning Chinese intrinsically satisfying or because it was personally meaningful to them would evidence more effort and greater intention to continue their language study than those who were motivated for external or internal pressures. Moreover, it was expected that the social environment which supported the learners' sense of autonomy, competence and relatedness would enhance self-determined motivation. Students registered in university-level Chinese classes completed a questionnaire to assess the relevant constructs. The results indicated that the heritage and the non-heritage groups were generally similar in their reasons for learning Chinese, except that the heritage groups indicated they were learning Chinese because it was an important aspect of their self-concept and because they felt social or self-induced pressures. Contrary to expectation, there were no significant differences in motivational orientation between the two heritage groups (i.e., those with Chinese versus English as a native language). These results are discussed with reference to their implications for supporting the motivation of heritage and non-heritage learners.

26. The Visual Aha!: Investigating the onset of object perception using event related potentials

C. PIATT¹, J. SADR², T. CURRAN³, & J.W. TANAKA⁴

¹*Department of Psychology, University of Alberta;* ²*Department of Psychology, University of Massachusetts, Boston;* ³*Department of Psychology, University of Colorado;* ⁴*Department of Psychology, University of Victoria*

Using event related potentials (ERPs) and a continuous presentation paradigm, the temporal dynamics of object perception were investigated. Sequences of noise-to-object image frames were generated using the Random Image Structure Evolution program (Sadr & Sinha, 2001, 2004). The RISE program maintained the low level visual properties (e.g., luminance, spatial frequency, contrast) while the phase spectrum of the object images was parametrically manipulated. When the RISE sequence of images was shown in the continuous presentation paradigm (500 ms per frame), one frame in the series was marked by the sudden onset of the visual perception of the object (the "Aha"! frame). ERPs were recorded prior too, during and following the onset of the visual perception to examine the neural correlates of the onset of object perception. It was found that after a pre-recognition adaptation phase, the Aha! frame was accompanied by discrete changes in ERP components related to object perception.

Afternoon Session CW 410 Biological Sciences Building

1:15 p.m.

Do brain alternations under urethane look like sleep? Imaging state-dependent activity in the brainstem

H. LEE, M. AVEY, C. STURDY, & C. DICKSON

Department of Psychology, University of Alberta

Sleep is essential to an organism's physical well being as well for cognitive functions. Interestingly, brain activity shows different and alternating patterns (the REM-nonREM cycle) of collective activity during sleep which have been related to function such as memory consolidation. Previous studies have shown that a brainstem circuit that consists of mutually inhibitory regions controls for these state alternations. Recently, we have documented that urethane-anaesthetized rats show brain state alternations that appear highly similar to those exhibited during natural sleep. In order to further assess their similarity, we used an activity-dependent anatomical marker to assess the brainstem regions involved in particular states evoked during urethane anesthesia in order to compare them to the areas known to be involved in natural sleep. We generated 90 minutes of continuous REM-like or NREM-like activities in urethane anaesthetized rats by manipulating body temperature. Subsequent to this, the brains were histologically processed for activity-dependent markers such as c-Fos and ZENK with particular attention paid to brainstem regions known to be important for REM and nonREM activity during sleep. This study will elucidate the brainstem regions responsible for brain state alternations during urethane anesthesia and will provide a critical test of the validity of this model for natural sleep.

1:30 p.m.

Cerebral Lateralization and Social Behaviour in the Convict Cichlid

A. R. REDDON & P. L. HURD

Department of Psychology, University of Alberta

Cerebral lateralization is the partitioning of cognitive function into one hemisphere of the brain. Once thought to be a unique property of the human brain, cerebral lateralization has now been demonstrated in a wide variety of vertebrate species and appears to be evolutionarily ancient. Recent research has focused on uncovering the evolutionary and ecological implications of this adaptation. Fish are important to this research because they were the first animals to evolve a lateralized brain. Presented here are the results of a preliminary investigation of cerebral lateralization in the convict cichlid (*Archocentrus nigrofasciatus*), a bi-parental and monogamous, freshwater fish. Experiment 1 suggests that there is an interaction between sex and aggressiveness on the pattern of lateralization in the convict cichlid. Experiment 2 shows that convicts tend to use their left hemisphere when exploring a novel environment and their right hemisphere when exploring a familiar one. The relationship between individual variation in cerebral lateralization and animal personality is discussed.

1:45 p.m.

A Bettelheimian Investigation into the Psychodynamic Repercussions of Role-Playing

C. LEPINE & C. BAERVELDT

Department of Psychology, University of Alberta

Although generally overlooked in most forms of academic psychology, the author and child psychotherapist Bruno Bettelheim has enjoyed much more influence in psychodynamic and psychotherapeutic circles. His most influential book, *The Uses of Enchantment*, provides a view into the child's world and the ways that children understand and can be transformed by stories and fairy tales. In this presentation I sketch some of Bettelheim's psychodynamic framework that he draws from Freud. The investigation focuses upon how fictional engagements can provide fertile environments for personal psycho-emotional (ego) development through symbolic wish fulfillment. The investigation demonstrates the usefulness of how the percipient expresses his/her desires through the safety of fictional worlds.

2:00 p.m.

