


Montréal 2021

CSBBCS
SCSCCC

Canadian Society for Brain, Behavior and Cognitive Science

June 17-18, 2021 | Montreal

McGill UNIVERSITY

UNIVERSITÉ Concordia UNIVERSITY

Message from the Organizational Committee

Welcome to CSBBCS 2021!
We are happy to host you - virtually - in Montreal for the 30th Annual Meeting hosted by McGill and Concordia University! This meeting is a unique opportunity for researchers passionate about the cognitive science and the brain to exchange ideas, share their brilliant work, create new collaborations and meet up with old colleagues. This year's program includes 129 talks and 164 posters.

We would like to extend a special thank you to all the professors and students who made this meeting possible. Without their hard work and dedication to thinking outside the box, this online conference would not have been possible!

We would also like to thank our sponsors, Centre for Research on Brain, Language, & Music (CRBLM), SR-Research EyeLink, Innodem Neurosciences, Tobii Pro and McGill and Concordia University. The financial support our sponsor provide us with allowed us to put together this great conference.

Finally, thank you to all of of presenters and attendees who are just as passionate about cognitive science and the brain as we are.

We hope you enjoy the meeting!
Best,
The Organizational Committee

Organizational Committee

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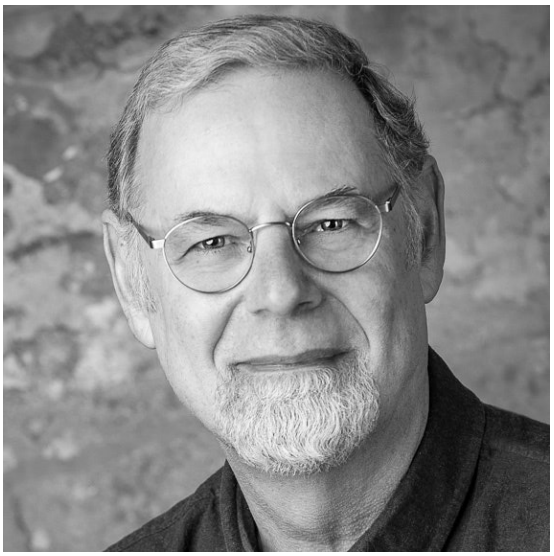


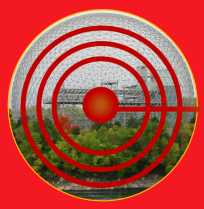
Derek Besner was born in 1948 in Montréal. He spent his early years in Rio de Janeiro, attended boarding school in Connecticut, and did two years at the University of Miami where he spent most his time at the dog track, the poker table, learning to play Jai Alai, playing pool and bowling with his own personalized ball. He also managed to fit in a few classes here and there.

He finished his undergraduate degree at Loyola College (now part of Concordia University) in Montréal, and an MSc at Memorial University in Newfoundland. From there, he moved to England and completed a PhD at Reading University. Derek was hired on faculty at Reading before finishing his doctorate, then returned to Canada for a 5-year postdoc under the auspices of NSERC. He was eventually hired and promoted early to Full Professor at the University of Waterloo, where he remained until retiring after 37 years. Shortly thereafter he was awarded the title of Distinguished Professor Emeritus.

Derek has always been passionate about research, spending considerable time and energy with his many graduate students. His doctoral students have gone on to careers in academia, industry, and government (including NASA in the USA), and also in one case to a career as a school psychologist and in another as a psychotherapist. Derek also served on the NSERC Grants review committee in the 90's, was on the Editorial Board of Psychological Review and the Canadian Journal of Experimental Psychology, and reviewed many hundreds of papers for other journals.

Derek always seemed to be in full battle mode, running against the received views on many issues. His brashness did not endear him to everyone, but there was another side to him that close colleagues and particularly his graduate students saw and valued. He was also prolific, with over 12,000 citations and an "h" of 60 according to Google Scholar. He is the pre-eminent authority on visual word recognition processes in Canada, and is well recognized for this work internationally. He received the University of Waterloo Research in Arts award in 2017, and still collaborates with former students, colleagues in England and Australia, and with his doppelganger (the other DB) in the US.

His research interests have been both broad and deep within the general domain of basic processes in reading by intact readers and those with an acquired or developmental reading disorder, and were prompted by his own (luckily mild) developmental dyslexia. His research interests also spanned various orthographies (Japanese, Serbo-Croatian, Persian, and Turkish). He published five papers in Psychological Review, and has always been a proud Canadian, evidenced by his having published more papers than any living author in CJEP (formerly CJP).



Donald O. Hebb Distinguished Contribution Award - Derek Besner (continued)

Derek's research has spanned a dozen other phenomena; all of his work yielded ground-breaking results forcing revisions to the major accounts. A few of these strands provide a flavour of his approach to science, which has been strongly Popperian.
In one strand, he published several papers in the 80's that overturned the received account of the relation between articulatory suppression and phonology in reading and memory. A subsequent paper reviewed results that ensued over the next 30 years; this paper provides the most comprehensive account to date.

The advent of the parallel distributed approaches to cognition started to dominate the field in the late 80's. Derek attacked this approach immediately with papers in Psychological Review and elsewhere. In these papers, he used the models to generate new simulation data to buttress his points. He was also an equal opportunity critic in attacking the leading localist model, again generating new simulations from the implemented model, despite the senior author of the paper on that model being Max Coltheart, Derek's former supervisor, long-time collaborator, and friend. These attacks had no impact on their relationship, which speaks to the centrality of the search for truth in both of them.
Additionally, Derek published several papers on spatial attention; one of these showed that a spatial attention manipulation eliminated the semantic Stroop effect, undermining the widely accepted "automatic" processing account.

Finally, he spent over 30 years thinking, off and on, about a central phenomenon that seemed incompatible with the received idea of "re-entrant" processing (interactive-activation). His experimental and computational work showed that the leading computational accounts are, to date, unable to simulate these data. Another Psychological Review paper outlined a new hypothesis along with new supporting evidence.

These are highlights of Derek's oeuvre but do not exhaust them. Derek would be the first to acknowledge that this work did not take place in a vacuum, but emerged through collaborations with many talented graduate students as well as faculty at University of Waterloo and various universities in England, Australia, and the USA.

Richard C. Tees Distinguished Leadership Award - Valerie Thompson

Valerie Thompson is a Professor of Cognitive Psychology at the University of Saskatchewan. Her research interests include intuitive judgments, thinking and decision-making, and metacognition (that is, how we evaluate the accuracy of our thought processes). She has served in numerous leadership roles, including President of the Canadian Society of Brain, Behaviour, and Cognitive Science and Editor-in-Chief of the Journal Thinking & Reasoning. Her research program has been continuously funded by the Natural Sciences and Engineering Research Council of Canada since 1991.

CSBBCS Mid-Career Award - Denis Cousineau

Denis Cousineau is professor at the Université d'Ottawa. He holds B.Sc. in computer science and in psychology. He previously was post-doctoral fellow at Indiana University under Richard Shiffrin's supervision and professor at Université de Montréal. His areas of research in psychology include response time models, attention and visual search. He also worked in mathematics on parameter estimation for the Weibull and the Pareto distributions. From 2002 to 2007, he organized the Summer Schools in Advanced Methodological Methods and he founded in 2005 the Quantitative Methods for Psychology journal (www.tqmp.org). He was president of the Société Québécoise pour la Recherche en Psychologie from 2010 to 2013.He published two books on teaching of statistics. He won the R. Duncan Luce Outstanding Paper Award in 2016 for a paper entitled "Learning curves as strong evidence for testing models: The case of EBRW.

Denis Cousineau détient un B. Sc. en informatique et un M. Sc en psychologie. Docteur en psychologie cognitive en 1998, il est Research Fellow de l'Indiana University sous la supervision de Richard M. Shiffrin puis professeur agrégé de l'Université de Montréal avant de rejoindre l'Université d'Ottawa en 2011 où il est Full Professor. Ses domaines d'expertises en psychologie portent sur l'étude des temps de réponses et les modèles de l'attention visuelle. Il a aussi travaillé en mathématiques sur les problèmes d'estimation de paramètres pour les distributions Weibull et Pareto. De 2002 à 2007, il organise les Summer Schools on Advanced Methodological Methods et a fondé en 2005 la revue scientifique the Quantitative Methods for Psychology. Il a été président de la Société québécoise pour la recherche en psychologie de 2010 à 2013. Il a publié deux livres pour l'enseignement des statistiques en sciences humaines. Il a reçu en 2016 le R. Duncan Luce Outstanding Paper Award pour un article intitulé: Learning curves as strong evidence for testing models: The case of EBRW.

Vincent Di Lollo Early Career Award - Jonathan Fawcett

Dr. Jonathan Fawcett is an Assistant Professor in the Psychology Department at Memorial University of Newfoundland. He received his PhD in 2012 from Dalhousie University under the supervision of Dr. Tracy Taylor-Helmick. Dr. Fawcett subsequently completed post-doctoral training at the Medical Research Council Cognition and Brain Sciences Unit in Cambridge, England, under the supervision of Dr. Michael Anderson, where he was also a Junior Research Fellow at Clare College and held post-doctoral funding from NSERC and the British Academy.

Dr. Fawcett's NSERC-funded research program has balanced fundamental research questions with real-world applications and methodological development. Much of his work focuses on the mechanisms underlying the control of unwanted thoughts and memories, including recent work exploring how the failure of those control mechanisms could contribute to mental disorders. His interest in distinctive encoding modalities and memory for unexpected events has also led him to study laboratory-based phenomena such as the production effect and applied topics such as the weapon focus effect.

To date, Dr. Fawcett has published 36 articles, 1 edited volume, and 2 popular science articles. His publications have appeared in leading research outlets such as the Journal of Experimental Psychology: General, Psychonomic Bulletin and Review, Cognition, Journal of Clinical Psychiatry, and Psychological Medicine. He has also supervised numerous students at the graduate and undergraduate level and is a long-standing member of the CSBBCS community, having received the Donald O. Hebb Student Award at CSBBCS in 2010.

Schedule Overview

Thursday June 17th, 2021

8:30 - 9:30 AM: Symposia and Talk sessions

- Symposia: Cognitive effects of communicated probabilities
- Aging
- Reading

9:45 - 10;45 AM: Symposia and Talk sessions

- Symposia: Overcoming Challenging to Online Learning during the COVID
- Language
- Neuroscience
- The Screen-Based Eye Tracking Demo by Tobii Pro

11:00 AM - 12:00 PM: Symposia and Talk sessions

- Symposia: Opening the research pipeline
- Symposia: Reading (and listening) between the lines
- Memory 1
- Attention 1

12:30 - 1:30 PM: **Donald Hebb Distinguished Contribution Award Address by Derek Besner.**

2:00 - 3:00 PM: Past President's & Executive Symposia

2:45 - 4:30 PM: Poster Sessions 1

- All other
- Attention, Perception, Language & Reading
- Cognitive Application, Cognitive Neuroscience, Decisions, Meta
- Memory & Learning

4:45 - 5:45 PM: Symposia and Talk sessions

- Symposia: Interactions of hearing, cognition, brain and posture
- Memory 2
- Attention 2
- Cognitive Neuroscience
- Individual Differences

6:00 - 7;00 PM: Symposia and Talk sessions

- Symposia: Role of Motor System beyond motor domain
- Attention 3
- Social 1
- Decisions

7:00 - 9:00 PM: Socializing on GatherTown (instructions p.28)

***Note: Several talk sessions and symposia will occur at the same time in different zoom meetings.**

Schedule Overview

Friday June 18th, 2021

8:30 - 9:30 AM: Symposia and Talk sessions

- Symposia: Distinction between Distinctive Encoding Modalities
- Learning & Memory
- Auditory

9:45 - 10;45 AM: Symposia and Talk sessions

- Symposia: Puzzling Relationship between Memory over short & long-term
- Attention 4
- Visual Perception
- Measuring and Maximizing Eye Tracker Data Quality with EyeLinks

11:00 AM - 12:00 PM: Symposia and Talk sessions

- Symposia: Cognitive Function Associated with Task-Based Networks
- Memory 3
- Social 2
- Methods

12:15 - 12:45 PM: Vincent Di Lollo Early Career Award Address by Jonathan Fawcett

1:15 - 2:15 PM: Women in Cognitive Science Canada

2:15 - 3:15 PM: CSBBCS Equity Diversity and Inclusion Report

2:30 - 4:30PM: Poster Sessions 2

- All Others
- Language & Reading
- Memory & Learning
- Social, Attention, Visual Perception & Aging

3:30 - 4:30 PM: NSERC Information Session

4:45 - 5:45 PM: Symposia and Talk Sessions

- Symposia: What makes us think?
- Memory 4
- Social 3
- Numeric and Meta Cognition

6:00 - 7:00 PM: CSBBCS/ SCSCCC AGM

7:00 - 9:00 PM: Socializing on GatherTown & Games (Trivia & Jackbox Games, see p.28 & 40)

***Note: Several talk sessions and symposia will occur at the same time in different zoom meetings.**

Detailed Schedule, Thursday June 17th, 2021

8:30 - 9:30 AM: Session 1A - Symposia: Cognitive Effects of Communicated Probabilities
Organizers: David R. Mandel and Robert N. Collins
Moderator: Robert N. Collins (rncollinsphd@gmail.com)
Symposia Abstract: Probability communications are commonplace in modern information- and uncertainty-rich societies. This symposium examines several cognitive effects of receiving communications about probability information in either numeric or verbal formats. In Presentation 1, Juanchich et al. examine the conversationally pragmatic assumption that the framing of verbal probabilities is taken as implicit advice that has implications for credibility assessments of the sender. In Presentation 2, also drawing on a pragmatic account, Collins and Mandel examine how probability format (i.e. verbal vs. numeric) affects inference about unstated recommendations and how these in turn affect decision-making. In Presentation 3, Teigen et al. examine the interpretation of the verbal probability "likely" and find that it is interpreted as the mode of a distribution; namely, as the "most likely" value. Finally, in Presentation 4, Mandel et al. examine accuracy across three formats (verbal, point numeric, and numeric ranges) on arithmetic tasks involving computation of averages and products.

- **8:30 - 8:45AM:** Verbal framing effects on vaccination intention depend on the trustworthiness of the speaker - Marie Juanchich (#22)
- **8:45 - 9:00AM:** Drawing Inferences and Making Decisions from Verbal and Numeric Probability Forecasts - Robert Collins (#30)
- **9:00- 9:15AM:** A "Likely" Quantity is a "Most Likely" Quantity, But Not as Likely as We Like to Think - Karl Teigen (#289)
- **9:15 - 9:30AM:** Computing Averages and Products from Verbal and Numeric Probabilities - David Mandel (#23)

8:30 - 9:30AM: Session 1B - Aging

- **8:30 - 8:45AM:** The effects of simulated and actual reduced visual acuity on the Montreal Cognitive Assessment - Zoey Stark (#77)
- **8:45 - 9:00AM:** Older adults have an associative deficit but this does not affect directed forgetting performance - Pelin Tan (#217)
- **9:00- 9:15AM:** Perceptions of Audio-Visual Impact Events in Younger and Older Adults - Katherine Bak (#65)
- **9:15 - 9:30AM:** Neural evidence for age-related deficits in the representation of state spaces - Alexa Ruel (#2)

Detailed Schedule, Thursday June 17th, 2021

8:30 - 9:30 AM: Session 1C - Reading

- **8:30 - 8:45AM:** The influence of translation ambiguity on bilinguals' reading in L1 - Xuan Pan (#202)
- **8:45 - 9:00AM:** Intention and Performance When Reading Aloud: Context is Everything - Derek Besner (#185)
- **9:00- 9:15AM:** Do bilinguals integrate meanings of words presented parafoveally and foveally when words come from different languages? Yes, they do to certain extent! - Olessia Jouravlev (#186)
- **9:15 - 9:30AM:** Examining the Relationship Between Reading Abilities and Schizotypal Traits in Neurotypical Adults - Narissa Byers (#89)

9:45 - 10:45AM: Session 2A - Symposia: Overcoming Challenges to Online Learning during the COVID
Organizer: Noah D. Forrin
Moderator: Noah D. Forrin (forrinn@mcmaster.ca)
Symposia Abstract: The COVID-19 pandemic precipitated a wide-scale transition to online learning, impacting millions of postsecondary students worldwide. The first talk, presenting survey data from an undergraduate psychology course, elucidates an important issue: Following the shift to online learning, students perceive their attentiveness to have decreased. The subsequent talks examine associations between students' attentiveness and key aspects of online lectures: lecture video speed, the visible presence (vs. absence) of the instructor, and the attentiveness of visible classmates. Lecture video speed can be increased without diminishing attentiveness (second talk). Students are less attentive when watching lecture videos with their peers, but similarly attentive regardless of whether the instructor is visible (third talk). And (in)attentive states can spread "contagiously" between students in a live online classroom (fourth talk). Together, these talks will advance knowledge of factors associated with attention and learning online and will discuss practical implications for instructors and students.

- **9:45 - 10:00AM**: One Year Later: Examining Students' Perceived Changes in Attention, Affect, and Time Perception within Two Pandemic Samples - Lydia Hicks (#58)
- **10:00 - 10:15AM:** Learning Faster: The Effects of Speed Watching Video Lectures on Comprehension, Attention, Metacognition, and the Learning Experience - Laura J. Bianchi (#158)
- **10:15 - 10:30AM**: Who You're With vs. Who You See: Examining Factors that Influence Attention During Video Lectures - Caitlin Mills (#61)
- **10:30 - 10:45AM**: Evidence of (in)Attention Spreading Between Students During a Live Online Lecture - Noah Forrin (#36)

Detailed Schedule, Thursday June 17th, 2021

9:45 - 10:45AM: Session 2B - Language

- **9:45 - 10:00AM:** Individual differences in foreign word form learning: Roles for rhythm and STM for non-sentences - Elisabet Service (#84)
- **10:00 - 10:15AM:** A communicative account of lexical organization - Brendan Johns (#82)
- **10:15 - 10:30AM:** Gesture influences resolution of ambiguous contrasting statements - Jennifer Hinnell (#290)
- **10:30 - 10:45AM:** Twenty years of language research in pediatric epilepsy: A systematic review - Katharine Bailey (#210)

9:45 - 10:45AM: Session 2C - Neuroscience

- **9:45 - 10:00AM:** Structure Can Predict Function in the Human Brain: A Graph Neural Network Deep Learning Model of Functional Connectivity and Centrality Based on Structural Connectivity - Josh Neudorf (#273)
- **10:00 - 10:15AM:** Decomposing the Spatial representation of Behavioural Domains in White Matter - Zaki Alasmar (#183)
- **10:15 - 10:30AM:** G protein-coupled estrogen receptor-1 activation potentiates excitatory synaptic transmission in the superficial layers of the entorhinal cortex - Ariel Batallán Burrowes (#283)
- **10:30 - 10:45AM:** Does “bystander stress” affect spatial learning and memory in adult male and female rats? - Saeideh Davari Dowlatabadi (#200)

9:45 - 10:45AM: The Screen-Based Eye Tracking Demo by Tobii Pro

This webinar will introduce the screen-based eye tracking solutions, software capabilities, and demonstrate a screen-based project with the eye tracking software Pro Lab. Followed by a Q&A session about your eye-tracker.

Detailed Schedule, Thursday June 17th, 2021

11:00AM - 12:00PM: Session 3A - Symposia: Opening the research pipeline
Organizers: Erin Quirk, Lena Kremin, Krista Byers-Heinlein
Moderator: Krista Byers-Heinlein (k.byers@concordia.ca)
Symposia Abstract: Open science aims to make research more transparent, accessible, and reproducible. Many researchers understand and value these principles but may not know how to apply them to their own work. This symposium addresses a gap in open science discussions by offering practical suggestions for how researchers can incorporate open science practices into their research pipelines. Paper 1 describes how the ManyBabies consortium built a successful large-scale international collaboration with open science principles and practices at its foundation. Paper 2 introduces the use of open software tools for generating unbiased visual representations and conducting robust inferential statistics. Paper 3 gives a state of the art of open access initiatives in psychology and neuroscience with practical tips for how researchers can effectively use them. This symposium gives concrete steps for researchers to implement open science practices in cognitive psychology and brain science.

- **11:00 - 11:20AM:** Large-scale grassroots collaborations are changing research for the better: The ManyBabies model - Krista Byers-Heinlein, Melanie Soderstrom, Kiley Hamlin (#33)
- **11:20 - 11:40AM**: A credo for the use of open software tools to improve the statistical and visual interpretation of data in cognitive psychology and neuroscience - Léon Franzen (#56)
- **11:40AM - 12:00PM:** The future is free: The next generation of open access initiatives in psychology and neuroscience - Shaun Yon-Seng Khoo (#34)

Detailed Schedule, Thursday June 17th, 2021

11:00AM - 12:00PM: Session 3B - Symposia: Reading (and listening) between the lines
Organizers: Mehrgol Tiv & Debra Titone
Moderators: Debra Titone (debra.titone@mcgill.ca) & Mehrgol Tiv (mehrgol.tiv@mail.mcgill.ca)
Symposia Abstract: Often the scientific study of language occurs in a context-free vacuum. While this approach has shed light on many aspects of language processing, it does not reflect how language is actually used and understood in the real world. Real-world communication is often ambiguous – what exactly someone is trying to say is in no small part influenced by who is saying it, to whom, or in what context. Aside from the content of the utterance, real-world communication also conveys information about the speaker and is affected as well by the perceiver's own language experience and conceptual representations. This process is further complicated by technological advances that allow non-human agents to use and understand language. How do we navigate these countless cues to find meaning? In this symposium our panel of four speakers will bring diverse perspectives to the question of how social information guides our understanding and perception of language.