Timeline of injury following the collagenase model of intracerebral hemorrhage in rats

H. D. HUYNH, A. P. NGUYEN, & F. COLBOURNE

Department of Psychology, University of Alberta

In the event of Intracerebral hemorrhage (ICH), initial cell death occurs through space occupying effects of the hematoma. Following this initial damage, further degeneration could potentially be a manifestation of dendritic atrophy. In this particular experiment, we examined long-term maturation of injury in rats using the collagenase model of ICH. Volume of tissue lost was quantified at 7, 14, and 60 days after ICH lesion. Lesion volume significantly increased from 7 to 60 days. Brain tissue was then further processed with Golgi-Cox for a detailed examination of dendritic arborization in the striatal medium spiny neurons. Using Branch Order and Scholl's analysis, we found an increase in dendritic arborization and complexity in the contralateral (non-lesioned) hemisphere. This increase in dendritic arborization in the contralateral hemisphere may contribute to the recovery process, thus providing us with a potential therapeutic target for effective, long-term rehabilitation.

2:15 p.m.

Effect of Hyperthermia on Edema Formation Following Intracerebral Hemorrhage

M. PENNER & F. COLBOURNE

Department of Psychology, University of Alberta

Post-injury temperature elevations are common in both ischemic and hemorrhagic stroke patients. Temperature elevation aggravates brain damage and worsens functional outcome in both experimental and clinical studies of cerebral ischemia. While the role of hyperthermia in ischemia is clear, the role of hyperthermia in intracerebral hemorrhage is unclear. This study is being conducted to investigate the role of temperature modification in ICH using the autologous whole blood model. We are investigating the role that hyperthermia initiated immediately following the hemorrhage has on edema. Edema formation is a consequence of ICH and is thought to be an important determinant of functional impairment. Following ICH, we manipulated temperature for three hours. Temperature was maintained at normothermia (~37°C) or hyperthermia (~39°C). Either 24 or 72 hours after the surgery, rats were euthanized and brain-water content was measured. Edema measurements were taken from the cortex and striatum. Behavioural measures were also taken for rats euthanized 72 hours following surgery. The current data does not indicate a detrimental effect of hyperthermia on edema formation.

2:30 p.m.

Organizational and Retrieval Accounts in Retrieval of Autobiographical Memories

T. UZER, P. J. LEE, & N. R. BROWN

Department of Psychology, University of Alberta

Research on the organization of autobiographical memory has shown that event memories are organized into event clusters. Brown (2005) argued that cluster formation is a consequence of planning, execution and evaluation of goal-directed action sequences. Alternatively, events clusters might reflect the use of particular retrieval strategies. This study investigated the role of retrieval and organization in event clustering using event-cueing method. In Phase 1, 240 university undergraduates generated a personal event in response to each of 12 cue words. In Phases 2 & 3, they were then asked to retrieve an event memory whose relationship to the cueing event differed according to which of 6 different conditions (same narrative-different narrative, different narrative-same narrative, same narrative-same narrative, different narrative-different narrative, unrestricted-unrestricted, and unrelated-unrelated condition) that they had been assigned. Results indicated that participants responded faster when recalling related events than when recalling unrelated events. In addition, RTs for different-narrative events were slower than RTs for same-narrative events. Within-subjects analyses showed that retrieving an unrelated memory in the third phase did not result in an additional increase in reaction time. Our results argue against the biased retrieval account and we provided a within-subjects replication of Brown (2005) study.

2:45 – 3:00 p.m.

Break

Key Note Address
CW 410 Biological Sciences Building

3:00 p.m.

Early development in autism: Recent insights from studies of high-risk infants

DR. LONNIE ZWAIGENBAUM

Co-Director, Autism Research Centre, Glenrose Rehabilitation Hospital
Department of Pediatrics, University of Alberta

Current knowledge about the early signs and developmental course of children with autism spectrum disorders (ASD) comes mainly from retrospective studies. However, emerging prospective research in high risk infants is generating new insights about the onset and earliest trajectories of this disorder, providing a new window into its underlying neurobiology and underlying psychological processes. This presentation will describe early developmental trajectories among a group of 180 infant siblings who have been followed from age 6 months to 3 years, with special reference to the onset and characteristics of behavioral signs and the stability of early diagnostic assessments. Factors that may impact on the timing of symptom detection will be highlighted, with a focus on implications for early identification strategies in the general community.

Dr. Lonnie Zwaigenbaum graduated from the University of Toronto in 1991, and completed his pediatric residency at Queens University (FRCPC) and clinical subspecialty training in Developmental Pediatrics at the Hospital for Sick Children in Toronto in 1996. He completed a 2-year research fellowship focused on the genetic epidemiology of autism at McMaster University in Hamilton as well as a Masters degree in Health Research Methodology, and joined the Department of Pediatrics in 1998. His clinical roles at McMaster Children's Hospital included medical director of the Cleft Lip and Palate Program, and director of the Autism Spectrum Disorder Service. While at McMaster, Dr. Zwaigenbaum and his colleagues launched a landmark study of the early development of infants at high risk of autism (siblings of children of children with the diagnosis). This study has yielded new insights about the early signs of autism, challenges current notions about autistic regression, and has created opportunities to learn more about the neurobiology of the disorder. He also continues to collaborate with colleagues at the Offord Centre for Child Studies and at the CanChild Centre for Childhood disability, studying genetics, neuroimaging, intervention, family belief systems and predictors of optimal outcomes in autism. In October 2006, Dr. Zwaigenbaum was recruited to the University of Alberta to co-lead the Division of Developmental Pediatrics, and to create and direct a new 'Autism Research Centre of Excellence' at the Glenrose Rehabilitation Hospital. Dr. Zwaigenbaum is now an Associate Professor of Pediatrics at the University of Alberta.

<http://www.pediatrics.ualberta.ca/roundsnews/Images/zwaigenbaum.pdf>

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