- **11:00 - 11:15AM:** Assessing how personal and ecological language diversity relate to bilinguals' social cognitive processing of others' intentions - Mehrgol Tiv (#37)
- **11:15 - 11:30AM:** Racial and linguistic diversity impact the perception of different accents - Ethan Kutlu (#55)
- **11:30 - 11:45AM:** Mentalizing the mind of machines: Referential informativity in human-robot communication - Raheleh Saryazdi (#207)
- **11:45AM - 12:00PM**: Internal vs external dimensions of verb meaning: Lexical-semantic processing of mental, emotional, and nonembodied abstract verbs - Emiko Muraki (#79)

11:00AM - 12:00PM: Session 3C - Memory 1

- **11:00 - 11:15AM**: Valence Does Not Affect Recognition - Molly MacMillan (#15)
- **11:15 - 11:30AM**: The influence of cue familiarity on the recollection of autobiographical memories - Lauri Gurguryan (#31)
- **11:30 - 11:45AM**: Typing as a Window into the Relation Between Fluency and Metamemory - Chris Fiacconi (#90)
- **11:45AM - 12:00PM**: How Extraneous Facial Markings Affect Face Recognition - Victoria Kavanagh (#16)

Detailed Schedule, Thursday June 17th, 2021

<u>11:00AM - 12:00PM</u>: Session 3D - Attention 1

- **11:00 - 11:15AM:** Both task-irrelevant and task-relevant information trigger reactive conflict adaptation in the item-specific proportion-congruent paradigm - Giacomo Spinelli (#70)
- **11:15 - 11:30AM:** Can proactive control facilitate selective attention?: Evidence from a two-target method - Sevda Montakhaby (#274)
- **11:30 - 11:45AM**: Individual Differences in Working Memory Capacity and The Missing-Letter Effect in Reading - Ralph Redden (#224)
- **11:45AM - 12:00PM:** The relationship between video games and reading performance is related to visual-spatial attentional demands - Shaylyn Kress (#204)

<u>12:30 - 1:30PM:</u> Donald O. Hebb Distinguished Contribution Award Address - Derek Besner

Various prominent computational accounts assume that visual word identification does not need any form of attention, nor an intention as a preliminary. Further, the fundamental processing dynamics in these models (interactive activation) are widely seen as unfolding in the same way across different contexts. I review some findings which lead me to a different conclusion. Visual word recognition (which, after all, is a necessary preliminary to reading comprehension) requires (i) spatial attention, and (ii) an additional form of attention, as well as several local homunculi (executive attention). It is not always intention free, and it is shaped by context in ways unanticipated by any extant model on the table. It is overdue for computational modelers to acknowledge that various findings currently languishing in relative obscurity should be treated as benchmarks. A few proposals for how we might think about some of these results are noted.

Detailed Schedule, Thursday June 17th, 2021

2:00 - 3:00PM Past President's & Executive Symposium 2021 (originally 2020): The Influence of Bilingualism on Cognition: A Tale of Two Cities

- **2:00 - 2:30PM**: Ellen Bialystok, Ph.D., York University, https://lcad.lab.yorku.ca
- **2:30 - 3:00PM:** Debra Titone, Ph.D., McGill University, https://www.mcgill.ca/language-lab/our-team/debra-titone-phd-lab-director

Introduction: William Hockley & Geneviève Desmarais

Detailed Schedule, Thursday June 17th, 2021

2:45 - 4:30PM: Poster Session 1: All Other (23 posters)

- The Impact of Reproductive History on Mood Sensitivity to Hormone Fluctuations in Perimenopause - Julie Ziemer (#5)
- Autism, enhanced perceptual functioning and time perception - Angéla Clermont (#13)
- Increased pain behavior in mice succeeding interaction with a social partner in pain - Sandra J Poulson (#57)
- The joint impact of bilingual experience and menopausal status on cognitive function - Alicia Duval (#60)
- The impact of gender and gender expression on our impressions of homosexual and heterosexual couples - Emma Melanson (#88)
- Validation of the Dyslexia Adult Checklist in a Post-Secondary Population - Vanessa Soldano (#91)
- Changes in the prevalence of thin bodies biases young women's judgements about body size - Nathalie Germain (#101)
- Improving Episodic Future Thinking in Children: A Novel Episodic Specificity Induction - Olivia Gardam (#102)
- Gender Differences in Concussion-Related Knowledge, Attitudes and Reporting Behaviours Among University Student-Athletes - Sarah Bains (#105)
- Online Psychological Testing using Executables: A Case Study Using a Continuous Shape-Color Retrieval Task - James Yuan (#113)
- Forming Real-World Multisensory Object Concepts - Aedan Li (#136)
- The effects of context on ambiguous facial configuration processing: An event related potential (ERP) study - Emma Amyot (#145)
- Abstract thinking influences on emotional facial expression identification and categorzation - Gasser Saleh (#161)
- Eliminating cognitive illusions from visual data - Bradley Smith (#165)
- Interactive and non-interactive gaze exchanges during real life dyadic interactions - Florence Mayrand (#175)
- Effects of musical predictability on affective response to short melodies - Alexander Albury (#178)
- Amyloid Beta Protein Facilitates Synaptic Strength in the Medial Entorhinal Cortex - Marcus Suvanto (#179)
- Gender Bias in the Classroom - Tamara Dubljevic (#187)
- Boredom on Later Self-control - Kristen Lott (#206)
- Making spatial mistakes: The influence of learning strategies and congruency on object-location memory across the lifespan - Amelia Semenak (#220)
- Exploring individual-difference factors in the devaluation-by-inhibition effect: Behavioral inhibition and risk-taking - Mackenzie Bain (#230)

Detailed Schedule, Thursday June 17th, 2021

2:45 - 4:30PM: Poster Session 1: All Other (23 posters)

- Developing an ERP paradigm to assess conceptual processing in DoC patients: A proof of principle study - Netri Pajankar (#236)
- Clark's nutcrackers (Nucifraga columbiana) process featural and geometric cues using either brain hemisphere - Breanna Cheri (#255)

2:45 - 4:30PM: Poster Session 1: Attention, Perception, Language & Reading (30posters)

- 'The Effect of Matching vs. Mismatching L1/L2 Orthography on Self-rated Reading and Writing Proficiency - Avleen Mokha (#18)
- Constituent semantic information in compound and pseudo-compound processing.- Taylor Melvie (#51)
- Utter Nonsense: Semantic effects in adjective-noun conceptual combination - Tara McAuley (#69)
- Locking gaze': An investigation of mutual gaze during dyadic real-world interactions using dual mobile eye tracking eyeglasses - Jessica Haight (#73)
- The Fate of Unselected Homograph Meanings - Timothy Woerle (#95)
- The development of the missing-letter effect : The role of frequency, word function and phonology - Marie-Michelle Collin (#100)
- How does attentional tracking impact response time in a series of touches? - Mallory E. Terry (#108)
- Characterizing language-unique words, cognates, and interlingual homographs in the linguistic landscape of four Canadian cities - Esteban Hernandez-Rivera (#117)
- Two plus one equals three: Perceptual grouping in dyads and small groups - Victoria Fratino (#131)
- Greater language social diversity mitigates increase in perseverative errors in women - Anne Beatty-Martínez (#133)
- Individual Differences in Word Class Discrimination - Derrick Bourassa (#148)
- Effects of Perceptual Similarity and Target Frequency in Multiple Target Visual Search - Lee-Amber Laderoute (#152)
- The role of visual, auditory, and tactile cues in the perception of illusory self-motion (vection) - Brandy Murovec (#154)
- Can Attention Really be Captured in the Abscence of Awareness? - Mickenzie Galan (#163)
- Multilingualism Associated with Less Lateralization on Free-viewing Tasks than Bilingualism and Monolingualism - Daria Chernova (#166)
- Language Experience drives Differences in Sentence Repetition Performance in Bilingual Children - Deanna Friesen (#169)

Detailed Schedule, Thursday June 17th, 2021

2:45 - 4:30PM: Poster Session 1: Attention, Perception, Language & Reading (30posters) - CONTINUED

- An attempt to boost out of the attentional blink - Jocelyn Mabson (#170)
- Age differences in facial identity and emotion perception and the relationship with hearing abilities - M. Eric Cui (#172)
- Relationships Between Task Difficulty Order, Flow and Creativity - Bobby McHardy (#174)
- The Meaning of Words: For Richer or For Poorer - Susan Lutfallah (#177)
- Lexical Activation in Visual Word Recognition: Novel Evidence for Multiple Modes of Processing - Torin Young (#188)
- Slow and steady: Response time variability (and speed) predict depth of mind wandering - Shaela Jalava (#196)
- Attention in hindsight: Using video-stimulated recall as a novel approach to capturing fluctuations in self-reported attentional engagement - Samantha Ayers-Glassey (#198)
- The Role of Sensorimotor Experience in Vocabulary Acquisition - Israa Siddiqui (#221)
- Metaphors about religion - Juana Park (#225)
- Learning the meaning of fun, happen, and peace: Development of abstract word knowledge - Lorraine Reggin (#226)
- Eliminating the context incongruency effect using a change detection task - Sydney Woodin (#235)
- Challenges Underlying Replicability for Complex Tasks During Online Testing - Elizabeth M. Clancy (#254)
- Morphological Processing of Ambiguous Trimorphemic Words by Foveal Split - Kyan Salehi (#265)
- Examining the Influence of Conformity on Attention in an Online Classroom - Simrandeep Kalsi (#284)

2:45 - 4:30PM: Poster Session 1: Cognitive Application, Cognitive Neuroscience, Decisions, Meta (25 posters)

- Perceptions of Profit Motive: How Messaging Can Affect Beliefs about Profit-Seeking - Zuleykha Gasimova (#14)
- Conceptual Knowledge of Arithmetic and Algebra Competency - Bethany Sander (#26)
- Behavioural profiles following feedback: Assessing the characteristics of positive, negative and neutral outcomes - Ben Dyson (#43)
- Investigating perceptions of human drivers versus autonomous vehicles using moral dilemmas - Heather Walker (#49)
- An Investigation of the Role of Mindfulness, Gratitude, and Personality on Emotional Facial Recognition- Alexandra Deck (#111)

Detailed Schedule, Thursday June 17th, 2021

2:45 - 4:30PM: Poster Session 1: Cognitive Application, Cognitive Neuroscience, Decisions, Meta (25 posters) - CONTINUED

- Non-Numeric Patterning and Mathematical Development in the Early Years of Formal Schooling- Rachel McGinn (#115)
- Receiving texts - not sending them- is associated with academic performance- Laura Schneeberger (#123)
- Use of Brain Stimulation to Study the Role of Motor Areas in Emotion Perception - Carmen Dang (#124)
- Losses loom lesser than gains: Using Cumulative Prospect Theory to predict problem gambling - Jessica Curtis (#132)
- Changes in Visual Discrimination Abilities during the COVID-19 Pandemic - Jessica Hurtubise (#134)
- COVID-19 Related Stress in university Students - Jenna Daly (#140)
- Differentiating BetweenEmpirical and Preferntial Decision Strategies = Noor Al-Azary (#149)
- Meaningful Words: How adjectives change noun Imageability - Jahanvi Patel (#150)
- More common = less confidence? A meta-analytic review of the effect of word frequency on judgements of learning - Michelle A. Dollois (#173)
- Your Best Effort? Study Strategies and Subjective Experience - Caitlin Reintjes (#203)
- Relations Between Mathematical Vocabulary and Mathematical Performnce for Students in Grades 4 and 6 - Chelsee Pierre-Jerome (#205)
- Attractiveness and the Mere Exposure Effect - Natasha Pestonji-Dixon (#215)
- Rumination induction effects on executive functions within an emotional context - Antoine Bergeron (#216)
- Do breaks during online lectures boost attention and learning? - Kitty M.Q.Guo (#228)
- Hemispheric contributions to deferent forms of co-reference during discourse processing - Deanna Hall (#231)
- Sleep impairs memory in a patient with anterograde amnesia - Nelly Matorina (#252)
- Relations Between Individual Differences in working memory and order judgements for numerial sequences - James Vellan (#257)
- Cognition and well-being during the COVID-19 pandemic: Unique events enhance episodic richness, mood and temporal context of life experiences - Melissa Meade (#259)
- Right on the Money: Financial Literacy of University Students - Aura Pop (#281)
- Singing skills of members of a choir for persons with Parkinson's Disease: Pitch accuracy and ability to improvise an ending - Kristin Gallant (#288)

Detailed Schedule, Thursday June 17th, 2021

2:45 - 4:30PM: Poster Session 1: Memory & Learning (19 posters)

- Effects of Social Presence on Online Learning - Rachel Appiah (#39)
- The Effect of Curiosity on Incidental Memory Formation - Sabrina Valenzano (#40)
- Parents' Math Ability and Math Anxiety Relate to their Children's Math Grades, in Part, Because of their Math-Helping Style - Nichole B. Johnston (#71)
- How doe emphasizing temporal or semantic associations affect free recall? - Bryan Hong (#74)
- Testing effect: The varying of backward association on the effectiveness of mediators - Donnelle DiMarco (#80)
- Transfer Appropriate Processing in the Forward Testing Effect - Monique Carvalho (#87)
- The Between-Subjects Production Effect: Examining the Effect of the Distinctiveness Heuristic - Chris Clark (#92)
- The Production Effect and Visual Details: Connecting Speech to Memory of Location and Color - Chris Clark (#93)
- Metacognitive Control of Study Decisions - Dorina Sluka (#147)
- Categorization without categories: Applying ATHENA to an unstructured artificial grammar task - Isabella Labek (#155)
- Let me give you something to think about: Does needing to remember something new make it easier to forget something old? - Anjali Pandey (#201)
- The effect of contextual interference and feedback on learning conposers' musical styles - Seung Heuck Lee (#248)
- Drawing as an Encoding Tool: Generalizing to Emotional and More Complex Stimuli - Sophia Tran (#251)
- Offloading memory does not reduce the benefit of list categorization - Xinyi Lu (#258)
- The Effects of Imagery on Recognition Memory for Pictures and Sounds - Savannah A. Tremblay (#263)
- The influence of similarity within pictures and sounds on recognition memory - Michael D. Karkuszewski (#294)
- Switching off the need for the hippocampus - Daniel McCallum (#269)
- From the hippocampus to another memory network within a learning day - Shannon Smith (#271)
- Don't take it at face value: The effect of external store availability on predicted and actual value-directed recall - Joyce Park (#276)

Detailed Schedule, Thursday June 17th, 2021

4:45 - 5:45PM: Session 4A - Symposia: Interactions of hearing, cognition, brain and posture
Organizers: Nicole Grant, April Pereira & Berkley Petersen
Moderator: Berkley Petersen (berkley.petersen@mail.concordia.ca)
Symposia Abstract: Healthy aging is associated with changes in cognitive, sensory, and motor functioning. Approximately one third of all older adults have some degree of hearing loss (HL); thus it is important to understand the underlying mechanisms linking HL to cognitive and postural performance as they are both key factors involved in everyday functioning. The three presenters will describe recent work that examines (1) the effects of HL on patterns of neural functioning and neurodegeneration (2) the role of cognitive status in moderating the association between pure-tone hearing thresholds and speech-in-noise reception thresholds, and (3) the effects of hearing status on cognitive-motor dual tasking, with the added consideration of vision loss. The objectives of the three presentations converge in underscoring the connections between cognitive status, cognitive load and performance on sensory and sensorimotor measures.

- **4:45 - 5:05PM:** Default-Mode Network Connectivity in Mild Cognitive Impairment: The influence of Hearing Loss - Nicole Grant (#193)
- **5:05 - 5:25PM**: Cognition Moderates Pure-Tone and Speech-in-noise Threshold Associations in Older Adults - April Pereira (#219)
- **5:25 - 5:45PM**: Investigating How Sensory Losses and Cognitive Load Impact Older Adults' Balance - Berkley Petersen (#59)

4:45 - 5:45PM: Session 4B - Memory 2

- **4:45 - 5:00PM:** An instance-based theory of nonanalytic inference - Randall Jamieson (#50)
- **5:00 - 5:15PM:** What are recurrent memories about? Understanding their contents and links to mental health using computational text analysis - Ryan Yeung (#54)
- **5:15 - 5:30PM:** The properties of general and personal semantics - Annick Tanguay (#227)
- **5:30 - 5:45PM:** Towards a computational model of the production effect in recognition memory - Megan Kelly (#21)

4:45 - 5:45PM: Session 4C - Attention 2

- **4:45 - 5:00PM:** Investigating Attention Scope with the Flanker Task: Does Attention Broaden to the Forest and Narrow to the Tree? - Ana Maslany (#4)
- **5:00 - 5:15PM:** Comparing Posner's beam and Treisman's glue in endogenous orienting - Richard Drake (#243)
- **5:15 - 5:30PM:** On the relation between two measures of executive control: The Simon and Flanker effects - Raymond Klein (#153)
- **5:30 - 5:45PM:** Does alerting occur in compound visual search tasks? - Nadja Jankovic (#66)

Detailed Schedule, Thursday June 17th, 2021

4:45 - 5:45PM: Session 4D - Cognitive Neuroscience

- **4:45 - 5:00PM:** Temporal dynamics of fMRI activation during face processing in naturalistic audiovisual movies - Chelsea Ekstrand (#244)
- **5:00 - 5:15PM:** Structure and function of hippocampal dentations among healthy young adults - Margret Lo, Ariana Bujold (#270)
- **5:15 - 5:30PM:** Structure and function of hippocampal dentations among healthy young adults - Margret Lo, Ariana Bujold (#277)
- **5:30 - 5:45PM:** How Spatial is Spatial Language? Investigating the Relationship between Spatial Cognition and Spatial Language - Jaimy Hannah (#138)

4:45 - 5:45PM: Session 4E - Individual Differences

- **4:45 - 5:05PM:** Bilingualism: A cognitive exercise in managing uncertainty - Jason Gullifer (#125)
- **5:05 - 5:25PM:** Individual differences in how reward associations affect Stroop performance - Brent Pitchford (#268)
- **5:25 - 5:45PM:** The Comprehensive Thinking Styles Questionnaire: A novel measure of intuitive-analytic thinking styles - Christie Newton (#9)

6:00 - 7:00PM: Session 5A - Symposia: Role of Motor System beyond motor domain

Organizer: Sean A. Gilmore

Moderator: Sean A. Gilmore (sean.gilmore@ryerson.ca)

Symposia Abstract: The "motor-system" is a network of cortices generally contained – but not isolated to - dorsal parietal and basil ganglia regions of the brain. These regions have been classically defined by their association with motor-based processes and behaviours. However, over the years research has challenged the domain specificity of the motor system, examining the interconnectivity of these cortices and the role they play in non-motor processes. This symposium is aimed at providing a multidisciplinary approach to better understand the role of the motor system. This symposium will span across disciplines such as temporal auditory perception (Jessica Grahn); vocal memory advantages (Frank Russo) and the role of the cerebellum in visual attention (Christopher Striemer). Overall, each talk will present unique evidence for the role that classically defined "motor-systems" have non-motor functions.

- **6:00- 6:15PM:** The role of the motor system beyond the motor domain - Sean Gilmore (#110)
- **6:15 - 6:30PM:** The role of motor areas in auditory sequence perception - Grahn Jessica (#119)
- **6:30 - 6:45PM:** The role of sensorimotor simulation in the memory advantage for vocal melodies - Frank Russo (#232)
- **6:45 - 7:00PM:** Cerebellar contributions to spatial and temporal visual attention - Chris Striemer (#107)

Detailed Schedule, Thursday June 17th, 2021

6:00 - 7:00PM: Session 5B - Attention 3

- **6:00- 6:15PM:** The interaction of attention control settings and emotion - Lindsay Plater (#98)
- **6:15 - 6:30PM:** Does skill-challenge balance induce flow? Re-examining the inverted-U - Jeremy Marty-Dugas (#213)
- **6:30 - 6:45PM:** Interested minds are predictable minds: Establishing a link between individual traits and temporal fluctuations of attentional engagement - Effie Pereira (#191)
- **6:45 - 7:00PM: Distraction, Daily Life Inattention, and Perceptual Load - Michelle Blumberg (#25)**

6:00 - 7:00PM: Session 5C - Social 1

- **6:00- 6:15PM:** An Uneven Playing Field; Perspective Taking During Social Problem Solving - Keely Owens-Jaffray (#139)
- **6:15 - 6:30PM:** A brief intervention mitigates detrimental effects of changes in COVID-19 health guidance - Jeremy Gretton (#182)
- **6:30 - 6:45PM:** To wait or not to wait: how experimenter racial and linguistic background affect children's performance in a delayed gratification task - Thomas St. Pierre (#249)
- **6:45 - 7:00PM:** I'm more like you than you think: Perspective taking in adolescents and adults - Keely Owens-Jaffray (#137)

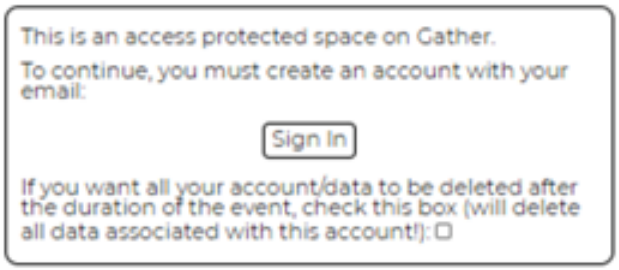
6:00 - 7:00PM: Session 5D - Decisions

- **6:00- 6:15PM:** Dietary Decision Making in the Diabetes Diet: Simplicity is Sweet - Tania Alves (#192)
- **6:15 - 6:30PM:** To pay or just play? Examining individual differences between purchasers and earners of loot boxes in Overwatch - Chanel Larche (#266)
- **6:30 - 6:45PM:** A micro-level account of longer-form reinforcement learning in structured and unstructured environments - Ben Dyson (#42)
- **6:45 - 7:00PM:** Decision making in a pandemic: The role of affect and self-other decision perspective - Julia Spaniol (#45)

7:15 - 8:15PM: Socializing on GatherTown (see p.28 for instructions)

How to Join GatherTown
(Social Events, Thursday & Friday 7-8pm)

1. To access the conference GatherTown Space use this link*: **https://gather.town/app/D3UrxrLDPfamRURp/My%20Home%20Space**



You will need to enter your e-mail address to sign in. It is important that you use the same address as the one you used for registration. You will then receive a one-time magic link in your inbox to enter the space for the first time. After that you will remain logged in to the space through your browser and can easily re-enter the space at anytime.

2. Next, you will choose an avatar and use your full name as your display name. You will use this avatar to walk around the town.

3. After clicking Join Gathering, you will land in the Main Entrance. Here, you will find 3 different doorways. If you are a graduate student, follow the arrow on the left side of the room. If you are a post-doctoral fellow or faculty, follow the arrow on the right side of the room. If you would like to meet with fellow conference attendees outside the social hours, you can use the Meeting Rooms to meet one-on-one.

4. Once inside a room you will find different games, which can be played as a group, placed on the tables. These include Sudoku, Pictionary, Set, Codenames, One Night Werewolf, Tetris. To join the game, you will press "x" on your keyboard.

5. After everyone joins the game, one person needs to create a private game. Doing so will generate a link, which will then need to be sent to the other players. To do so, you can use the Chat option on the left side. The other players will need to copy that link into the game to join the fun!

If you have any questions during the events, come ask them to #csbbcs2021 organizers at the HELP DESK in the Main Entrance

Detailed Schedule, Friday June 18th, 2021

8:30 - 9:30 AM: Session 6A - Symposia: Distinction between Distinctive Encoding Modalities
Organizer: Jonathan M. Fawcett
Moderator: Jonathan M. Fawcett (jfawcett@mun.ca)
Symposia Abstract: Our ability to selectively retain information is central to most aspects of our lives. But not all information is worth retaining, at least in the long run. This has driven research identifying encoding strategies through which important information might be highlighted to ensure that it remains accessible over time. The current symposium explores this topic by bringing together talks on three related encoding strategies (production, drawing and enactment) known to improve memory, with an emphasis on understanding their commonalities. Topics will include a discussion of encoding fluency within the production effect; how drawing benefits long-term retention in the brain and in the classroom; a meta-analytic synthesis of the enactment effect; and, finally, an embodied perspective connecting each of the preceding phenomena.

- **8:30 - 8:45AM:** All about the (type)case: Encoding fluency and the production effect - Kathleen Hourihan (#29)
- **8:45 - 9:00AM:** Learning through drawing: Evidence from the brain and the classroom - Jeffrey Wammes (#86)
- **9:00- 9:15AM:** The enactment effect: A meta-analytic review of behavioral, neuroimaging, and patient studies - Brady Roberts (#64)
- **9:15 - 9:30AM:** The role of the body in production, enactment, and drawing effects - Heath Matheson (#291)

8:30 - 9:30AM: Session 6B - Learning and Memory

- **8:30 - 8:45AM:** The influence of event schemas and context familiarity on imaging autobiographical events - Can Fenerci (#52)
- **8:45 - 9:00AM:** Does restudying impair memory for non-restudied information? - Skylar Laursen (#146)
- **9:00- 9:15AM:** The impact of bilingualism on cultural transmission: Findings from an iterated learning study - Pauline Palma (#17)
- **9:15 - 9:30AM:** Mapping 'expectation for perception': Directed attention at encoding facilitates response preparation to high probability events - Manda Fischer (#126)

Detailed Schedule, Friday June 18th, 2021

8:30 - 9:30 AM: Session 6C - Auditory

- **8:30 - 8:45AM:** Expectancy-based rhythmic entrainment as continuous Bayesian inference - Jonathan Cannon (#114)
- **8:45 - 9:00AM:** The building blocks of temporal variation in language processing - Fareeha Rana (#209)
- **9:00- 9:15AM:** How auditory perceptual learning is affected by temporal uncertainty - Tysen Dauer (#223)
- **9:15 - 9:30AM:** Metronome and Pitch: Tapping into human music perception - Hong (Ocarina) Zheng (#245)

9:45 - 10:45AM: Session 7A - Symposia: Puzzling Relationship between Memory Over the Short & Long-Term

Organizer: Dominic Guitard
Moderator: Dominic Guitard (edg2851@umoncton.ca)
Symposia Abstract: Sometimes you need information for a short period (e.g., when transferring a telephone number manually to your phone) while other times you need information for a longer period (e.g., when learning the names of your colleagues). Despite more than a century of research, we do not understand the relation between short (STM) or working memory (WM), a system for holding mental representations temporarily for use in thought and action, and long-term memory (LTM), a system for indefinite retention of an unlimited amount of information. In this symposium world renown experts will discuss empirical advances motivated by three contrasting theoretical approaches to memory: an embedded-processes approach (Cowan), a feature model approach (Saint-Aubin), and a time-based resource sharing approach (Camos). Forsberg presents new evidence that shows how STM/WM limits strongly predict LTM performance. Discussions will focus on the implications of a range of new evidence for the competing approaches.

- **9:45 - 9:57AM:** The Puzzling relationship between Memory Over the Short and Long-Term - Dominic Guitard (#24)
- **9:57 - 10:09AM:** An Embedded Process View of How Working Memory Creates Long-Term Memories - Nelson Cowan (#62)
- **10:09 - 10:21AM:** Working memory capacity is a key factor determining long-term memory across the lifespan - Alicia Forsberg (#63)
- **10:21 - 10:33AM:** The Revised Feature Model Accounts for the Production Effect in Working and Long-term Memory Tasks - Jean Saint-Aubin (#32)
- **10:33 - 10:45AM:** Relationships between working memory and long-term memory within the TBRS model - Valerie Camos (#53)

Detailed Schedule, Friday June 18th, 2021

9:45 - 10:45AM: Session 7B - Attention 4

- **9:45 - 10:00AM**: Altered attentional control in paediatric brain tumor survivors when viewing emotional scenes, an eye-tracking study - Elizaveta Igoshina (#214)
- **10:00 - 10:15AM:** Appraising the ANT-I: Psychometric Properties of the Attention Network Test for Interactions - Michael Lawrence (#222)
- **10:15 - 10:30AM:** Examining the relation between oral contraceptive use and trait- and state-level attention - Alyssa C. Smith (#181)
- **10:30 - 10:45AM:** Target-distractor competition modulates saccade trajectories - Caroline Giuricich (#10)

9:45 - 10:45AM: Session 7C - Visual Perception

- **9:45 - 10:00AM**: Color modulates features integration - Harpreet Saini (#8)
- **10:00 - 10:15AM:** Where to draw the line? - Dirk Bernhardt-Walther (#160)
- **10:15 - 10:30AM:** Is Searching in Time Similar to Searching in Space? - Brett Feltmate (#238)
- **10:30 - 10:45AM:** Expectation's Effect on Duration Perception Extend to Related Stimuli - Corina McFeaters (#106)

9:45 - 10:45AM: Session 7D - Measuring and Maximizing Eye Trcker Data Quality with EyeLinks

Understanding eye tracking data quality is critical for researchers who want to maximize their ability to detect significant effects and generate and report high quality, replicable data. In this Webinar, SR Research staff will discuss the key determinants of eye tracking data quality, and provide clear instructions for how critical data quality metrics such as accuracy and precision can be derived from their EyeLink data. The workshop will also describe a range of tips and tricks that attendees can use to ensure they maximize data quality in their own EyeLink systems – from optimizing camera and participant set-up, to choosing the most appropriate calibration model.

Detailed Schedule, Friday June 18th, 2021

11:00AM - 12:00PM: Session 8A - Symposia: Cognitive Function Associated with Task-Based Networks
Organizers: Todd S. Woodward, Donna Rose Addis, Maria Natasha Rajah
Moderator: Todd Woodward (toddswoodward@gmail.com)
Symposia Abstract: The brief history of functional magnetic resonance imaging (fMRI) methodology in cognitive neuroscience can be categorized across two dimensions: task vs. rest (experiments), and networks vs. individual regions (analyses). The task/regions approach began in the 1990s, and the rest/networks in the 2000s. The field is now turning to the task/networks approach, which provides evidence for associations of cognition/behaviour with network-level anatomical patterns. Two Canadian software packages for analysis of task/networks for fMRI: Partial Least Squares (PLS) and Constrained Principal Component Analysis for fMRI (fMRI-CPCA). PLS and fMRI-CPCA hold similar underlying assumptions (whole-brain dimensional analysis providing anatomical and temporal information) and were first published circa 2005. This symposium provides updates on the types of behavioural measures and cognitive operations are associated with specific task-based brain networks detectable with fMRI; namely, mental flexibility (Woodward), autobiographical cognition (Addis), and sex differences in aging (Rajah).

- **11:00 - 11:20AM:** Anatomical and Functional Characterization of a Task-based fMRI network involved in Mental Flexibility - Todd Woodward (#41)
- **11:20 - 11:40AM:** Whole-brain networks underpinning autobiographical cognition as revealed by PLS and CPCA - Donna Rose Addis (#47)
- **11:40AM - 12:00PM:** Behavior PLS Activation and connectivity analyses of sex differences in the effect of age on memory-related brain functions - M. Natasha Rajah (#44)

11:00AM - 12:00PM: Session 8B - Memory 3

- **11:00 - 11:15AM**: Rehearsal Processes in Item=Method Directed Forgetting - Pelin Tan (#157)
- **11:15 - 11:30AM**: Subclinical depression and autobiographical future thinking: An impairment in self-concept and not episodic specificity - Kayla Williams (#109)
- **11:30 - 11:45AM**: Comparing past and future emotional autobiographical events and impact of individual differences in current life stress - Azara Lalla (#121)
- **11:45AM - 12:00PM**: The hippocampus promotes long-term memory formation by preventing sensory interference - Isabelle Groves (#127)

Detailed Schedule, Friday June 18th, 2021

11:00AM - 12:00PM: Session 8C - Social 2

- **11:00 - 11:15AM:** I see what you're saying: Direct eye gaze enhances nervous system arousal and self-reference memory - Michelle Jarick (#116)
- **11:15 - 11:30AM:** Eye spy: Gaze communication and deception in a visual hide-and-seek task - Jacob Gerlofs (#275)
- **11:30 - 11:45AM:** Individual differences in social competence and personality traits modulate emotion recognition from masked faces - Sarah McCrackin (#83)
- **11:45AM - 12:00PM:** Does self-construal shape automatic social attention? - Ronda Lo (#12)

11:00AM - 12:00PM: Session 8D - Methods

- **11:00 - 11:15AM:** Cardiac function in the cockpit: Is it a reliable, objective indicator of pilot workload? - Samuel Clement-Coulson (#267)
- **11:15 - 11:30AM:** The Influence of Environmental Symmetry on Adult Reorientation Strategies - Iroshini Gunasekera (#280)
- **11:30 - 11:45AM:** Mind-wandering during the N-back task: A comparison of self-report measures - Heather Walker (#48)
- **11:45AM - 12:00PM:** Enhancing Memory using Enactment: Does Meaning Matter when Producing or Observing an Action? - Yadurshana Sivashankar (#67)

12:15AM - 12:45PM: Vincent Di Lollo Early Career Award Address - Jonathan Fawcett, Ph.D

Forgetting is often considered a fundamental cognitive failure, reflecting the undesirable and potentially embarrassing inability to bring something to mind when needed. However, far from being the passive failure of an imperfect system, this seemingly simple act is at times both complex and critical to our cognitive function. In this talk, I will present work exploring the mechanisms through which forgetting is achieved when enacted intentionally and discuss its real-world implications. Specifically, I will argue that intentional forgetting invokes one or more active cognitive processes aimed at facilitating the disengagement from – and digestion of – unwanted memories, with consequences for both the probability of recalling that memory as well as its fidelity should it be retrieved. Finally, I will discuss evidence linking intentional forgetting to the control of unwanted memories in clinical disorders. Together, these findings point to forgetting as an important and versatile feature – rather than failure – of memory.

Detailed Schedule, Friday June 18th, 2021

1:15 - 2:15PM: Women in Cognitive Science Canada (https://www.csbbcs.org/wicsc)
WICSC Mentorship Award, WICSC Research Grant for Junior Scientists,
Discussion panel: Preparing effective equity/diversity/inclusion (EDI) statements
PANELISTS:
- Marie-Claude Caron (NSERC)
- Skyler Mooney (NSERC)
- Prof. Randall Jamieson (Univ of Manitoba)
- Prof. Lauren Sergio (York Univ)

MODERATORS:
Prof. Debra Titone (McGill) & Prof. Penny Pexman (U Calgary)

2:15 - 3;15PM: CSBBCS Equity Diversity and Inclusion Report
We invited members of the Canadian Society for Brain, Behaviour, and Cognitive Science (CSBBCS) to complete an equity, diversity, and inclusion survey. We examined whether, and to what extent, any had experienced discrimination, racism, or limitations to equity, diversity and inclusivity at conferences or in Canadian academia. We analyzed responses coming from faculty and student members using content analysis. Though many respondents did not report discrimination, others reported various incidents within the society and at their academic institutions. These fell into six categories: explicit microagressions, denial of opportunity, dismissal of discrimination, underestimation of ability, tokenization, and perceived lack of representation. Responses also identified different targets for discrimination, based on race, language, and disability. Key suggestions for improvement were suggested by respondents, and by members of the society, to enhance access to resources designed to reduce microaggressions, and offer supports to address issues experienced at all levels within academia. By creating awareness of these issues, psychological research in Canada can be better positioned to promote ideas, talent and innovation that reflects academic contributions from our country's diverse demographics.

2:30 - 4:30PM: Poster Session 2 - All Others (17 posters)
- Global temporal context and sensorial modality effects on the discrimination of short rhythmic sequences. - Hugo Fitzback-Fortin (#75)
- Making Progress on the Effort Paradox: Perceived progress moderates cognitive effort avoidance - Sean Devine (#81)
- Fight Songs: Are certain song types agonistic signals in a tropical warbler? - Lambert Heatlie (#120)
- The Effect of a Personal Trainer on Workload during Remote Group Fitness Training - Pia Karpowitz (#142)
- Context-dependent use of memorizing effort heuristic - Skylar Laursen (#144)

Detailed Schedule, Friday June 18th, 2021

2:30 - 4:30PM: Poster Session 2 - All Others (17 posters) - CONTINUED

- Imaginary Elfs and other things you've never seen before: A comparative analysis of computational memory models on the fan and extra-list feature effects - M. Alex Kelly (#159)
- Sunk costs as cooperative social signals - Ethan Meyers (#171)
- Personality traits and self-reported navigation strategies in women - Shayna McNally (#180)
- Subjective Cognitive Decline and Cognitive Performance in Older Adults: A Systematic Review of Longitudinal and Cross-Sectional Studies - Carl Zhou (#184)
- Driving Exposure and dual-task Interference - Rachel Eng (#199)
- Self-paced Study and Word Dimensionality in Metacognition - Ryan Lee (#229)
- On the relationship between legality and morality - Mane Kara-Yakoubian (#234)
- Advancing our understanding of Visual-Perceptual Illusions in Pilots via Case studies and Emerging Technologies - Anya Pejemsky (#237)
- When does time fly? Investigating passage of time Judgements under various Experimental Conditions - Jesika Walker (#242)
- Spontaneous Monitoring During Test Promotes Metacognitive Sensitivity to Recognition Memory Performance - Mitton Evan (#246)
- Assessing psychosocial stressors, sex and menstrual cycle phase in a monetary risk task - Cinthia Tao (#253)
- As soon as you recognize the dog, you know it's an animal: Investigating conceptual representations through rapid object categorization - Caitlyn Antal (#279)

2:30 - 4:30PM: Poster Session 2 - Language & Reading (21 posters)

- The Magic of Looking without Seeing: Unexpectedly poor spellers may look at letter strings without seeing them at all - Tru Kwong (#1)
- How available resources and sentences concreteness differentially support immediate and long-term sentence recall - Theresa Pham (#3)
- Decomposability and cross-language overlap effects in L2 idiom reading: evidence from eye movement data - Marco Silvio Guiseppe Senaldi (#7)
- Transposed letter priming effects in morphological parsing of masked compound words - Alexander Taikh (#38)
- Behavioral Mechanisms of Response Planning During Social Interaction - Andrew Son (#68)
- Age of Acquisition Effects on Eye Movement Measures of First-Language and Second-Language Reading in Bilingual Children and Young Adults - Samantha Shaw (#99)
- Predictors of word segmentation cue production in bilinguals: Language dominance, exposure, and entropy - Annie C. Gilbert (#112)

Detailed Schedule, Friday June 18th, 2021

2:30 - 4:30PM: Poster Session 2 - Language & Reading (21 posters) - CONTINUED

- Use of grammatical gender cues in French: Evidence from monolingual and bilingual speakers - Gabrielle Manning (#118)
- We Otter Change Categories: Verbal Fluency Test Differences - Brette Lansure (#135)
- The Effect of Emotions on Syntactic Learning in Children - Myriam Michaud (#143)
- The Effect of Bilingual Exposure on Language and Cognitive Recovery in Children Following Ischemic Stroke - Kai Lan Leung (#156)
- Is the future on the left for Arabic speakers? - Juana Park (#162)
- Context and Self-reported Language Proficiency - Nawal Mustafa (#168)
- Influence of task type on second-language word and phoneme learning - Alyssa Yantis (#197)
- Syntactic factors play a key role in language intrusions in reading aloud among bilinguals - Emalie Hendel (#212)
- Infants' word segmentation of low statistical frequency in onset phonotactics - Stephanie Archer (#239)
- Being dominant in a minority language train executive functioning: The case of Franco-Ontarian code-switchers - Lean Gosselin (#247)
- Their guess is not as good as ours: Children find in-group voices more believable but not more memorable - Thomas St. Pierre (#250)
- Grey plasticity in international adoptees: Effects of early language exposure - Stephanie Deschamps (#262)
- Children's learning of second language words and sensitivity to fine-gained phonetic detail - Félix Desmeules-Trudel (#264)
- A killer or a piece of cake? How ease of understanding contributed to metaphor judgement - Parastoo Harati (#282)

2:30 - 4:30PM: Poster Session 2 -Memory & Learning (8 posters)

- Remembering from the Heart: Sex differences in Memory for Emotional Events - Nada Alaifan (#11)
- Peers, props and play: Complexity of pretend play and early academic skills - Paige Pascoe (#85)
- Trying Hard to Remember and to Forget - Chris McCoy (#97)
- production Improves Recognition and Reduces Intrusions in Between-Subject Designs - Hannah Willoughby (#141)
- Dyslexia-related slowing in visuo-spatial working memory task - Nathan Gagné (#167)
- The Comprehensive Narrative Elaboration Technique: Expanding the Narrative Elaboration Technique to Increase the Quantity and Quality of Children's Autobiographical Recall - Brittany Marche-Shears (#194)
- When Familiarity not Novelty Motivates Information-Seeking - Hannah Whitehead (#256)

Detailed Schedule, Friday June 18th, 2021

2:30 - 4:30PM: Poster Session 2 -Memory & Learning (8 posters) - CONTINUED

- Age Differences in the Phenomenological Experience for Highly Emotional Public and Personal Events - Cheryl Techentin, Naomi Phung (#261)

2:30 - 4:30PM: Poster Session 2 - (20 posters)

- Facial emojis influence emotional communication and social attributions in online conversations - Megan LeBlanc (#6)
- Are you looking at me? An objective state of mind reduces sensitivity to other's emotional expressions - Manlu Liu (#19)
- Impact of bilingualism on semantic processing in healthy older adults - Kim Thériault (#27)
- Age differences in decisions for self and others - Erika Sparrow (#72)
- Cultural differences in the temporal perception of faces - Esteban Mendoza-Duran (#76)
- Confidently Conspirational? - Jabin Binnendyk (#78)
- The effect of a cognitive task on postural control in older adults with simulated vision impairment - Sophie Hallot (#94)
- A PDP Model of Immediate Impression Formation - George Cree (#103)
- Rumination and its effect on attention to emotional stimuli - Jean-Philippe Ferron (#104)
- Using measures of healthy living to predict attentional engagement in everyday life - Tyler B. Kruger (#122)
- Statistical Summary Representations in Identity Learning: Exemplar Independent Incidental Recognition - Yaren Koca (#151)
- The Picture-Superiority Effect: Extensions - Kate F. Higdon (#164)
- Age differences in facial identity and emotion perception and the relationship with hearing disabilities - M. Eric Cui (#172)
- Politicians, Put on your Poker Face. Voting Attenuates the Leftward Posing Bias - Cassandra Baragar (#189)
- Will the Colavita Effect Persist in Online Testing? - Sarah Park (#195)
- Eyeing the eyes of predators and prey - Bradley Karstadt (#208)
- Perceptual grouping of fragmented contours using stochastic completion fields - Morteza Resanejad (#218)
- Constructing face emotion and gender: Testing constructivist accounts of face categorization using event-related representational similarity analysis - Emma Amyot (#233)

Detailed Schedule, Friday June 18th, 2021

2:30 - 4:30PM: Poster Session 2 - (20 posters)

- Exploring the Cause of Age Decrements in Visual but not Auditory Cue-based Prospective Memory - Oluchi Audu (#272)
- How much is enough? Exploring the effects of display time on the recognition of facial expressions of emotion - Justin Chamberland (#278)
-

3:30 - 4:30PM: NSERC Discovery Grants Information Session

Join Skyler Mooney (NSERC) and Marie-Claude Caron (NSERC) for a presentation and discussion about applying for NSERC Discovery Grants!

4:45 - 5:45PM: Session 9A - Symposia: What makes us think?

Organizer: Valerie Thompson

Moderator: Valerie Thompson (valerie.thompson@usask.ca)

Symposia Abstract: The talks in this symposium examine the circumstances under which analytic thinking is engaged, and the consequences of such engagement. We usually conceive of analytic thinking to be processes that enable deliberation and complex problem-solving; however, they are also used to more nefarious ends when they are employed to dismiss evidence and arguments that oppose a firmly held belief. Quartararo examines the role of analytic thinking in argument evaluation, and demonstrates that contrary to motivated reasoning theory, people are able to discriminate strong and weak arguments on emotionally charged topics. Newman examines the metacogntive cues that prompt people to think analytically, showing that many of are unreliable. De Chantal examines the relationship between two seemingly antithetical forms of reasoning: divergent thinking and logical thinking, and argues they are related skills. Finally, Markovits examines the role of strategy in common reasoning task, and demonstrates the difficulty of getting people to change tack.

- **4:45 - 5:00PM**: Argument appraisal in belief bias and motivated reasoning - Giovanni Quartararo (#35)
- **5:00 - 5:15PM:** Metacognitive judgements of anagram difficulty and solvability are biased by misleading surface cues - Ian Newman (#20)
- **5:15 - 5:30PM:** The role of creative potential in conditional reasoning - Pier-Luc de Chantal (#28)
- **5:30 - 5:45PM:** Can we change how people reason? - Henry Markovits (#292)

Detailed Schedule, Friday June 18th, 2021

4:45 - 5:45PM: Session 9B - Memory 4

- **4:45 - 5:00PM:** Drawing in a Diary to Enhance Recall of Younger and Older Adults' Personal Everyday - Sophia Tran (#128)
- **5:00 - 5:15PM:** Looking for the next-in-line effect in the spatial Stroop task: Can impending conflict interfere with encoding? - Michelle A. Dollois (#176)
- **5:15 - 5:30PM:** Curiosity and reward following unsuccessful memory recall - Gregory Brooks (#240)
- **5:30 - 5:45PM:** Your Earliest Memories - Probably Earlier and more numerous than you think - Carole Peterson (#293)

4:45 - 5:45PM: Session 9C - Social 3

- **4:45 - 5:00PM**: Mistakes Increase the Sense of Agency: Evidence from Intentional Binding - Michael Jenkins (#286)
- **5:00 - 5:15PM:** I'll think about it: Language, self-regulation, and theory of mind in pediatric epilepsy - Katharine Bailey (#211)
- **5:15 - 5:30PM:** Sensory attenuation distinguishes self- from other-produced sounds in joint action - Nicole Bolt (#285)
- **5:30 - 5:45PM:** The Perceived Predictability of Immoral Actors Guides Judgements of their Moral Character - Alexander Walker (#260)

4:45 - 5:45PM: Session 9D - Numeric and Meta Cognition

- **4:45 - 5:00PM**: The Link between Trait Confidence, Cognitive Ability, and Metacognitive Cue Evaluation - Clark Kish-Greer (#96)
- **5:00 - 5:15PM:** General Central Processes in Procedural Learning - Jamie Campbell (#190)
- **5:15 - 5:30PM:** Mental Space and Simple Arithmetic - Maja Mihalj (#129)
- **5:30 - 5:45PM:** A Single Dimension of Uncertainty Represented by Feeling of Rightness and Feeling of Error? - Kaitlyn Phillips (#130)

6:00 - 7:00PM: CSBBCS/ SCSCCC AGM

7:00 - 8:00PM: Socializing and Games (Trivia and Jackbox Games, instructions on p.28 & 40)

Trivia & Jackbox Games

(Friday June 18th, 2021, 7-8pm)

Join us for a classic game of Trivia where you can test your general knowledge on topics like History, Geography, Movies and more!
No need to make a team, just show up and we will take care of the rest!

Join this event to play trivia with other attendees for a great time and lots of laughs!

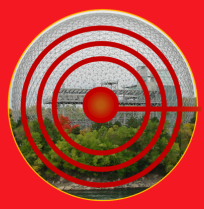
Join Trivia on Zoom by joining here: https://mcgill.zoom.us/j/83927502389?pwd=WnJrZU00UlcwWlRhN0RvbW1RdFNjZz09
Password: csbbcs2021

Jackbox Games is the party game-making studio best known for hit games like YOU DON'T KNOW JACK, Quiplash, Fibbage, Drawful, Trivia Murder Party, and more! Think of us as the child of classic social games like 'charades'... the child who dropped out of college, then earned the family's respect by founding a jam company.

Join this event to play games with other attendees for a great time and lots of laughs!

Join Jackbox Games on Zoom by joining here: https://mcgill.zoom.us/j/84345374059?pwd=dU52TUlmN3oxN29hbFpaN3lvTkd4dz09
Password: csbbcs2021

Note that the GatherTown rooms will also be open from 7-8pm if you prefer to socialize with others without participating in the Trivia or Jackbox games.



Abstracts

#1: The Magic of Looking without Seeing: Unexpectedly poor spellers may look at letter strings without seeing them at all by Tru Kwong, Felicia Fuerstenberg, Chelyn Graziano

Is poor spelling the result of inattentiveness while reading?The current study is an expansion on Kwong and Hintz (2018), which suggested that good and poor spellers are likely equal in their attentiveness during an orthographic matching task, even though other research (Kwong, Desjarlais, & Duffy, 2015) has indicated that unexpectedly poor spellers are more likely to rely on partial cues.Kwong and Hintz was a correlational study with only 33 participants, and also received criticism for the lack of time measurement in the sentence comprehension measure (Wilkinson & Robertson, 2006). We replicated the study with more participants, allowing a 2-group comparison of unexpectedly poor spellers with good spellers of comparable reading skill. Our analysis supports the results from the original study. We also included time measurements for sentence comprehension, confirming that the two groups read at similar speeds as well as with similar comprehension levels.

#2 Neural evidence for age-related deficits in the representation of state spaces by Alexa Ruel, Florian Bolenz, Shu-Chen Li, Adrian Ficher, Ben Eppinger

When making choices in complex environments younger adults are able engage in goal-directed, model-based decision strategies. In contrast, older adults resort to simpler, model-free decisions. This age-related shift in decision behavior under high cognitive demand has been attributed to deficits in the representation of state spaces in the medial prefrontal cortex. We used a two-stage Markov task, computational modeling, and single-trial EEG analyses to establish neural markers of age-related changes in goal-directed decision-making under different representational demands. Electrophysiological results suggest that the shift towards simpler decision strategies under high cognitive demand is due to a) impairments in the representation of the transition structure between states in the task b) a diminished signaling of the reward value associated with the available decision options. Based on these findings we suggest that older adults may require a more predictable decision environment and a more differentiated incentivization structure to engage in model-based decisions.

#3 How available resources and sentence concreteness differentially support immediate and long-term sentence recall by Theresa Pham, Areej Malik, Nivedita Varagunan, Lisa Archibald

Sentence recall provides a context to examine processing supports from phonological, semantic, and general attentional resources. In particular, available resources and sentence concreteness can be manipulated to impose differing demands on immediate memory and semantics. Participants immediately recalled abstract and concrete sentences after engaging in articulatory suppression (AS), semantic categorization, or finger-tapping either during a delay (Experiment 1) or concurrently (Experiment 2). Long-term recall was tested 24-hours later. Results were consistent. Immediate recall was accurate following semantic and attentional suppression and impaired when AS inhibited rehearsal. Under AS, the concreteness advantage was enhanced, indicating a greater reliance on semantics, while the remaining conditions reduced (Experiment 1) or removed (Experiment 2) this advantage. Interestingly, long-term recall was better for sentences processed under AS compared to remaining conditions, suggesting that enhanced semantic processing at initial recall facilitates long-term retention. Overall, linguistic and cognitive resources differentially contribute to immediate and long-term sentence recall.

Abstracts

#4: Investigating Attention Scope with the Flanker Task: Does Attention Broaden to the Forest and Narrow to a Tree? Anna Maslany, Peter Graf

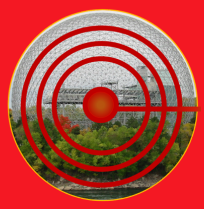
Two experiments were conducted to determine if attention scope can be measured using a flanker task (Eriksen & Eriksen, 1976). Experiment 1 was conducted in the lab, while Experiment 2 was conducted online. Attention scope was manipulated using a Navon Task (Navon, 1977; Goodhew & Plummer, 2019) and measured using different variations of the Eriksen Flanker Task. Participants were required to make a decision about the middle letter in a letter string. Strings were congruent (e.g., AAAAA), incongruent (e.g., HHAHH) or control (e.g., XXAXX). If attention is broad, interference should occur on incongruent trials relative to control/congruent trials. If attention is narrow, no differences should occur. Experiment 1 and 2, results showed that attention was manipulated to be broad or narrow using the Navon Task. In Experiment 1 the Flanker Task successfully measured the scope of attention in some, but not all conditions. Experiment 2 replicated these results in one condition.

#5 The Impact of Reproductive History on Mood Sensitivity to Hormone Fluctuations in Perimenopause by Julie Ziemer, Laurie Sykes Tottenham, Rashell Wozniak, Tianna Sauer, Jennifer Gordon

The risk of depression in women increases in the years leading up to the last menstrual period (perimenopause). Excessive perimenopausal estrogen fluctuation is hypothesized to play a role, though the factors predicting sensitivity are not well known. Research suggests that a woman's reproductive history may permanently alter her sensitivity to reproductive hormonal flux, thus we aimed to examine the number of a woman's past pregnancies as a predictor of sensitivity to perimenopausal estrogen fluctuation. We recruited 108 perimenopausal women to answer a mood survey and collect urine samples (to measure estrogen metabolites) for 12 weeks. Multilevel modeling for repeated measures revealed a significant interaction between number of pregnancies and weekly estrogen fluctuation on mood -- women with a greater number of pregnancies were less sensitive to increases in estrogen. These findings suggest that women with few or no previous pregnancies may be at greater risk for developing depressive mood during perimenopause.

#6 Facial emojis influence emotional communication and social attributions in online conversations by Megan LeBlanc, Charles A. Collin, Rebecca M. Sunderland, Isabelle Boutet

In face to face (FtF) communication, facial expressions facilitate understanding of the emotional tone of verbal exchanges and influence social attributions. We examined whether facial emojis play similar roles. In an online study, participants (N=177) viewed text message conversations where one individual (person A) initiated the conversation and another (person B) either agreed or disagreed with their statements. In half of the conversations, positive emojis accompanied agreeable statements and negative emojis accompanied quarrelsome statements. The other half had no emojis. Conversations were presented to three groups of subjects, with social context varying across groups (personal, professional, romantic). We measured perceptions of the emotional state and agreeableness of person B. Emojis magnified the intensity of emotional signals and attributions of agreeableness. We conclude that emojis play similar roles as non-verbal cues do in FtF communication by strengthening the emotional tone of text messages and enhancing interpretation of interpersonal behaviours.



Abstracts

#7: Decomposability and cross-language overlap effects in L2 idiom reading: evidence from eye movement data by Marco Silvio Giuseppe Senaldi, Kristina Kasparian, Kyle Lovseth, Debra Titone

L1 speakers appear to process semantically non-compositional idioms (e.g. kick the bucket, play with fire) in a hybrid fashion, with early comprehension facilitated by variables modulating direct retrieval from the lexicon (e.g. familiarity), and late comprehension inhibited by factors promoting compositional parsing (e.g. if the meaning of component words relates to the overall figurative meaning). In this study, we investigated the role of direct retrieval and compositional analysis when idioms are processed by L2 speakers. 37 French-English bilingual adults read 60 English idioms embedded into figuratively and literally biasing sentences, while we tracked their eye movements. Linear mixed effects models of eye-tracking data revealed that L2 idiom processing is mostly compositional. While verb-related decomposability guided the early stage of L2 idiom recognition, especially when a corresponding idiom was not available in French, late processing stages were facilitated by noun-related decomposability and by the direct retrieval of a corresponding L1 idiom.

#8 Color modulates feature integration by Harpreet Saini, Heather Jordan, Mazyar Fallah

Recent studies have demonstrated the modulatory role of different isoluminant colors on higher-level cognitive processes, like response inhibition. In this study, we investigated the effect of color on the lower-level process of feature integration using the flash-jump illusion. In this illusion, when a moving bar changes color at a single location along its apparent motion trajectory, the color change is mislocalized and misperceived to occur farther along the trajectory. Our results demonstrated that the isoluminant color of the flash modulated the magnitude of the flash-jump illusion such that participants reported more accurate and precise estimations of the flash location for both red and blue flashes, as compared to green or yellow flashes. As a Bayesian perceptual framework is proposed to underlie the flash-jump illusion, our findings suggest that different colors have different Bayesian weights, which then give rise to inherent and automatic color modulations in the visual system.

#9: The Comprehensive Thinking Styles Questionnaire: A novel measure of intuitive-analytic thinking styles by Christie Newton, Justin Feeney, Gordon Pennycook

We propose that many existing thinking style measures are derived from dual process theories (even if unstated by researchers). We correlated 265 items from 14 thinking styles measures with the Cognitive Reflection Test (CRT; Frederick, 2005) and reduced the items based on correlation with the CRT (+/- .21 cut-off). Across six studies, we systematically narrowed down the items and confirmed a four-factor correlated structure: Actively Open-Minded Thinking about Evidence (AOT-E), Close-Minded Thinking (CMT), Preference for Intuitive Thinking (PIT), and Preference for Effortful Thinking (PET). Predictive validity for the resulting 24-item Comprehensive Thinking Style Questionnaire (CTSQ) was established using several variables (e.g., epistemically suspect beliefs, bullshit receptivity, empathy, moral judgments, among others). The CTSQ also correlated with performance on cognitive tasks (Alice Heim Group Ability Test, CRT, heuristics and biases). The CTSQ, or individual subscales, can be used in place of popular thinking style measures, (Need for Cognition) and behavioral measures (CRT).

Abstracts

#10: Target-distractor competition modulates saccade trajectories by Caroline Giuricich, Robert Green, Heather Jordan, Mazyar Fallah

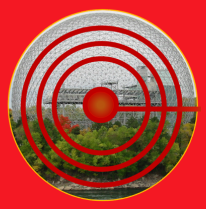
Recent studies showed that the similarity between nearby target and distractors affects the curvature in saccade trajectories. In this study, we varied the distance between, as well as the similarity of complex target and distractor objects in a delayed match to sample task to examine their effects on saccade trajectories. At short saccadic reaction times, there was little effect of similarity or distance. At longer SRTs, there was sufficient time for competition between the objects to develop. Saccade curvature was modulated by the target-distractor distance, exhibiting the effects of a spatial suppressive surround as is found in visual processing areas. As the target-distractor similarity decreased, the initial saccade angle away from the distractor increased, reflecting stronger distractor inhibition. Taken together, these results support a stronger role for visual processing driving saccade planning rather than a winner-take-all competition. Target-distractor interactions can be intrinsically measured from the saccade trajectory to the target.

#11: Remembering from the Heart: Sex Differences in Memory for Emotional Events by Nada Alaifan, Peter Graf

Memory is better for emotional events (e.g., a car accident, a wedding celebration) than for non-emotional, neutral events (e.g., driving to work, taking a shower). There is good evidence for this claim from research into autobiographical memory, but the results from investigation focused on episodic memory remain unclear. One possibility is that episodic memory is better for emotional than neutral events, but that this advantage becomes evident only when memory retrieval depends heavily on constructive, subject-initiated processing (e.g., free recall, cued recall). To examine this possibility, and whether there are sex differences in memory for emotional events, we conducted a study with 188 undergraduate student volunteers (96 females). Participants were presented with negative, neutral, and positive pictures. After a brief delay, memory was assessed with a free recall test. Performance was higher for neutral than valenced pictures, and for positive and neutral pictures, women scored higher than men.

#12: Does self-construal shape automatic social attention? by Ronda Lo, Andy Ng, Adam Cohen, Joni Sasaki

We examined whether activating independent or interdependent self-construal modulatesattention shifting in response to group gaze cues. European Canadians (Study 1) and EastAsian Canadians (Study 2) primed with independence vs. interdependence completed amulti-gaze cueing task with a central face gazing left or right, flanked by multiple backgroundfaces that either matched or mismatched the direction of the foreground gaze. Resultsshowed that European Canadians (Study 1) mostly ignored background gaze cues andwere uninfluenced by the self-construal primes. However, East Asian Canadians (Study 2),who have cultural backgrounds relevant to both independence and interdependence,showed different attention patterns by prime: those primed with interdependence were moredistracted by mismatched (vs. matched) background gaze cues, whereas there was nochange for those primed with independence. These findings suggest activating an interdependentself-construal modulates social attention mechanisms to attend broadly, but onlyfor those who may find these representations meaningful.



Abstracts

#13: Autism, enhanced perceptual functioning and time perception by Angéla Clermont, Simon Grondin

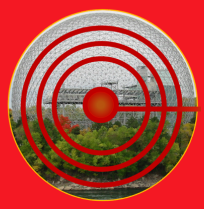
This study investigates the capability of autistic (n = 11) and non-autistic (n = 13) participants to discriminate brief time intervals, embedded within local sequences of time intervals. The main goal is to determine how the global temporal properties of an experimental session, namely its average pace (arithmetic mean of 400 vs. 600 msec) and its heterogeneity (200 vs. 400 msec difference between the shortest and the largest intervals), affect the discrimination of local time intervals varying from 200 to 800 msec. There are two dependent variables of interest, the Weber ratio, and constant error (CE) expressed in absolute value. The results showed a global context effect, as obtained initially by Jones and McAuley (2005) with non-autistic subjects. Also, in some conditions, the Weber ratio, as well as the CE, remained smaller in autistic subjects, as predicted by the enhanced perceptual functioning model of Mottron and al. (2006).

#14: Perceptions of Profit Motive: How Messaging Can Affect Beliefs about Profit-Seeking by Zuleykha Gasimova, Martin Turpin, Alexander Walker, Jonathan Fugelsang, Derek Koehler

People tend to hold anti-profit beliefs, that is, negative perceptions about the profit-seeking motives of businesses (Bhattacharjee et al, 2017). Does profit-seeking benefit, or harm society? We often come across arguments from experts advocating either for or against the profit motive in the media. This research sets out to examine whether exposure to the arguments painting either a positive or negative image of profit-seeking businesses can truly shape people's perceptions and judgements of profit-seeking. We hypothesize that exposure to statements that emphasize how profit motive may incentivize socially beneficial outcomes will attenuate negative associations, whereas emphasizing how profits may motivate socially harmful outcomes will amplify negative associations with profit-seeking. Strongly anti-profit or pro-profit beliefs have a powerful impact on politics and economics. This research helps to understand the degree to which these beliefs may be malleable and sheds light on the nature of thought and discourse over highly polarizing subjects.

#15: Valence Does Not Affect Recognition by Molly MacMillan, Haylee Field, Ian Neath, Aimée Surprenant

Emotional valence refers to the extent to which a stimulus is viewed as negative or positive. Within the literature, there are inconsistent results as to the influence of valence on recognition memory. Given that a large number of lexical and long-term memory factors are known to affect immediate verbal memory, it seems likely that the conflicting results obtained in previous studies may be attributed to the influence of uncontrolled dimensions that co-vary with valence. Across three experiments, the current study used three different stimulus sets equated on a large number of dimensions to reassess whether valence affects recognition memory for verbal stimuli. Contrary to the NEVER model (Bowen, Kark, & Kensinger, 2018), which predicts that negative words will be better remembered than positive or neutral words, the current study found no effect of valence on recognition.



Abstracts

#16: How Extraneous Facial Markings Affect Face Recognition by Victoria Kavanagh, Kathleen Hourihan, Aimée Surprenant

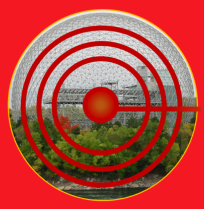
Most face recognition research, including that involving human recognition and artificial intelligence (A.I.), focuses on intrinsic facial features (e.g., eyes, nose, mouth). Despite A.I. research recently expanding into markings that are extraneous to the face (e.g., moles, scars, tattoos), human face recognition research has not yet made the leap into how those features impact the ability of humans to accurately identify the faces of other humans. In the current study, human recognition for faces containing these extraneous features was tested. In Experiment 1, participants studied a series of faces, some of which were altered to include a mole or a scar. Participants then completed a yes/no recognition test. Results showed that unaltered faces were more discriminable than faces in either altered condition. Experiment 2 followed a similar study phase but tested memory using two-alternative-forced-choice. Results are discussed in relation to the role of distinctive features in face recognition.

#17: The impact of bilingualism on cultural transmission: Findings from an iterated learning study by Pauline Palma, Sarah Lee, Debra Titone

Studies using the iterated learning paradigm have found that linguistic structure may emerge from inter-generational cultural transmission, which is thought to amplify cognitive biases on learning and memory. However, as individual biases derive from experience, the process and outcome of cultural transmission may depend on prior linguistic experience. We recruited English-French bilingual individuals (n = 30) and created two low-structured artificial lexicons. One lexicon shared some of French's phonological/orthographical features, via the presence of diacritics (e.g., kâtur). The other lexicon was more similar to English (e.g., palpo). Each participant learned both artificial lexicons. Crucially, the output of each participant served as the input of the next participant, thereby simulating cultural transmission of the languages. Results suggest that, although lexicons become increasingly structured across generations, with emergence of systematic form-meaning mappings, this was especially true of the French-like lexicon. Overall, this suggests that bilingualism may crucially impact language evolution.

#18: The Effect of Matching vs. Mismatching L1/L2 Orthography on Self-rated Reading and Writing Proficiency by Avleen Mokha, Pauline Palma, Jason Gullifer, Constance Imbault, Victor Kuperman, Debra Titone

An open question is how L1 writing systems relate to L2 reading and writing ability, beyond expected effects of L2 exposure. To this end, we examined self-rated L2 English reading proficiency in bilingual adults (n = 84) as a function of L1 and L2 match/mismatch in writing systems.After controlling for global L2 exposure, readers of L1s closest to English (alphabetic-L1) had the highest self-rated reading and writing scores; readers of logographic L1s had the lowest self-rated reading and writing scores. Accordingly, when L1 and L2 matched in writing system, English L2 speakers rated their own L2 abilities higher than when L1 and L2 writing systems mismatched. Thus, people might more efficiently transfer connections between orthography, sound, and meaning from the L1 to the L2 for compatible L1/L2 writing systems, compared to people with non-alphabetic L1 languages and fundamentally different links between orthography, sound, and meaning in their L2.



Abstracts

#19: Are you looking at me? An objective state of mind reduces sensitivity to other's emotional expressions by Manlu Liu, Jamie Dunkle, Noor Brar, Veronica Dudarev, James Enns

An objective state of mind refers to a mental state in which people perceive themselves as the object of another's observation. Previous research has shown that this state affects people's metacognitive process, emotional experience, and social behavior. However, few studies have investigated how it influences one's social perception during an encounter. Here we examine how the perception of others' emotion is influenced by triggering an objective state of mind. We developed an online experiment using webcams, questions, and pre-programmed conversations to manipulate participants' mental states. We then measured their accuracy in reading the emotional expressions of people they believed they were interacting with. The results showed that participants with an objective mental state were significantly less accurate in classifying emotions than people with a subjective or neutral mental state. This finding supports the view that an objective mental state reduces the ability to read other's emotional cues.

#20: Metacognitive judgments of anagram difficulty and solvability are biased by misleading surface cues by Ian Newman, Valerie Thompson

In an anagram task, one must rearrange the letters of an anagram (i.e., a non-word) into a solution word. Anagram pronounceability is a misleading surface cue to the difficulty of solving the anagram. Easier to pronounce anagrams tend to be rated as less difficult to solve, despite being more difficult and time consuming to solve. In this talk, I will discuss experiments aimed at identifying the cues that problem solvers use as the basis for their judgments of difficulty and solvability of anagrams. We found that metacognitive judgments are sensitive to the surface features of the anagrams, which in turn predict likelihood of solution success. Our results suggest that people are not sensitive to the structural features of the solution words, but rather, are basing their judgments of solvability and difficulty on surface features of the anagrams that may be confounded with solvability, difficulty, and structural features.

#21: Towards a computational model of the production effect in recognition memory by Megan Kelly, Tyler Ensor, Colin MacLeod, Evan Risko

Memory is reliably enhanced for information read aloud compared with information read silently—this is known as the production effect. Theoretical accounts of this effect have been largely verbal in nature with very little exception, yet its robustness (and that of related phenomena) suggests that it is worth integrating into existing computational approaches to memory. A leading account of the production effect proposes that production leads to encoding of additional features at study and that these features are available at test to assist retrieval, conferring the observed memory benefit. We implement a version of this account into the Retrieving Effectively from Memory (REM) computational framework and examine its ability to capture key phenomena associated with the production effect. We compare the current implementation in REM with a pre-existing implementation of this effect in MINERVA2, in addition to discussing alternative conceptualizations and future work.

Abstracts

#22: Verbal framing effects on vaccination intention depend on the trustworthiness of the speaker by Marie Juanchich, Dawn Holford, Miroslav Sirota, Maria Kyriakou, Margarita Christou

We tested the pragmatic assumption that verbal probability framing is taken as implicit advice and that therefore its effect depends on the trustworthiness of the speaker. In three online experiments (Ns = 197, 453, 370), we manipulated the trustworthiness of a physician and how the physician framed the risk of experiencing adverse side effects from the COVID-19 vaccine. Participants reported their vaccination intention and we controlled for a range of health related attitudes and beliefs. We expected that participants would report a greater willingness to be vaccinated when a trustworthy physician described the possibility of adverse side effects as "unlikely" than as "a small probability", but we expected this effect would be reduced or reversed when the physician was untrustworthy. The results were globally consistent with our expectations that framing and trust interact but the effect of framing depends on trust but the nature of that interaction varied across studies.

#23: Computing Averages and Products from Verbal and Numeric Probabilities by David Mandel, Mandeep Dhami, Daniel Irwin, Serena Tran

Probabilities are often communicated verbally (e.g., "likely") rather than numerically (e.g., "p=.75"). However, people learn to perform arithmetic with numbers rather than words. We hypothesized and found in 4 experiments (Ns=213, 201, 26, 343) that the accuracy of averaging and multiplying probabilities is poorer if participants receive verbal rather than point numeric probabilities. However, computation from numeric ranges was closer to the performance level observed with verbal probabilities. This suggests that imprecision rather than quantification impedes arithmetic performance. Correlations between numeracy and arithmetic performance were stronger among participants receiving numeric probabilities than those receiving verbal probabilities. Finally, in Experiment 4, participants were asked whether they used mental calculation or rough estimation to produce their responses. Participants receiving verbal probabilities were more likely to report relying on guesswork than those receiving point estimates and reported guesswork was associated with inaccuracy. It appears that different communication formats differentially engage mathematical schemas.

#24: The Puzzling Relationship Between Memory Over the Short and Long-Term by Dominic Guitard

Sometimes you need information for a short period (e.g., when transferring a telephone number manually to your phone) while other times you need information for a longer period (e.g., when learning the names of your colleagues). Despite more than a century of research, we do not understand the relation between short (STM) or working memory (WM), a system for holding mental representations temporarily for use in thought and action, and long-term memory (LTM), a system for indefinite retention of an unlimited amount of information. In this symposium world renown experts will discuss empirical advances motivated by three contrasting theoretical approaches to memory: an embedded-processes approach (Cowan), a feature model approach (Saint-Aubin), and a time-based resource sharing approach (Camos). Forsberg presents new evidence that shows how STM/WM limits strongly predict LTM performance. Discussions will focus on the implications of a range of new evidence for the competing approaches.

Abstracts

#25: Distraction, Daily Life Inattention, and Perceptual Load by Michelle Blumberg, Geoffrey Harrison, Daryl Wilson

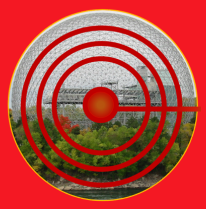
Paradigms used to examine distraction are limited by the presentation of stimuli that are not entirely irrelevant. Moreover, distraction has rarely been studied in the context of continuous task performance. To address these limitations, we implemented a methodology based on a paradigm designed by Forster and Lavie (2011). In Experiment 1, participants made forced-choice classification responses (letter or digit) to each of 12 items presented in a circular array. On thirty percent of the trials, an irrelevant distractor was presented. Distractor presentation slowed responding for multiple subsequent responses. Moreover, individuals who reported greater daily life inattention experienced greater distraction in our task. In Experiment 2, we investigated the role of perceptual load within our continuous task. Inconsistent with Load Theory (Lavie & Tsal, 1994), distraction was greater under high load compared to low load. These findings support the utility of our task as a behavioural model of daily life inattention.

#26: Conceptual Knowledge of Arithmetic and Algebra Competency by Bethany Sander, Katherine Robinson

Knowledge of arithmetic concepts is believed to predict success in algebra, yet there is little research to support this. The current study assessed conceptual knowledge of arithmetic and algebra skills in 130 undergraduate students (34 males) aged 17 to 54 (mean=23.7, SD=7.53). Accuracy and problem-solving strategy reports were collected on 24 arithmetic problems: inversion conducive (2x28÷28) and non-conducive (22x9÷22), associativity conducive (5x39÷13) and non-conducive (3x18÷27), and equivalence multiplication (2x9x5=2x__) and division (72÷12÷2=72÷__). Participants solved 36 algebra problems. Multiple linear regression analysis revealed that age and strategy use on the 6 arithmetic problem types accounted for 43% of the variance in algebra accuracy ($p<.001$). However, only age and strategy use on non-conducive inversion problems had significant partial effects, with strategy use on associativity conducive problems approaching significance ($p=.056$). Overall, younger adults had better algebra skills, and conceptual knowledge relevant to non-conducive inversion may be particularly important for algebra competency.

#27: Impact of bilingualism on semantic processing in healthy older adults by Kim Thériault, Rhea Verma2, Laura Monetta, Christine Sheppard, Vanessa Taler

Semantic function plays a central role in lifelong-acquired knowledge, and is the basis for name, face, word, and object recognition. It is typically preserved in healthy aging, and is known to be impaired in older adults with mild cognitive impairment and Alzheimer's disease. We evaluated performance of English monolingual (n=66) and French-English bilingual (n=42) participants on a novel semantic battery that assesses different modalities of semantic function. The semantic battery consists of nine tasks testing spoken and written linguistic input and using different output measures. Monolinguals outperformed bilinguals in four tasks that assessed lexical recall and associative matching. This finding indicates that bilinguals perform more poorly in lexical-access tasks, possibly because of increased competition for semantic-processing resources. Results will be discussed in terms of their implications for models of bilingual lexical processing.



Abstracts

#28: The role of creative potential in conditional reasoning by Pier-Luc de Chantal, Henry Markovits

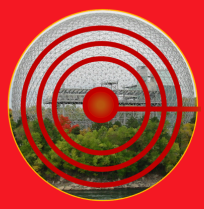
Previous research has shown that individual differences in conditional reasoning are strongly related to differences in cognitive capacity. Here, we explore the hypothesis that creative potential is also a unique predictor of the way people reason. Participants received a measure of cognitive capacity (Raven's progressive matrices) and conditional reasoning problems with varying types of content. A measure of individual differences in creative potential was derived from originality scores on four divergent thinking tasks. As hypothesized, differences in creative potential predicted conditional reasoning performances beyond cognitive capacity. These results highlight the relative importance of creative thinking during conditional reasoning and offer a new perspective on what makes people think.

#29: All about the (type)case: Encoding fluency and the production effect by Kathleen Hourihan, Kerry Matthews

Words read aloud are later remembered better than words read silently: the production effect. This effect has frequently been explained by differences in relative distinctiveness caused by the act of production; producing words adds distinctive cues that can later enhance explicit memory. However, production is more effortful than silent reading; if effort drives the production benefit, then the effect may be reduced when silent reading is rendered more effortful via disruption of processing fluency. In the current study, participants studied words aloud and silently, with half of the words in standard lowercase and half in aLtErNaTiNg case, then completed an old/new recognition test. Results showed that words in alternating case were recognized better than words in lowercase. Importantly, the significant production effect did not interact with type case. Thus, the memory benefit of production does not appear to be driven by the effort involved in the act of production.

#30: Drawing Inferences and Making Decisions from Verbal and Numeric Probability Forecasts by Robert Collins, David Mandel

The choice to communicate predictions verbally or numerically is consequential for forecasters and forecast consumers. We hypothesized and found in 2 experiments (n=201, 361) that used a hypothetical forecast-and-decision task that consumers' inferences from an expert's forecast of an investment opportunity differed between these formats. Consumers drew more pessimistic inferences about the chance for profit following verbal ('unlikely') than numeric point ('p=.25') or range ('p=.20-.30') forecasts. Verbal forecasts were more readily interpreted as explicit recommendations, and consumers' decisions were swayed more by verbal forecasts, even though the forecaster provided no explicit recommendation. Perceived forecaster credibility depended on the accuracy of the implied recommendation. If accurate, credibility was enhanced in the verbal condition relative to the numeric conditions; but if inaccurate, credibility was harmed. The findings support a pragmatic account of probability communication.



Abstracts

#31: The influence of cue familiarity on the recollection of autobiographical memories by Lauri Gurguryan, Haopei Yang, Stefan Köhler, Signy Sheldon

Retrieving autobiographical memories relies primarily on recollection but the role of familiarity in supporting their retrieval is unclear. We directly examined how variability in lifetime familiarity of a retrieval cue can affect autobiographical memory retrieval, while disentangling these effects from those due to semantic knowledge. Participants were presented with concept cues and instructed to think of a memory as quickly as possible (Experiment 1) or to describe a memory in detail (Experiment 2). In both experiments, participants provided ratings of lifetime familiarity and semantic knowledge associated with the cues. Our results indicated that memories elicited by highly familiar cues were accessed more quickly and were of more recent events. Additionally, cues rated to be both highly familiar and associated with increased semantic knowledge elicited memories that were more vivid and were described with more details. These findings provide important insights into how familiarity can facilitate the recollection of autobiographical memories.

#32: The Revised Feature Model Accounts for the Production Effect in Working and Long-Term Memory Tasks by Jean Saint-Aubin, Marie Poirier, James Yearsley, Dominic Guitard, Véronique Cyr

The production effect is a well-known encoding effect, according to which when some words within a list are read aloud, that is, produced, they are better remembered than words read silently. Although mostly studied with long-term memory tasks, the production effect has also been observed in short-term memory. Here we will show how the Revised Feature Model, an adaptation of the original Feature Model (Nairne, 1990) developed to account for performance at short-term memory tasks can account for the production effect in short- and long-term memory tasks. In addition, it will be shown how the model can account for the interactions with serial positions and list composition in immediate serial recall, delayed free recall, as well as immediate and delayed order reconstruction tasks. Overall, findings suggest that relative distinctiveness processes in short- and long-term memory, at least in the case of the production effect, are similar.

#33: Large-scale grassroots collaborations are changing research for the better: The ManyBabies model by Krista Byers-Heinlein, Melanie Soderstrom, Kiley Hamlin, ManyBabies Consortium

Behavioral research faces challenges in replicability and generalizability related to low statistical power, questionable research practices, and lack of research transparency. One emerging solution to these issues is large-scale, multi-lab collaborative research. Here, we provide an example of one such effort, ManyBabies, a network of labs across 47 countries and over 200 institutions (https://manybabies.github.io) that investigates fundamental questions in early cognitive development. ManyBabies a) Conducts conceptual replications of key findings b) Uses consensus-based approaches to design studies that robustly test theories, c) works to improve the diversity of researchers, research questions, and participants, and d) promotes transparent research practices such as pre-registration and sharing of stimuli, data, and code. ManyBabies, together with other collaborative networks such as the Psychological Science Accelerator and ManyPrimates, are building a new vision for replicable and transparent behavioral research.

Abstracts

#34: The future is free: The next generation of open access initiatives in psychology and neuroscience by Shaun Yon-Seng Khoo

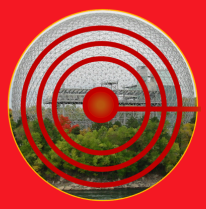
Open access publishing means you have to pay. Or does it? In recent years, a new generation of open access initiative has begun providing psychologists and neuroscientists with increased opportunities for free open access publishing. These new initiatives leverage free and/or open source infrastructure to manage peer review and publication. Overlay journals and preprint review services, like 'Peer Community In', provide certification of preprints. Several researchers have also launched their own journals, such as 'Meta-Psychology', 'Neuroanatomy and Behaviour' and the 'Journal for Reproducibility in Neuroscience' to provide a traditional publishing experience with an open science twist. Free open access initiatives eliminate equity concerns with price barriers for readers (subscriptions) and authors (page charges or publication fees). However, these initiatives also face several challenges, including author outreach, meeting technical standards and scaling up. Individual researchers should carefully evaluate these new initiatives and engage with projects that align with their interests.

#35: Argument appraisal in belief bias and motivated reasoning by Giovanni Quartararo, Valerie Thompson

Motivated reasoning and belief bias theories have seen little cross-talk or comparisons in their respective literatures. Motivated reasoning theories state that reasoning can be goal-directed, and all future processing is allocated towards achieving an end goal or justifying a position. Theories of belief bias, on the other hand, allow for analytic thinking to discriminate between strong and weak arguments. Our goal was to investigate the interaction of argument strength, prior belief, and emotional content in argument evaluation over the course of three experiments (N = 360). Participants completed questionnaires that involved reading conversation transcripts and ranking the strength of the evidence presented in the conversation, along with rating levels of belief and emotionality of content. We found that most participants were sensitive to the strength of the evidence presented in the conversations, indicating support for the belief bias theories interpretation of argument appraisal.

#36: Evidence of (in)Attention Spreading Between Students During a Live Online Lecture by Noah Forrin, Simran Kalsi, Faria Sana, Joseph Kim, Colin MacLeod

In online classrooms, students can readily perceive the (in)attentive states of classmates who have their webcams on. We tested the hypothesis that visible (in)attentive states can spread across students—attention contagion—via informational social influence. For example, students who observe classmates behaving attentively infer that the course content is important, and consequently invest more attentional resources. In our experiment (n = 61), groups of McMaster Introductory Psychology students watched a lecture video in a virtual classroom with confederates who behaved attentively or inattentively. We obtained consistent evidence (ps < .05) of attention contagion effects. In classrooms with attentive (vs. inattentive) confederates, students were more motivated to learn, more attentive, performed better on a lecture quiz, and perceived the lecture content to be more important (consistent with our informational social influence account). Students should be aware that their (in)attentiveness is highly contagious in virtual classrooms.



Abstracts

#37: Assessing how personal and ecological language diversity relate to bilinguals' social cognitive processing of others' intentions by Mehrgol Tiv, Elisabeth O'Regan, Debra Titone

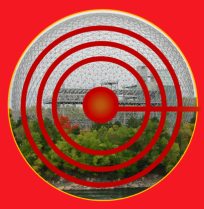
Mentalizing, or reasoning about others' minds, is a dynamic form of social cognition that aids in navigating complex social interactions and understanding the intended meaning of ambiguous language, such as irony. Language experience, such as bilingualism, strengthens mentalizing, potentially from the greater social-pragmatic flexibility that bilinguals gain from engaging with diverse linguistic contexts. Thus, across two studies, we tested whether personal language diversity (i.e., using multiple languages in a balanced manner) and ecological language diversity (i.e., residing in neighborhoods where many languages are spoken) predicted mentalizing and irony perception. Our behavioral results indicated that greater personal language diversity, as measured by general language entropy, patterned with more accurate mentalizing ratings. Similarly, these mentalizing scores predicted comprehension of written ironic statements which were further modulated by the ecological language diversity of respondents' residential neighborhoods. Together, these results highlight the critical role of social-ecological constraints in social meaning-making and bilingual cognition.

#38: Transposed letter priming effects in morphological parsing of masked compound words by Alexander Taikh, Christina Gagné, Thomas Spalding

Across three experiments, we examined whether the morphological boundary region plays a special role in the processing of compound words. In Experiment 1, we report that masked compound primes with a letter transposition (vs. replacement) facilitate the recognition of their compound targets when the letter manipulation is at the boundary but not inside of the first constituent. In Experiments 2 and 3 we report that replacing letters at the boundary (vs. inside of the first constituent) of a compound masked prime interferes with recognizing the target compound, but that transposing letters does not. Across experiments, our findings suggest that replacing letters at the boundary, but not inside of the first constituent, interferes with processing of the compound, suggesting that the boundary plays a key role in morphological decomposition relative to letters inside of the first constituent.

#39: Effects of Social Presence on Online Learning by Rachel Appiah, Margot Sullivan, Julia Spaniol

Online lectures have become ubiquitous during the COVID-19 pandemic, but little is known about how the online format influences learning and memory. In particular, there has been no research on how social presence influences student performance online, although theories in educational psychology view social presence as a critical factor. In the current study, undergraduate students (N = 122) were randomly assigned to Zoom classrooms with cameras on (high social presence) or off (low social presence), and they completed a surprise memory test for the lecture content 24 hours later. Memory was significantly higher in the high social presence group than in the low social presence group. The study also explored the role of perceived similarity to others in the virtual classroom and found partial support for a positive association between similarity and memory. This research offers novel evidence for the importance of social factors in the virtual classroom.



Abstracts

#40: The Effect of Curiosity on Incidental Memory Formation by Sabrina Valenzano, Liyana Swirsky, Julia Spaniol

Curiosity is associated with enhanced memory for both curiosity-inducing and incidental information. However, the mechanisms underlying curiosity-related memory enhancement are still unclear. The current study addressed three open questions: Whether memory benefits observed in the context of epistemic curiosity extends to perceptual curiosity; whether satisfaction of curiosity ("closure") is critical for the effect; and whether the effect of perceptual curiosity on memory is similar for younger and older adults. Fifty-one younger adults and 54 older adults viewed a series of curiosity-inducing magic-trick videos, with an unrelated word shown midway through the clip. Closure was manipulated within-subjects, by either showing or withholding the ending of the trick. An incidental memory test revealed that closure, but not curiosity per se, was associated with more accurate recognition of unrelated words, in both younger and older adults. This study offers novel evidence that satisfying perceptual curiosity may have mnemonic benefits across the adult lifespan.

#41: Anatomical and Functional Characterization of a Task-based fMRI network Involved in Mental Flexibility by Todd Woodward

fMRI-CPCA-derived brain networks are structured into a set of 12 networks. One network, referred to as Reassessment, (1) has the most anterior frontal activation of all 12 networks, (2) peaks following the response network, and (3) is more active when decisions are explicitly disconfirmed relative to when they are confirmed. Therefore, Reassessment is thought to be involved in reassessing a previous response, and is active when the stimuli for the task-at-hand provide ambiguous cues. With respect to behaviour, reduced activation in this network relates to: (1) endorsement of personality scale items tapping into reduced flexibility and agreeableness, (2) delusional ideation in healthy samples, and (3) delusions/resistance to feedback in schizophrenia. It may therefore be valuable to consider the Reassessment network for treatment of delusions with neuromodulation, and may provides clues on how to increase mental flexibility and belief change in society, for example, on health- and environment-related issues.

#42: A micro-level account of longer-form reinforcement learning in structured and unstructured environments by Ben Dyson, Ahad Asad

Longer-form expressions of reinforcement learning include recurrent repetition of actions following positive outcomes (win-calmness) and recurrent change of actions following negative outcomes (loss-restlessness). However, in order for these extended patterns of behaviour to manifest across tasks, they must first develop because of micro-transactions within tasks. Over 10 experiments using the zero-sum game Rock, Paper, Scissors, we found no evidence of win-calmness and loss-restlessness in unstructured learning environments when wins could not be maximized (unexploitable opponents), nor when the threat of win minimization was presented (exploiting opponents). However, we found evidence of win-calmness (but not loss-restlessness) when structured learning environments allowed for win maximization (exploitable opponents). At a participant level, individual win rates determined win-calmness and loss-restlessness only in win maximization contexts. The novel observation of win-restlessness and loss-calmness under conditions where opponent exploitation was not possible raises new questions about the flexibility and reliability of specific reinforcement learning principles.

Abstracts

#43: Behavioural profiles following feedback: Assessing the characteristics of positive, negative and neutral outcomes by Ben Dyson, Rimsa Dahal, Kelsey MacLellan, Danielle Vavrek

Previous data point to neutral outcomes (draws) being subjectively assigned negative rather than positive characteristics. Faster rather than slower reaction times, subsequent shift rather than stay behaviour, and, larger rather than smaller deviations from optimal performance all align with explicitly negative outcomes such as losses. If draws are inherently negative then behavioural differences should be greater when draw values are changed to a positive (+1) rather than negative (-1) value. Despite post-draw speeding and bias towards draw-shift behaviour, the degree of shift behaviour approached an approximation of optimal performance when draw value was +1. This was in contrast to when draw value was -1, which led to a significant increase in shift behaviour. This modification of draw behaviour was absent when the same value modifications were applied to wins and losses. The processing cascade generated by draws contains elements found in response to both explicitly positive and explicitly negative outcomes.

#44: Behavior PLS activation and connectivity analyses of sex differences in the effect of age on memory-related brain functions by M. Natasha Rajah, Sivaniya Subramaniapillai, Elizabeth Ankudowich, Sricharana Rajagopal, Stamatoula Pasvanis, Bratislav Misic

Normative aging is associated with declines in item-context associative memory and differences in the activation and connectivity of a variety of brain networks (i.e., the recollection network and cognitive control network). Recently, there has been growing interest in determining if there are sex differences in brain aging due to the higher incidence and prevalence of Alzheimer's disease in women compared to men. As such, we have used behavior ST-PLS activation analysis and PLS connectivity analysis to explore if there are sex differences in the effect of age on memory-related brain functions in a normative aging cohort. We found there were no significant sex differences in memory performance but significant sex-by-age interactions in performance-related brain activity. In this talk, I will discuss both multivariate PLS methods employed in our studies and discuss how these methods yield complimentary but distinct information about sex differences in the effect of age on brain function.

#45: Decision making in a pandemic: The role of affect and self-other decision perspective by Julia Spaniol, Aalim Makani, Sadia Chowdhury

Everyday life during the COVID-19 pandemic is characterized by a high rate of negative affect. Laboratory decision-making research suggests that negative affect can impair decision quality. The current study sought to test whether pandemic-related affect can lower decision quality within individuals. In Study 1 (N = 148), participants indicated how much they would be willing to pay to avoid specific pandemic experiences (e.g., "not being able to gather in groups"), and then chose among pairs of risky prospects that involved pandemic experiences or subjectively-equivalent monetary losses. Decision quality was lower for pandemic experiences than for equivalent monetary losses. Study 2 (N = 283) replicated this finding, and further demonstrated a moderating role of decision perspective. Decisions made on behalf of another person were of higher quality overall, and showed a reduced pandemic/monetary gap, compared with decisions made for oneself. These findings highlight potential strategies for boosting decision quality under affect-rich real-world conditions.

Abstracts

#46: Analyses of factors influencing temporal productions when using fast and slow counting paces by Catherine Lebrun, Antoine Demers, Simon Grondin

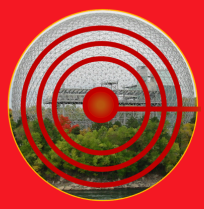
This study assesses the ability to maintain a steady pace during a counting task in a young adult population (n = 24). The study analyzes the mean and variability of 30 temporal productions when a fast (28 counts every 900 ms) or slow (18 counts every 1400 ms) counting pace is adopted. Two other independent variables are of interest: the effect of the presentation order of counting pace conditions (900-1400 ms vs. 1400-900 ms), and that of the moment of productions (first 15 trials vs. last 15 trials). Overall, the results show greater variability in the slow pace condition, a finding consistent with previous reports. However, there was no mean production difference between the pace conditions. The results also indicate that variability is higher when the slow pace condition is presented first. Finally, when slow pace is presented first, the productions are more accurate in the last trials.

#47: Whole-brain networks underpinning autobiographical cognition as revealed by PLS and CPCA by Donna Rose Addis

Slow event-related designs are necessary when imaging protracted cognitive processes such as remembering or imagining autobiographical events. However, analyzing these data can prove challenging, with multiple 'sub-processes' at different points across a given trial. Spatiotemporal partial least squares (ST-PLS) has proved a particularly useful tool for analyzing autobiographical task-based fMRI data, particularly because it is not constrained by assumptions about the shape and time course of the hemodynamic response function (HRF), thus allowing identification of effects wherever they emerge across the duration of the trial. In this talk, I will discuss our use of ST-PLS to examine the whole-brain networks underpinning remembering and imagining, with a focus on the default network and it modulation by the amount and type of detail comprising autobiographical events. I will also present results of a recent re-analysis of autobiographical task-based fMRI data using CPCA that revealed largely convergent findings between the two approaches.

#48: Mind-wandering during the N-Back task: A comparison of self-report measures by Heather Walker, Lana Trick

Two common methods for measuring mind-wandering are though-probes and post-task reports. However, each may differ in both the amount of mind-wandering they capture and how they interfere with the task—thought-probes are likely to capture mind-wandering as it happens but they interrupt task flow, whereas post-task reports do not but rely on memory and may lead to inaccuracies. We investigated the impact of these two report types on patterns of mind-wandering and task performance in an N-back task, and further examined these differences using an individual difference measure (the SART). Mind-wandering and target RTs were higher in the post-task condition, indicating that interruptive thought-probes may re-engage individuals' attention—a theory supported by the fact that target accuracy (in the thought-probe condition) was higher at the beginning of each block. Finally, individuals with low SART scores mind-wandered more over time and favored speed over accuracy, whereas those with higher scores exhibited the opposite.



Abstracts

#49: Investigating perceptions of human drivers versus autonomous vehicles using moral dilemmas by Heather Walker, Alexander Walker, Martin Turpin, Rafał Muda, Lana Trick, Jonathan Fugelsang, Michał Białek

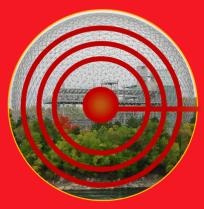
Despite autonomous vehicles (AVs) being safer than human drivers, people are averse to their presence on roads. Using moral dilemmas, we examined how perceptions of predictability play a role in judgements of AVs. Scenarios involved a runaway vehicle (piloted by a human or AV) that could either hit one or five pedestrians. Participants then judged the pilot on several dimensions. In Study 1, participants received an explanation highlighting the consistency of AV algorithms. In Study 2 a positive outcome was added. In Study 3, control could be transferred between the AV and human. All studies produced evidence of AV aversion, but interactions in Studies 1 and 2 indicate that it was reduced when the consistency of AV was highlighted. In Study 3, the switch in control was judged as less predictable and more negative regardless of who took over. Results indicate that highlighting their predictability could improve perception of AVs.

#50: An instance-based theory of implicit inference by Randall Jamieson, Matthew Crump

People make intuitive inferences all of the time. For example, after observing that taking drugs A and B cures a headache, people infer that both drugs work. If people, then, observe that taking drug A alone cures a headache, they revalue the efficacy of B (i.e., “Now I have my doubts about B...”). We present experimental data to characterize the kinds of conclusions that people reach in a simple inference task. We present a computational model of human memory to explain people’s performance in the task. Based on the theory’s match to data, we argue that patterns of intuitive inference observed in our human judgement in our experiments are consistent with predictions from an instance-based approach to understanding learning and memory. We discuss the approach as a method for bridging theory and analysis across domains.

#51: Constituent semantic information in compound and pseudo-compound processing by Taylor Melvie, Alexander Taikh, Christina Gagné, Thomas Spalding

Readers access morphemic information from (pseudo)constituents in (pseudo)compounds (e.g., they access the (pseudo)morpheme sea in seabird and season). Across five experiments, we examine whether readers access the semantics of these (pseudo)constituents. Experiments 1 and 2 show that masked pseudo(compound) primes do not influence recognition of semantic associates of their first (pseudo)constituents (e.g., ocean, associate of sea, does not influence the recognition of seabird or season). Experiment 3 verifies that, by itself, the constituent does prime its associate. Experiments 4 and 5 show that an associate of the first constituent does facilitate the recognition of the compound but does not influence the recognition of the pseudo-compound (ocean facilitates recognition of seabird but not season). Our results suggest that the semantics of the pseudo(constituents) are not necessarily accessed even if the morphemes are accessed.



Abstracts

#52: The influence of event schemas and context familiarity on imagining autobiographical events by Can Fenerci, Signy Sheldon

Several factors influence how episodic memory supports remembering past and imagining novel autobiographical events. Two such factors are whether an event is imagined in a predictable manner – activating associated event schemas – and in a familiar context. Both of these factors have been shown to enhance episodic memory use while imagining autobiographical events. In this study, we directly compared the roles of event schemas and familiar contexts in how episodic memory was used during autobiographical event imagination. In a behavioural experiment, young participants were asked to describe expected (schematic) or unexpected autobiographical events in response to high and low familiarity context cues. We scored the descriptions for the number of episodic details and found that only expected events increased the number of these details. Our results suggest that accessing event schemas and not situating an imagined event within a familiar context selectively enhances episodic memory when constructing an autobiographical event.

#53: Relationships between working and long-term memory within the TBRS model by Valerie Camos

In this talk, I will discuss the relationships between working (WM) and long-term (LTM) memory within the Time-Based Resource-Sharing (TBRS) model. In particular, this will be examined through the role of the two maintenance mechanisms depicted by the TBRS model, i.e., attentional refreshing, a domain-general mechanism using attention to reactivate WM traces, and articulatory rehearsal, a domain-specific mechanism maintaining verbal information through language-based processes. On the one hand, I will summarize series of experiments that examined how LTM knowledge affects the functioning of attentional refreshing. Congruently, these experiments showed, that, although LTM impacts recall performance, this effect is not mediated by refreshing. On the other hand, I will show how the two WM maintenance mechanisms impact the generation of false memory in LTM, and especially how refreshing can enhance false memory. Overall, these findings depict an asymmetry on the LTM-WM relationships.

#54: What are recurrent memories about? Understanding their contents and links to mental health using computational text analysis by Ryan Yeung, Myra Fernandes

Researchers debate whether recurrent involuntary autobiographical memories (IAMs; personal memories retrieved unintentionally and repetitively) are pathological or ordinary. While some argue that these memories contribute to clinical disorders, recurrent IAMs are also commonly experienced in everyday life. Few studies have considered characterizing the content of recurrent IAMs. In our study, we asked if content could distinguish between maladaptive recurrent IAMs that predict mental health status, and benign ones. Over two years, 9157 undergraduates completed surveys about recurrent IAMs, 3624 of whom wrote text descriptions of their memory. We identified coherent topics (e.g., friendships, car accidents) in these descriptions using structural topic models, a method of unsupervised machine learning. Further, mental health indices (e.g., depression, anxiety) uniquely predicted some topics in recurrent IAMs (e.g., trauma, stressful events), but not others (e.g., negative emotion, recreation). Our work shows that these topics – and their links to mental health – are identifiable, distinguishable, and quantifiable.

Abstracts

#55: Racial and linguistic diversity impact the perception of different accents by Ethan Kutlu, Mehrgol Tiv, Stefanie Wulff, Debra Titone

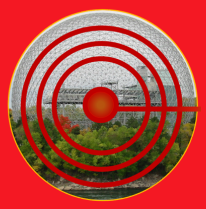
The emergence of different English varieties is a result of a variety of contextual factors such as globalization, colonialism, and migration. Multiple experiments measured how three different English varieties (American, British, Indian) are perceived by listeners who live in linguistically more (Montreal) or less (Gainesville) diverse communities. Listeners heard the same spoken stimuli with White and South Asian faces. They were then asked to type what they heard and to judge whether the speaker had an accent. Results show that South Asian faces decreased listeners' speech perception of auditory stimuli and increased their accentedness judgments in Gainesville but not in Montreal. Moreover, while British English was judged as less accented compared to Indian English in Gainesville, no such difference was present in Montreal. These results suggest that speech perception is socially-gated and that people's linguistic experiences shape how they perceive different varieties of the same language.

#56: A credo for the use of open software tools to improve the statistical and visual interpretation of data in cognitive psychology and neuroscience by Léon Franzen

Cognitive psychology and brain sciences heavily rely on large amounts of quantitative data for drawing conclusions using inferential statistics. The increasing availability of open source software for so-called new statistics and unbiased data visualization has made them available to any researcher, at least in theory. Particularly, the appropriate visual communication of such quantitative results profoundly hinges on showing entire distributions instead of relying on single point estimates, such as the mean and its sampling error. However, these openly available tools are neither widely used yet nor taught in most undergraduate psychology curricula. This talk will illustrate the capabilities of openly available tools for performing robust inferential statistics and data visualization. Suggestions for unbiased data visualization in R will be demonstrated using selected examples that can be readily applied. The special case of the shift function that pairs robust statistics with data visualization allowing for more detailed insights will be highlighted.

#57: Increased pain behavior in mice succeeding interaction with a social partner in pain by Sandra J Poulson, Iqra Arain, Brendan Lyver, Loren J Martin

Social animals can pick up signals from social group members that indicate changes in the environment, including threat or potential for injury. Signals from group members that indicate the potential for pain or injury likely range across modalities of perception, including visual cues like paw licking, vocalizations, and olfactory cues. Interestingly, the social context plays a significant role in enhancing pain behavior. Research in mice has shown that when together, familiar mice express more pain than when alone, and observer mice develop sensitivity to painful stimuli after interacting with cagemates in pain. Yet the neural mechanisms that drive the enhancement of pain due to social stimuli are unknown. Our aim was to develop a short paradigm where mice express overt cues of pain, and then begin to understand the mechanisms underlying the enhanced pain behavior in the uninjured partner. We show behavioral pharmacology and immunohistochemistry data using our social paradigm.



Abstracts

#59: Investigating How Sensory Losses and Cognitive Load Impact Older Adults' Balance by Berkley Petersen, Caitlin Murphy, Aaron Johnson, Karen Li

Postural stability is dependent upon motor, sensory and cognitive systems. We, therefore investigated how older adults' balance was impacted by cognitive load, hearing and simulated vision loss. Twenty-seven older adults aged 56 to 90 years (M = 74.74, SD = 9.51) underwent standard sensory acuity and cognitive functioning tests and five balance conditions: eyes closed, normal vision (NV), simulated low vision (LV), NV and math task, LV and math task. Postural stability was assessed with three center of pressure parameters: total path length (TPL), anterior-posterior amplitude (APA) and medial-lateral amplitude (MLA). Significant effects of balance complexity were observed in APA ($p < .017$), while MLA ($p < .08$) and TPL approached significance ($p < .107$). Significant positive correlations were found between hearing loss and MLA, and those with hearing impairments prioritized cognition over balance. Results suggest the attentional demands from cognitive load and sensory loss resulted in decreased balance performance.

#60: The joint impact of bilingual experience and menopausal status on cognitive function by Alicia Duval, Anne L. Beatty-Martínez, Arielle Crestol, Stamatoula Pasvanis, Lina Khayyat, Abdelhalim Elshiekh, Rosalie Young, Jamie Snytte, Sivaniya Subramaniapillai, Debra A. Titone, M. Natasha Rajah

Bilingual experience potentially mitigates age-related decline in episodic memory and executive function. For example, our group found that women at midlife were more likely to exhibit improved executive function with increased bilingual experience. Of relevance here, midlife is a time when women experience menopause, which has been linked to difficulties in episodic memory and executive function in some women. Thus, we examined the impact of bilingual experience and menopausal status on memory and executive function. Healthy bilingual pre/peri- and post-menopausal women (n = 107) completed the California Verbal Learning Task (measuring episodic memory) and the Wisconsin Card Sorting Task (measuring executive function). Post-menopausal status was associated with a decline in episodic memory and executive function independent of age. Further, when evaluating the effects of bilingual experience, we found the diversity of language use (i.e., language entropy) moderated the relationship between menopausal status and executive function.

#61: Who You're With vs. Who You See: Examining Factors that Influence Attention During Video Lectures by Caitlin Mills, Trish Varao-Sousa, Alan Kingstone

During the COVID-19 pandemic, online learning has become the norm at most postsecondary institutions, yet little is known about factors that affect students' attention and retention of online lectures. We addressed this limitation by investigating two important factors: (1) whether the instructor is visible, (2) whether the lecture is watched alone or with other students. We found that retention of online lecture content was unaffected by whether the instructor was visible. Students' attention was, however, affected by the presence of other students: Relative to students who watched the lecture alone, those who watched the lecture with peers reported significantly more mind wandering. Notably, the presence (vs. absence) of other students moderated the negative relation between mind wandering and retention of lecture content. Our results suggest that instructors need not worry about recording themselves in online lecture videos, whereas students (e.g., undergraduates in residence) should avoid watching lecture videos with others.

Abstracts

#62: An Embedded Processes View of How Working Memory Creates Long-Term Memories by Nelson Cowan

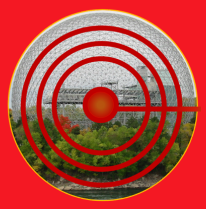
The embedded-processes view was espoused (Cowan, 1988) and updated (Cowan, 2019) in Psychological Bulletin articles. Within this view, working memory comprises temporarily activated elements of long-term memory and, within activated memory, a capacity-limited focus of attention. A common misconception is that activation cannot explain the binding of items to context, e.g., retention of the ordered digit string 313. Against this misconception, I suggest that new information in a working memory trial can be learned rapidly enough to contribute to activated long-term memory and, consequently, to immediate memory performance. I explain how this rapid long-term learning is assumed in various of views. In embedded processes, items must co-exist in the focus of attention to form new associations. Supporting this hypothesis, short- versus long-term memory dissociations will be explained based on different retrieval contexts, and relevant information will be presented from studies of incidental learning of lists of sub-capacity and supra-capacity lengths.

#64: The enactment effect: A meta-analytic review of behavioural, neuroimaging, and patient studies by Brady Roberts, Colin MacLeod, Myra Fernandes

The enactment effect refers to the finding that physically performing an action represented by a word (e.g., clap) results in better memory than simply reading that word. In an integrative meta-analytic review, we examined data from 145 behavioral, 7 neuroimaging, and 31 neurological patient studies. Random effects meta-regression with robust variance estimation revealed an average enactment effect size of g = 1.23, with certain parameters moderating the effect size (e.g., study design) while others did not (e.g., use of objects). Neuroimaging studies reported enactment-related activation to be most common in the motor cortex and inferior parietal areas. Patient studies indicated that, regardless of whether impairments were based in memory (e.g., Alzheimer's) or motoric capability (e.g., Parkinson's), participants still often benefitted from enactment. Findings highlight the considerable power of multimodal encoding techniques in boosting later memory performance and demonstrate enactment's broad efficacy as a mnemonic tool for various patient groups.

#65: Perceptions of Audio-Visual Impact Events in Younger and Older Adults by Katherine Bak George S. W. Chan, Michael Schutz, Jennifer L. Campos

Recent evidence suggests that audio-visual integration changes with older age. However, little is known how this applies to perceptions of audio-visual impact events (e.g., an object striking a surface). The Schutz-Lipscomb Illusion is an illusion that occurs when perceived tone duration is influenced by the length of a dynamic visual striking gesture. It is unknown how this illusion is perceived by older adults. Therefore, 21 older (65+) and 21 younger (18-35) adults viewed a single dot representing a striking gesture combined with a percussive tone at 5 audio-visual temporal (-400 to +400 ms) and 5 spatial (-90 to +90°) offsets. Participants completed a tone duration judgement task and a temporal order judgement task. Results demonstrated that illusion strength was similar in both age groups and did not differ across temporal or spatial offsets. Findings provide new insights toward how older and younger adults integrate audio-visual inputs to perceive impact events.



Abstracts

#66: Does alerting occur in compound visual search tasks? by Nadja Jankovic, Vincent Di Lollo, Thomas M. Spalek

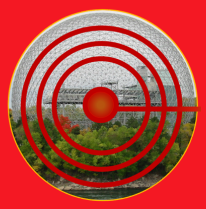
Simple visual search involves the single step of finding a target (e.g., a square shape) amongst a set of distractors (e.g., ring shapes). Conversely, compound search involves two steps. For example: (a) locate the unique item in the display and (b) identify the tilt of a line inside that item. Two effects that are known to facilitate search performance are “alerting” (e.g., briefly brightening the screen before display onset) and “priming” (e.g., repeating the unique item on successive trials). In the present work we examined the joint effects of alerting and priming in compound search. We found that alerting does occur in simple search but not in compound search, unless conditions allow the compound search to be performed as a simple search. This occurs, for example, when attention is already focused on the target location thereby allowing the first step of the compound task to be skipped.

#67: Enhancing Memory using Enactment: Does Meaning Matter when Producing or Observing an Action? by Yadurshana Sivashankar, Ciel Liu, Myra Fernandes

Physically performing an action depicting a word enhances its memorability, relative to simply reading it. This is known as the enactment effect. We examined whether the performed action needed to be semantically relevant, and whether it needed to be performed by the subject, to confer a memory benefit. To-be-remembered words were presented visually one at a time. Participants enacted them, performed an unrelated gesture, or read them, depending on the cue (within-subjects), or watched videos of the experimenter carrying out these tasks (between-subjects). Performing or observing semantically related actions, but not gesturing, enhanced memory significantly relative to reading. The magnitude of benefit was greater when participants performed rather than watched enactment, contrary to past findings. Results suggest a social presence may contribute to the magnitude of past reported effects. Regardless, our results show that the semantic relatedness of an action to the target is critical for the memory benefit.

#68: Behavioural Mechanisms of Response Planning During Social Interaction by Andrew Son, Cindy Hamon-Hill, Christina Torrealba, Aaron Newman

Turn-taking occurs when two people in conversation produce alternating short bursts of speech. Since pauses between two turns are short, some suggest that response planning occurs as soon as listeners have heard enough to formulate a response; however, others advocate that response planning occurs near the end of the other person’s speaking turn. By combining an interactive quiz-paradigm and finger-tapping task, we created an online behavioural experiment measuring the timing of response planning during turn-taking. Each trial, participants heard questions in which the information necessary to prepare a response (critical words) occurred early (middle of a question) or late (at the end), and they continuously tapped a complex 4-key pattern. Despite lack of statistical findings, our results indicated that tapping performance declined not as soon as the critical word was presented, but afterwards. The deterioration in finger-tapping performance was interpreted as being caused by cognitive load from response planning.



Abstracts

#69: Utter Nonsense: Semantic effects in adjective-noun conceptual combination by Tara McAuley, Lori Buchanan

Conceptual combination is an active meaning construction process used to simplify complex concepts in the environment. The semantic properties of adjective-noun combinations were manipulated to evaluate the effect on processing on three experimental tasks with increasing semantic engagement. On a task with the least semantic engagement, no effects were found. As semantic processing increased with task demand, main effects of adjective-noun meaningfulness and concreteness were found. On a task with the highest level of semantic involvement (i.e., sense-nonsense judgment task), an interaction was additionally found, in which participants' nonsense judgments were quicker for concrete adjective-noun pairs with low meaningfulness (e.g., CHATTY CIDER) than abstract adjective-noun pairs with low meaningfulness (e.g., MOBILE CHAOS), with no differences for intermediate meaningful pairs based on concreteness. An identical but more pronounced effect was observed for high meaningful adjective-noun pairs. Taken together, semantic effects in adjective-noun conceptual combination were most apparent as task demands increased.

#70: Both task-irrelevant and task-relevant information trigger reactive conflict adaptation in the item-specific proportion-congruent paradigm by Giacomo Spinelli, Bruce Morton, Stephen Lupker

In the color-word Stroop task, congruency effects are typically smaller for colors and words that mainly appear in incongruent stimuli (mostly-incongruent items) than for colors and words that mainly appear in congruent stimuli (mostly-congruent items). Recent research suggests that at least part of this item-specific proportion-congruent (ISPC) effect is due to a process of reactive conflict adaptation whereby attention to task-relevant information is more frequently focused when mostly-incongruent items are presented and relaxed when mostly-congruent items are presented. However, what stimulus dimension (task-relevant, task-irrelevant, or both) triggers this conflict-adaptation process is currently unclear. In a color-word and a spatial Stroop task, we found separate effects of adaptation to conflict frequency specific to task-relevant versus task-irrelevant information. These results challenge current views of the ISPC effect according to which, in general, the effect only results from processes triggered by task-irrelevant information. Task-relevant information also appears to play a key role.

Abstracts

#71: Parents' Math Ability and Math Anxiety Relate to their Children's Math Grades, in Part, Because of Their Math Homework-Helping Style by Nichole B. Johnston, Fraulein Retanal, Sabrina DiLonardo Burr, Andie Storozuk, Michela DiStefano, Erin A. Maloney

Parental homework-help can be a protective factor against declining math performance, academic motivation, and help-seeking behaviours in middle school. However, the type of homework interactions, autonomy-supportive versus controlling/intrusive, may influence student grades differently. Parents of students in grades 6-8 (n = 250) completed online surveys. Using path analysis, the relations among parental factors (i.e., math anxiety, math ability, homework interactions) and student math grades were explored. Parent math ability was positively related to autonomy-supportive math homework interactions, whereas parent math anxiety was related to both autonomy-supportive practices and controlling/intrusive homework interactions, with a stronger relation with the latter. Importantly, parent math anxiety and controlling/intrusive interactions were negatively related to students' school math grades. Thus, math-anxious parents may be more disorganized during their homework-helping strategies, which might create confusion for their children. Identifying negative relations between parent factors and student math outcomes is crucial for developing evidence-based math learning interventions.

#72: Age differences in decisions for self and others by Erika Sparrow, Julia Spaniol

Many of our decisions have consequences for those around us, yet psychological research on decision making has traditionally overlooked social dimensions of choice. The current study investigated how younger and older adults make risky decisions that affect others. Younger and older MTurk participants (N = 95) made a series of hypothetical choices between smaller-safer and larger-riskier financial prospects. Prospect type was manipulated within-subjects: 1) self-gain, 2) self-loss, 3) charity-gain, and 4) charity-gain at personal cost (donation). Younger adults took greater risks for self-gains than charity-gains, whereas older adults showed no difference. Risk appetite was also higher for charity-donations relative to self-losses, but again this effect was larger in younger relative to older adults. These results suggest that younger, compared to older, decision makers may be more sensitive to the beneficiary (self/other) and costliness of outcomes.

#73: 'Locking gaze': An investigation of mutual gaze during dyadic real-world interactions using dual mobile eye tracking eyeglasses by Jessica Haight, Florence Mayrand, Jelena Ristic

Mutual engagement, or simultaneous looking, is one of the vehicles for reciprocal non-verbal social communication. It remains unknown however to what extent mutual engagement requires mutual eye contact. To investigate this, we measured gaze behaviour using dual eye tracking eyeglasses in ten dyads (n=20) during natural interactions. Looks to predetermined dynamic regions of interest (dROI; Eyes, Mouth) and time spent in three possible mutual engagement dROI combinations were analyzed (Eyes-Eyes [EE]; Eyes-Mouth [EM]; Mouth-Mouth [MM]). As expected, participants looked at faces the most during interactions and engaged in all three mutual gaze dROI combinations, with the most time spent in EM, followed by EE, and MM mutual gaze combinations. Thus, mutual gaze does not appear to require 'locking gaze' as the eye region did not serve as the exclusive mechanism for mutual engagement. Implications for social communication and links with other nonverbal social behaviours (e.g., speaking time) are discussed.

Abstracts

#74: How does emphasizing temporal or semantic associations affect free recall? by Bryan Hong, Carleigh Pace-Tonna, Morgan D. Barense, Michael L. Mack

Word list-learning paradigms have furthered our understanding of the organizational structure of memory by elucidating the role of contextual representations on memory search. In the current study, we adapted the traditional word list-learning paradigm to investigate whether emphasizing certain contextual associations between list items influences subsequent retrieval. Specifically, we introduced a review period between encoding and recall of word lists where items were ordered to highlight either the temporal or semantic associations at encoding. Preliminary analyses showed that a temporal review led to stronger temporal clustering compared to a semantic or control review, and a semantic review led to stronger semantic clustering compared to a temporal or control review. Moreover, participants recalled more list items when semantic associations were emphasized, with the degree of semantic clustering at recall predicting memory performance. These results demonstrate that emphasizing contextual associations can affect overall memory organization and recall.

#75: Global temporal context and sensorial modality effects on the discrimination of short rhythmic sequences by Hugo Fitzback-Fortin, Esteban Mendoza-Duran, Simon Grondin

The present study aimed to observe whether the effect of a temporal context from a set of interval sequences would influence participant's perception of time in the same way depending on the type of sensory modality of the presented stimuli. To that end, a similar experimental paradigm to the one used by Jones and McAuley (2005) was established to further explore the propensity of time distortions to happen while manipulating modality and temporal context. The results show not only that temporal context still maintains an effect, whether the modality is auditory, visual or a combination of visual and auditory, but even more so, that modality still exerts an independent effect on the perception of time. Both effects conserve their influences over time perception without trumping one another nor interacting together.

#76: Cultural differences in the temporal perception of faces by Esteban Mendoza-Duran, Hugo Fitzback-Fortin, Diandra Ekaterina Hernandez-Lozano, Simon Grondin

The aim of this study was to investigate cultural differences in the perception of the duration of stimuli marking 0.4- to 1.6-s intervals. The stimuli were female and male faces from three different groups (Black, White, and Latino/a people) expressing joy, anger, or no emotion. There were twenty participants in each of the four groups, comprised of participants from North America; Latin America; Central, North, and West Africa; and Western Europe. The results reveal that overall, participants from Latin America estimate that the presentation of faces is long more often than participants from North America. The results also indicate that participants respond “long” more often when joy is expressed by a male face than by a female face. Finally, people from Africa found the duration longer when presented with a female rather than with a male face, and this pattern is reversed with participants from Latin America and Western Europe.

Abstracts

#77: The effects of simulated and actual reduced visual acuity on the Montreal Cognitive Assessment by Zoey Stark, Elliot Morrice, Caitlin Murphy, Walter Wittich, Aaron Johnson

Many cognitive assessments include a visual component that assumes intact sensory ability; however, we know that adults may experience a decline in visual acuity with age. Scores on cognitive assessments of adults with visual impairments are typically lower than adults with normal vision, however, it is unclear if these lower scores are a consequence of cognitive or visual impairment. Therefore, we set out to measure the impact of simulated visual impairment on cognitive screening measures. Participants (n=19) were administered three versions of the Montreal Cognitive Assessment (MoCA) under three conditions (20/20, simulated 20/80, simulated 20/200). We found a main effect of acuity on MoCA scores ($F=16.22$, $p<.001$, $\eta 2=.375$, $BF10=5618$) with a statistically significant difference between scores with a 20/20 acuity ($M=27.26$, $SD=.93$) and 20/80 ($M=24.74$, $SD=1.66$, $t=5.62$, $ptukey<.001$, $d=1.88$), and between 20/20 and 20/200 ($M=25.63$,$SD=1.46$, $t=3.63$, $ptukey=.002$, Cohen's $d=1.33$). Recommendations for test modifications are discussed.

#78: Confidently Conspiratorial? by Jabin Binnendyk, David Rand, Gordon Pennycook

The 2021 U.S. election produced unevidenced (and often conspiratorial) claims of voter fraud climaxing with the Capitol Hill storming. Such instances demonstrate how widespread and influential conspiracy theories are and emphasize the importance of understanding their underlining psychological mechanisms. The current experiments suggest that a lack of metacognitive awareness about engagement in analytical thinking—reflected by overconfidence—drives beliefs in conspiracies. Overconfidence, calculated for analytical and numeracy tasks, was associated with belief in conspiracy theories (Experiment 1) along with the introduction of a novel trait overconfidence measure (Experiment 2). Lastly, an item analysis revealed a strong correlation between overconfidence and how fringe the conspiracy was across sixty-six conspiratorial and evidenced-based items (Experiment 3). Further work exploring causal mechanisms is required; however, preliminary evidence suggests that overconfidence is a contributing driver to conspiracy beliefs and the trait overconfidence measure appears suitable addressing concerns regarding the task-specific nature traditional overconfidence calculations experience.

#79: Internal vs external dimensions of verb meaning: Lexical-semantic processing of mental, emotional, and nonembodied abstract verbs by Emiko Muraki, Penny Pexman

Abstract concepts remain a challenge for embodied theories of semantic representation. Alternatively, multiple representation theories propose that abstract words may rely on simulation of a variety of systems to access word meaning, such as systems dedicated to processing emotional, introspective and linguistic experience. In two experiments we examined lexical–semantic processing of abstract verbs, separating them into mental state, emotional state and nonembodied state verb types. We found behavioural differences between verb types in syntactic classification task and memory task performance. In addition, multivariate and source analyses of ERP data suggested differences in representation related to internal, introspective information and external states-of-change. This suggests that internal vs external experience is an important dimension to abstract verb meaning.

Abstracts

#80: Testing effect: The varying of backward association on the effectiveness of mediators by Donnelle DiMarco, Harvey Marmurek

The mediator effectiveness hypothesis (MEH) explains the benefit of retrieval practice in paired-associate learning is because of the activation of mediators; items that are related to the cue words. The goal of Experiment 1 was to determine the effectiveness of mediator cues bearing a weak (.20) backward association to the original cue when mixed with target-related cues that are highly (.37) associated with the target. A testing effect emerged for the target-related cues, but not for the mediator cues. In Experiment 2, the mediator cues had no backward association with the original cues. A testing effect was found for both the target-related and mediator cues. The effectiveness of mediators is dependent on the strength of its backward association to the original cue. The testing effect emerges when that path flows directly from the mediator cue to the target rather than indirectly from the mediator to target via the original cue.

#81: Making Progress on the Effort Paradox: Perceived progress moderates cognitive effort avoidance by Sean Devine, A. Ross Otto

The law of least mental effort posits that humans minimize cognitive effort exertion, because it is cognitively costly. This view has recently been called into question following the observation that some human activities are valued precisely because they are effortful. This “dual-nature” of effort as both valued and costly is known as the Effort Paradox. In the current study, we take a step towards demystifying this paradox by exploring the role perceived progress plays in motivating effort investment. Across four experiments (total N=821), we demonstrate that people willfully choose to engage in more demanding cognitive tasks when doing so yields explicit progress information. Mechanistically, we propose that perceived progress moderates cognitive effort aversion by adding value to decisions, thus offsetting effort costs. Our results suggest that, in some cases, the Effort Paradox can be resolved by considering latent, value-adding, stimuli in the environment, such as perceived progress.

#82: A communicative account of lexical organization by Brendan Johns

Contextual diversity (CD) modifies word frequency (WF) by ignoring word repetition in context, and it has been repeatedly shown that a CD count outperforms WF on a variety of lexical organization measures. Central to the cognitive mechanisms of computing CD is a definition of linguistic context itself. This talk presents new notions of linguistic context by using socially-based contextual measures, derived from the online communication patterns of hundreds of thousands of individuals from the discussion forum Reddit, consisting of over 55 billion words. Multiple count-based and semantic diversity models of contextual diversity were derived from this data. The results demonstrate that the communication patterns of individuals across discourses provides the best accounting of lexical organization data, indicating that classic notions of using local linguistic context to update a word’s strength in the lexicon need to be re-evaluated.

Abstracts

#83: Individual differences in social competence and personality traits modulate emotion recognition from masked faces by Sarah McCrackin, Francesca Capozzi, Sabrina Provencher, Ethan Mendell, Florence Mayrand, Jelena Ristic

While face masks protect against viruses, they occlude face features that are critical for emotion recognition – a key part of nonverbal social communication. Here we investigated how face masks impact emotion recognition as a function of individual differences in social competence and personality traits. Participants (n=120) identified happy, angry, fearful, sad, surprised, disgusted, and neutral expressions from images of masked and unmasked faces. Self-reported social competence and Big-5 personality traits were used to examine individual differences. Emotion recognition was greatly reduced for all expressions when faces wore masks. Critically, those with lower social competence had worse emotion recognition from unmasked faces, while those higher in agreeableness and lower in extraversion had better emotion recognition from masked faces. These results highlight an important impact of the Covid-19 pandemic: recognizing emotions from masked faces is impaired overall and more so for some individuals than others.

#84: Individual differences in foreign word form learning: Roles for rhythm and STM for non-sentences by Elisabet Service, Erin DeBorba, Maria de los Angeles Lopez Ricote, Meliha Horzum

The ability to accurately repeat back heard nonwords, pseudowords, or unfamiliar foreign words, has been found to be associated with the rate of language acquisition in its initial stages. The bulk of this research has been done with child participants as performance on the single-item repetition task approaches ceiling in adults. More demanding repetition tasks are needed. We tested two hypotheses. Firstly, we asked whether the prosodic complexity of natural sentences is sensitive to differences in phonological memory in adults and predicts foreign word form learning. Secondly, we asked whether the ability to reproduce arbitrary rhythms predicts both non-sentence repetition accuracy and foreign word form learning. Rhythm was measured by a fingertapping task reproducing an auditory pattern of short and long tones. We found support for rhythm predicting repetition and repetition predicting learning. However, a mediation analysis suggested that rhythm only predicted word learning as mediated by repetition ability.

#85: Peers, props and play: Complexity of pretend play and early academic skills by Paige Pascoe, Nancie Im-Bolter

This study examined the relation between complexity of pretend play during preschool and early academic skills. Twenty-four children, aged 3 years, were observed during self-directed free play, which was then coded for complexity of symbolic thought with respect to symbolic agent (ability to direct self or other's play) and symbolic substitution (abstractness of props). Children's literacy and numeracy skills were assessed two years later when children were 5 years old. We find that children who directed others' play compared to children who focused on their own play had higher mathematics achievement at 5 years. In addition, children who engaged in more complex object substitutions (abstract props) had better counting at 3 years and early reading skills at 5 years than their peers, who showed few complex substitutions. Our findings suggest that encouraging specific aspects of pretend play in preschool could be a relatively simple way to promote early academic achievement.

Abstracts

#86: Learning through drawing: Evidence from the brain and the classroom by Jeffrey Wammes

Creating a drawing of some to-be-remembered information tends to be associated with an improved ability to recall, recognize, and identify source/context. The evidence accumulated thus far suggests that this might be owing to the contributions of the many modalities and types of processing required to successfully create a drawing. When studied in the laboratory, this effect extends from memory for word lists, to pictures and even short definitions. In this talk, I will approach the beneficial effects of drawing from two perspectives: First, exploring the neural mechanisms underlying drawing behaviour in visual cortex using fMRI, and second, taking drawing out of the laboratory to determine its efficacy as a learning tool in two undergraduate courses. Results suggest that drawing is associated with a suppression of competitors in visual cortex, and that that drawing can be effective in real-world learning environments (after delays of up to two weeks).

#87: Transfer Appropriate Processing in the Forward Testing Effect by Monique Carvalho, Harvey Marmurek

The present experiments demonstrated Transfer Appropriate Processing (TAP) in a forward testing effect paradigm. A list of 24 common words (e.g., APPLE) was studied. Participants then restudied the list or attempted to recall the words when cued either semantically (e.g., ORANGE) or orthographically (e.g., A_P_E). A second list of 24 words was studied and then tested with semantic or orthographic cues. Two experiments differed in whether the type of first list test was blocked (Experiment 1) or mixed (Experiment 2). In both studies, first list testing enhanced second list learning. However, the magnitude of that testing effect for semantically cued words was dependent on the correspondence between the types of testing across lists only for Experiment 1. The contribution of TAP to the forward testing effect may be limited by a processing set adopted during original learning.

#88: The impact of gender and gender expression on our impressions of homosexual and heterosexual couples by Emma Melanson, Annie Roy-Charland, Joël Dickinson

Gender expression appears to interact with gender and sexual orientation in order to predict our attitudes toward an individual (Blashill & Powlishta, 2012; Lehavot & Lambert, 2007). Nevertheless, the interaction between these variables remains misunderstood and largely overlooked in the literature. Using pictures of couples as stimuli, 100 participants assessed targets' likeability and atypicality. Results suggest that straight targets are found more atypical if they exhibit a gender non-conforming expression, while the opposite is true of lesbian and gay male targets. This finding lends support to the inversion theory (Kite & Deaux, 1987). Moreover, straight and lesbian targets are perceived as more likeable if their expression is gender-conforming. The reverse is found for gay male targets. Finally, for all types of straight targets an increase in atypicality seems associated to a decrease in likeability while the relationship between these two variables differs between lesbian and gay male targets.

Abstracts

#89: Examining the Relationship Between Reading Abilities and Schizotypal Traits in Neurotypical Adults by Narissa Byers, Clarice Hoe Sue Yeen, Sarah MacIssac, Veronica Whitford

Although schizophrenia and dyslexia are distinct disorders, there is evidence of a common neurodevelopmental basis. This includes genetic and pathophysiological overlap (e.g., greater schizotypal traits among people with dyslexia) and similar deficits in reading and reading-related processes (e.g., oculomotor control, auditory/phonological processing, executive functioning; Whitford et al., 2018). We extended the small body of research in this area by examining the relationship between schizotypal traits and reading, language, and executive functioning in neurotypical young adults. Participants (N = 43) completed a battery of standardized reading, language, and executive functioning tasks, as well as the Schizotypal Personality Questionnaire (Raine, 1991). Results revealed a negative association between phonological processing/reading fluency and schizotypal traits, but a positive association between executive functioning and schizotypal traits. Taken together, our findings suggest that the relationship between schizotypy and reading abilities extends to healthy individuals, lending additional support for a common neurodevelopmental basis between schizophrenia and dyslexia.

#90: Typing as a Window into the Relation Between Fluency and Metamemory by Chris Fiacconi, Michelle Dollois

The construct of processing fluency has featured prominently in research on monitoring processes during self-regulated learning. It is generally believed that processing fluency during encoding increases learners' confidence that they will be able to later remember that information, as revealed by participant's judgments of learning (JOLs). However, it remains unclear whether such boosts in confidence are driven by the experience of fluency per se. Here, across two experiments, we examined this issue in the context of a computer typing task in which we manipulated motoric fluency outside participants' awareness. In Experiment 1, during which participants typed real words, we found no evidence that motoric fluency affected JOLs. However, in Experiment 2, during which participants typed pronounceable non-words, we found some, albeit modest, evidence that JOLs are sensitive to motoric fluency. Together, these findings offer new insights into how processing fluency informs metacognitive monitoring.

#91: Validation of the Dyslexia Adult Checklist in a Post-Secondary Population by Vanessa Soldano, Zoey Stark, Aaron Johnson

Dyslexia is a language-based neurobiological learning disability that affects reading, writing, spelling, and word retrievals. Identifying dyslexia in adulthood is difficult, and often requires a clinical assessment. Alternatively, individuals may use screening tools such as the Dyslexia Adult Checklist to self-evaluate common risk factors of dyslexia. However, the Dyslexia Adult Checklist has yet to be validated. Therefore, the purpose of this study is to validate the Dyslexia Adult Checklist in a sample of university students. We hypothesize that the Dyslexia Adult Checklist can distinguish between individuals with a self-reported diagnosis of dyslexia and those without dyslexia. The results indicate that individuals with dyslexia obtained statistically significantly higher total scores on the screening tool ($M = 52.62$, $SD = 10.61$), $t(121) = -18.26$, $p < .001$, Cohen's $d = -1.65$, 95% CI $[-\infty, -1.42]$, BF-0 = 3.57 x 1033, compared to the control group ($M = 34.05$, $SD = 7.64$).

Abstracts

#92: The Between-Subjects Production Effect: Examining the Effect of the Distinctiveness Heuristic by Chris Clark, Maddison Baldwin, Kathleen Hourihan, Jonathan Fawcett

Prominent theorists have suggested that the between-subjects production effect is smaller than the within-subjects production effect partly due to participants failing to use the distinctiveness heuristic when attempting to remember the studied words. In a pre-registered production experiment, participants learned words by either reading them silently or reading them aloud; some of the aloud participants further received instructions at test encouraging them to think about words they remembered having said recently as a strategy to improve performance (i.e., a distinctiveness heuristic). Although we replicated a typical between-subject production effect for recognition (but not recall) in the standard conditions, participants instructed to use a distinctiveness heuristic demonstrated no benefit for recognition and impaired recall relative to the silent condition. The present results suggest that the between-subjects production effect is not smaller due to the inconsistent application of a distinctiveness heuristic.

#93: The Production Effect and Visual Details: Connecting Speech to Memory of Location and Color by Chris Clark, Laura Pittman, Jonathan Fawcett

Previous research has demonstrated that naming an image aloud improves memory for that image relative to an image that had been named silently (i.e., the production effect). The present study sought to determine if this memory benefit was driven by a superior representation of visual details. Participants studied visual objects, some of which they named aloud and others they named silently. We then tested their memory for visual features of the objects using continuous color and location judgments analyzed via a mixture modelling approach. When participants were not given the names of the objects, we observed a production effect (aloud > silent) for judgments pertaining to both color and location; however, when the names were provided either preceding or concurrent to the object no differences were observed. In summary, the benefits associated with naming an object may be driven by processes related to generation rather than production.

#94: The Effect of a Cognitive Task on Postural Control in Older Adults with Simulated Vision Impairment by Sophie Hallot, Stephanie Pietrangelo, Caitlin Murphy, Ross A. Clark, Karen Z. H. Li, Aaron P. Johnson

Age-related changes in balance, such as changes in processing speed, have been shown to increase the risk of falls in older adults. To compensate, older adults show greater reliance on vision to inform their balance. In this study, older adults with normal vision participated in a dual-task paradigm. Postural stability was measured using the Wii Balance board, during which participants were asked to complete serial three subtractions. Goggles were used to simulate two levels of vision impairment (20/80, 20/200). It was predicted that the cognitive task and simulated impairment would have an additive effect on reducing postural stability. Statistically significant differences in mediolateral amplitude were found in all vision conditions with the addition of the cognitive task, but no additive effect was found. This could suggest that older adults engage in sensory reweighting from past experiences to maintain postural stability in dual-task scenarios.

Abstracts

#95: The Fate of Unselected Homograph Meanings by Timothy Woerle, Peter Dixon

When readers encounter an ambiguous word such as a homograph, they typically select an appropriate meaning very quickly. However, in cases where the homograph is contextually ambiguous and is interpreted incorrectly, it is unclear if readers can recover the unselected meaning after a significant delay. In our research, participants read passages sentence by sentence and then gave a rating of how much sense the passage made. The passages contained either a homograph or a synonym for either the dominant or subordinate meaning. Disambiguating information was provided either one or two sentences after the homograph was encountered. The ratings for the homograph passages were modelled as a mixture of the ratings of the two synonym passages, with the mixture probability indicating the probability of the two homograph interpretations. Results suggested that the availability of the unselected interpretation of the homograph faded over time, rather than being immediately lost.

#96: The Link Between Trait Confidence, Cognitive Ability, and Metacognitive Cue Evaluation by Clark Kish-Greer, Valerie Thompson

A crucial question in metacognitive research concerns individual difference variables and their relationship with metacognitive cue evaluation. In the present study, participants evaluated a set of syllogisms, rating their confidence their answers following a two-response paradigm. Participants also completed two measures: of trait confidence (Personal Evaluation Inventory: PEI) and of cognitive capacity (International Cognitive Ability Resource: ICAR). Marginally significant effects of PEI and ICAR on item-level confidence were detected, as well as a significant effect of ICAR on items correct. Significant correlations between PEI scores, ICAR scores, and answer changing between time conditions were also detected. These effects, in addition to effects of time and question type that disappeared when PEI and ICAR were included as covariates, indicates that the examined individual difference variables may play a role cue evaluation in a logical reasoning task. It remains the task of future research to determine the exact nature of these relationships.

#97: Trying Hard to Remember and to Forget by Chris McCoy, Brette Lansue, Lori Buchanan

Historically, selective rehearsal has been the leading explanation for the item-method directed forgetting effect. It is theorized that participants rehearse the items until a cue is presented. Words followed by remember-cues receive elaborative rehearsal and are thus remembered better; words followed by forget cues passively fade from memory. Conversely, the encoding suppression explanation suggests that forgetting is more deliberate and cognitively demanding. The current study pits these two competing theories against each other. Participants either underwent an item-method directed forgetting paradigm or were told to remember all items accompanied by meaningless cues. Supporting the idea that directed forgetting may be an active rather than passive process, there was no difference between in memory for remember-cued items and control-procedure items despite control participants trying to remember twice as many. Results suggest that trying to forget may be more cognitively demanding than once thought.

Abstracts

#98: The interaction of attentional control settings and emotion by Lindsay Plater, Akshu Valecha, Rashmi Gupta, Naseem Al-Aidroos

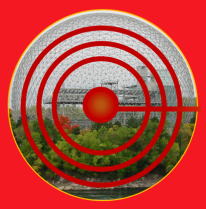
Visual attention is biased towards emotion. There is recent evidence that task-irrelevant negative—but not positive—stimuli can be inhibited during an attentionally demanding task (Gupta & Srinivasan, 2015). Here, we examined the interaction of attention and emotion; more specifically, we assessed the control afforded by attentional control settings (ACSs) by testing the ability of ACS-matching and ACS-nonmatching emotional gaze cues to guide attention. In Experiment 1, we found that all task-irrelevant positive stimuli guided attention, but only ACS-matching task-irrelevant negative stimuli guided attention. In Experiment 2, to enhance the relevance of emotion (Codispoti et al., 2016), we added a neutral condition, and we found enhanced control over attentional capture. While only ACS-matching task-irrelevant positive and neutral stimuli guided attention, no task-irrelevant negative stimuli guided attention. These results suggest that enhancing the relevance of emotion enhances the control of ACSs, leading to the inhibition of negative stimuli.

#99: Age of Acquisition Effects on Eye Movement Measures of First-Language and Second-Language Reading in Bilingual Children and Young Adults by Samantha Shaw, Veronica Whitford, Gabrielle Levesseur, Marc Joanisse

Despite outnumbering their monolingual peers globally, little experimental research has investigated reading performance in bilingual children (Jared, 2015). To help address this gap in the literature, we investigated early-stage (gaze duration) and late-stage (total reading time) eye movement measures of first-language (L1) and second-language (L2) reading performance in bilingual children (n=33) and young adults (n=30), with a particular focus on age of acquisition (AoA) effects (i.e., words learned earlier in life are easier to process than those learned later on). For children, we found larger L2 vs. L1 AoA effects during early-stage reading, but comparable effects during late-stage reading. For adults, we found larger L2 vs. L1 AoA effects across both reading stages. Overall, the magnitude of AoA effects was larger in children vs. adults. Our findings suggests that AoA exerts a greater facilitatory influence on eye movement reading behaviour in the weaker language (L2) and among developing readers (children).

#100: The development of the missing-letter effect : The role of frequency, word function and phonology by Marie-Michelle Collin, Annie Roy-Charland, Jacques Richard

When participants read a text for comprehension, while searching a target letter, the letter is more often omitted when embedded in frequent function words than in rare content words. Few studies have explored the development of this missing-letter effect and those who did suffer from methodological limitations. The goal of this study was to revisit the developmental perspective with better controlled stimuli. 227 participants took part in this study (1st to 5th graders and university students). They were asked to read 4 texts (frequency and grammar role confounded, frequency manipulated, grammar role manipulated, phonology manipulated) and to circle a target letter. The results showed the typical missing-letter effect for all but 1st graders. Furthermore, when frequency was controlled, all showed more omissions for function than content words but, when grammar role was controlled, none showed an effect of frequency. The results are explained in light of the attentional-disengagement model.



Abstracts

#101: Changes in the prevalence of thin bodies biases young women's judgements about body size by Nathalie Germain, Sean Devine, Stefan Ehrlich, Ben Eppinger

Body dissatisfaction is pervasive among young women in Western countries. Among numerous forces that contribute to body dissatisfaction, the perpetuation of a thin ideal in visual media has received notable attention. Nevertheless, the underlying cognitive mechanism(s) by which this ideal influences concepts about women's bodies require clarification. In this study, we propose that changes in the prevalence of thin bodies in the environment drives this concept change. In a pre-registered online experiment (N = 419), we found that as the prevalence of thin bodies increased, what women considered "overweight" expanded such as to include bodies that would otherwise be considered normal in size. These results point to a general cognitive mechanism that explains the normalization of thin bodies through visual media as a consequence of concept change due to changing prevalence of thin bodies in the environment. We also discuss implications for the representation of women in the media.

#102: Improving Episodic Future Thinking in Children: A Novel Episodic Specificity Induction by Olivia Gardam, Annick Tanguay, Jane Archibald, Gladys Ayson, Cristina Atance

Episodic future thinking (EFT) entails mentally travelling into our future to pre-experience an event. Whereas research has shown that talking about the future – in a broad sense – can improve future thinking in children, research in adults has emphasized the importance of constructing a rich event to yield similar benefits. We adapted the procedure used in adults, the Episodic Specificity Induction (ESI), for children, with the expectation that it would also enhance children's future thinking. We randomly assigned 53 6- and 7-year-olds to an ESI condition, in which they imagined a future event, or a control condition, where they described a picture. Children then completed several future-oriented outcome tasks. Preliminary findings suggest minimal effects of ESI – possibly due to children's still developing capacity to construct rich future event representations. Future directions include testing older children and creating an ESI that better scaffolds children's developing event representation skills.

#103: A PDP Model of Immediate Impression Formation by George Cree, Ruth Yilma

When we encounter a person we rapidly form an impression of them. This impression is shaped by a number of factors inherent to the person and event, including gender cues, skin colour, clothing, context, and our pre-existing knowledge of the world. Indeed the processes involved are remarkably similar to computing the semantics associated with an object. We present a new PDP model of impression formation that has its roots in the study of semantic cognition. We trained our model to learn about people of different races and genders, and the professions in which they were employed, along with context related to those professions. We demonstrate and explain the surprising finding that the model encodes knowledge about race in early 'visual' layers, despite no knowledge about race being built into the inputs to those regions, and no feedback connections from 'semantic' regions. Implications and extensions related to stereotyping will be discussed.

Abstracts

#104: Rumination and its effect on attention to emotional stimuli by Jean-Philippe Ferron, Antoine Bergeron, Simon Rigoulot

Rumination occurs when a person focuses their attention on their negative feelings in a maladaptive way. It has been linked to an impaired ability to disengage attention, especially from negatively-valenced information. Here, we aimed to study how rumination affects attentional control to emotional facial expressions. We hypothesized that inducing rumination would facilitate distraction by negative facial expressions and reduce distraction from neutral and positive ones. We randomly distributed 42 participants equally between two groups and induced rumination in one of them. Both groups performed a flanker task with emotional faces (joyful, neutral, or sad). Reaction times were increased for ruminating participants when joyful target faces were flanked by joyful or sad distractors, compared to when they were not flanked ($p = 0.041$). This suggests that rumination facilitate distraction from positive information by other emotional material. Future projects will use EEG to investigate the effects of rumination on attentional and emotional processes.

#105: Gender Differences in Concussion-Related Knowledge, Attitudes and Reporting Behaviours Among University Student-Athletes by Sarah Bains, Faly Golshanmoghaddam, Jenna Daly, Todd Morrison, Marla Mickleborough

University athletes represent an understudied population, and research suggests that they lack adequate knowledge of concussions. Accurate and prompt reporting behaviours hinge on safe attitudes and knowledge of concussion signs and symptoms. The purpose of this study was to explore whether gender differences exist with respect to concussion knowledge, attitudes, and reporting behaviours in university student-athletes. Following a cross-sectional design, a single survey that included the Rosenbaum Concussion Knowledge and Attitude Survey (RoCKAS-ST) and a reporting behaviour questionnaire was administered to 51 university student-athletes from five sports. No significant gender differences were observed for concussion knowledge, attitude, and reporting frequency; however, female athletes correctly identified more concussion signs and symptoms than males. The results highlight the need for further research exploring knowledge differences between recreational athletes and collegiate athletes, many of whom receive mandated concussion education and have unparalleled access to an athletic trainer.

#106: Expectation's Effects on Duration Perception Extend to Related Stimuli by Corinna McFeaters, Daniel Voyer

Repetition and expectation exert distinct influences on duration perception, with repetition contracting subjective duration and expectation expanding it. The limits of these effects have not been fully explored. The current experiment aimed to determine whether repetition contraction and expectation expansion are solely a consequence of low-level sensory processes or whether they extend to higher-order processes, such as relationships. Participants completed a method-of-comparison task in which a standard text stimulus (e.g., "dog") was presented with a comparison image stimulus that was either a representation of that word (direct repetition), an unrelated image (a nonrepeat), or a semantically-related image (semantic repetition). Overall, results suggested that expectation may have expanded subjective duration for repeat stimuli, including the semantically-related stimuli, indicating that expectation expansion extends to higher-order processes. Repetition contraction, however, was not observed in this paradigm, implying its effects are confined to low-level sensory processes.

Abstracts

#107: Cerebellar contributions to spatial and temporal visual attention by Chris Striemer

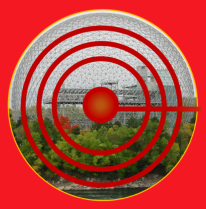
Over the past 20 years, evidence from functional neuroimaging and human lesion studies indicate that, in addition to its central role in motor control, the cerebellum is also involved in a variety of cognitive functions. Here I will highlight some of our recent work using functional brain imaging and non-invasive brain stimulation in healthy adults, as well as structural brain imaging and behavioural measures in patients with cerebellar lesions. Collectively, these data indicate that: 1) the cerebellum is involved in both spatial and temporal visual attention, and 2) damage to the left lateral cerebellum may induce a form "attentional dysmetria," such that performance may suffer under conditions in which the rapid deployment of attention is required. These data have important implications not only for our understanding of the effects of cerebellar injury on behaviour, but also for how the motor system is linked with cognition more generally.

#108: How does attentional tracking impact response time in a series of touches? by Mallory E. Terry, Lana M. Trick

Many tasks in everyday life involve performing coordinated actions towards specific items in dynamic environments. This ability to keep track of specific items among others, multiple-object tracking (MOT), has been proposed to involve cognitive mechanisms that overlap with the requirements for coordinated action (Pylyshyn, 2001). Further, evidence from research investigating the Repetition Effect has shown decreased response time when repeatedly performing the same action (e.g. Bertelson, 1961). These two lines of research bring forth interesting questions about the relationship between attentional tracking and repeated action. We investigated this using a MOT task where participants had to touch targets or distractors in MOT that changed colour. Overall, the response time to touch items was faster for targets as compared to distractors. In addition, the repetition effect was present as touches were faster for the second touch in a sequence regardless of the target or distractor identity.

#109: Subclinical depression and autobiographical future thinking: An impairment in self-concept and not episodic specificity by Signy Sheldon, Kayla Williams, Jamie Snytte

Depression is associated with a bias towards accessing negative and general autobiographical events. However, it is unclear how these effects present in subclinical depression, particularly when imagining future autobiographical events. We recruited two groups of participants. The first group (Experiment 1) made positive and negative trait judgments about the self and another person, and then imagined a related future event. A separate group (Experiment 2) completed these tasks in reversed order (imagined an event, then made trait judgments). All participants completed a measure of depression symptom severity. Across both experiments, depression symptomatology did not relate to the ability to image specific future events. However, depression symptomatology selectively and positively related to endorsing negative trait judgments about the self. These findings indicate that subclinical depression does not affect episodic memory use to imagine specific future experiences, but does alter core beliefs about the self which guide how autobiographical events are evaluated.



Abstracts

#110: The role of the motor system beyond the motor domain by Sean Gilmore
The "motor-system" is a network of cortices generally contained – but not isolated to - dorsal parietal and basil ganglia regions of the brain. These regions have been classically defined by their association with motor-based processes and behaviours. However, over the years research has challenged the domain specificity of the motor system, examining the interconnectivity of these cortices and the role they play in non-motor processes. This symposium is aimed at providing a multidisciplinary approach to better understand the role of the motor system. This symposium will span across disciplines such as temporal auditory perception (Jessica Grahn); vocal memory advantages (Frank Russo) and the role of the cerebellum in visual attention (Christopher Striemer). Overall, each talk will present unique evidence for the role that classically defined "motor-systems" have in non-motor functions.

#111: An Investigation of the Role of Mindfulness, Gratitude, and Personality on Emotional Facial Recognition by Alexandra Deck, Joline Guitard, Annie Roy-Charland
This study explores the relationship between mindfulness and gratitude dispositions with personality type as well as the effects that mindfulness, gratitude, and personality type have on emotional facial recognition abilities. 53 participants took part in the study. Mindfulness was measured using the MAAS, gratitude was measured using the GQ-6, and personality factor was assessed using the HEXACO personality inventory. Participants completed the questionnaire and were presented 96 emotional facial expressions of the basic emotions (fear, surprise, happiness, anger, disgust and sadness) to identify. The results of the study show that one's level of gratitude served as significant predictors for the recognition of surprise. Surprise recognition was found to be positively correlated with mindfulness, and negatively correlated with gratitude. Gratitude and mindfulness did not significantly correlate with each other. Concerning personality traits, individuals with high honesty-humility and conscientiousness personality traits had greater levels of mindfulness.

#112: Predictors of word segmentation cue production in bilinguals: Language dominance, exposure, and entropy by Annie C. Gilbert, Jason Gullifer, Max Wolpert, Haruka Saito, Shanna Kousaie, Inbal Itzhak, Vince Gracco, Denise Klein, Natalie A. Phillips, Debra Titone, Shari R. Baum
Adapting one's prosody to a second or non-dominant language can be difficult, and failure to do so may impact intelligibility. In the present study, we investigate the production of fundamental frequency (F0) modulations and syllabic lengthening as word-level and sentence-level prosodic cues by fifty-five French-English bilinguals (FEs; L1 French and L1 English) with diverse language experience. Each participant produced English and French utterances, providing both native and non-native productions. Linear mixed effects models (LMEs) revealed that FEs' ability to produce L1 and L2 specific cues depends on individual differences in objective language proficiency (measured by verbal fluency performance), amount of language exposure (proportion of conversation in each language) and predictability of language exposure (measured by language entropy). Speakers also produced different prosodic patterns in English and French, suggesting that the production of prosodic cues is both adaptive (modified by language experience) and selective (specific to each language).

Abstracts

#113: Online Psychological Testing using Executables: A Case Study Using a Continuous Shape-Color Retrieval Task by James Yuan1, Aedan Li, Morgan Barense

In behavioral research, online experimentation is a valuable alternative to lab-based experimentation. However, converting existing behavioral experiments to a browser-based form can be difficult, since this usually requires a conversion from Python to JavaScript code. We propose a novel paradigm of online experimentation using executable files, which facilitates the transition to online testing by allowing for flexible programming in Python alone. In a first experiment, we applied this method to develop a continuous shape-color retrieval task. We found that the data was comparable to traditional lab-based experimentation, replicating a well-established set-size effect. In a second experiment, we confirmed the reliability of this method, replicating the first experiment with results within 2% of original values. We also confirmed the scalability of our method, as this second experiment tested up to 18 participants simultaneously. Taken together, we suggest that executable-based testing is an efficient, reliable, and scalable alternative to browser-based testing.

#114: Expectancy-based rhythmic entrainment as continuous Bayesian inference by Jonathan Cannon

Humans easily perceive and track periodic structures underlying auditory rhythms, even rhythms including non-periodic structural variation and timing perturbation. This is a hard problem. How might the brain solve it? Following the “predictive processing” / Bayesian brain ansatz, I argue that rhythm perception can be viewed as dynamic inference of a hidden state (phase and tempo) based on sensory observations (auditory events) and a model of how the hidden state produces sensation (phases and temporal precision of event expectations).When this inference problem is stated formally, solved, and simulated, it mimics human rhythm perception, both at a gross level and in various experimentally identified nuances and illusions. As a model of rhythm perception, it is unique in tracking not only stimulus phase and tempo, but also phase and tempo uncertainty. It is also unique in predicting from first principles how unfulfilled expectations should warp the perceived passage of time.

#115: Non-Numeric Patterning and Mathematical Development in the Early Years of Formal Schooling by Rachel McGinn, Sabrina Di Lonardo Burr, Chang Xu, Heather Douglas, María Inés Susperreguy, Jo-Anne LeFevre

Patterns are sequences of colours, numbers, letters, or symbols that are consistent with a rule (e.g., alternating colours of stripes on the American flag, house addresses that go up by 2). Zippert et al. (2020) proposed that, for 4-year-old children, patterning is related both to specific early numeracy knowledge and more generally to mathematics knowledge measured one year later (i.e., Pre-Kindergarten to Kindergarten). We tested this approach for Chilean children (N = 98; Mage = 71 months) in the early years of formal schooling (i.e., Kindergarten to Grade 1). Consistent with Zippert et al.’s model, patterning knowledge in Kindergarten predicted backward counting, arithmetic, and the growth in math problem solving in Grade 1, above and beyond age, spatial span, and receptive vocabulary. These findings support a theory in which early patterning skills are uniquely related to later math achievement, beyond the role of other domain-general cognitive precursors.

Abstracts

#116: I See What You're Saying: Direct Eye Gaze Enhances Nervous System Arousal and Self-Reference Memory by Michelle Jarick, Quinn Ree-Fedun

Research has shown that direct eye gaze increases physiological arousal and memory. Direct gaze has been speculated to elicit self-referential processing by focusing attention within. In Experiment 1, we examined whether physiological arousal and memory for a word list spoken aloud would vary based on the experimenter's gaze direction. Participants experienced greater skin conductance during direct eye gaze compared to averted and no-gaze conditions. In addition, recognition accuracy for word stimuli spoken during direct gaze was greater than averted and no-gaze. In Experiment 2, the degree of self-awareness was manipulated by using self-referential and semantic memory strategies. Participants using the self-referential strategy experienced greater skin conductance and recognition accuracy during direct gaze, compared to the semantic strategy. The results indicate that direct gaze increased physiological arousal and boosted self-referential memory, supporting the notion that direct gaze can cause attention to turn inward towards the self.

#117: Characterizing language-unique words, cognates, and interlingual homographs in the linguistic landscape of four Canadian cities by Esteban Hernandez-Rivera, Naomi Vingron, Olivia Mendelson, Katrine Bergeron, Sarah Lee, Lidie Silva, Jakob Leimgruber, Debra Titone

The term "linguistic landscape" refers to language within public spaces, e.g., on commercial, governmental, or grass-roots signs. The linguistic landscape reflects both top-down policy constraints and the collective psychology of local sign creators or viewers. Here, we examined French and English words within ~2500 signs photographed on select streets of Montreal QC, Quebec City QC, Ottawa ON, and Fredericton NB – cities that differ according to language census data. We specifically coded the relative proportions of French-only or English-only words, and French-English cognates or interlingual homographs. As expected, the proportion of French- and English-only words varied across cities. Perhaps more interestingly, the proportion of cognates was consistently higher than interlingual homographs, although this difference varied across city and sign type (i.e., maximal for governmental/commercial signs in more English-speaking areas). This raises new questions about the mechanisms of this cognate effect, such as deliberate sign-design or language-driven unconscious biases of sign creators.

#118: Use of grammatical gender cues in French: Evidence from monolingual and bilingual speakers by Gabrielle Manning, Laura Sabourin

Grammatical gender is often referred to as one of the most difficult grammatical categories to master, making it an ideal tool to investigate how grammatical concepts are processed. Forty-one native French speakers (M age=19.5) and 22 simultaneous French-English bilinguals (M age =18.6) completed a lexical decision task using a masked priming paradigm to examine how a gender-marked determiner (i.e., la) facilitates access to its corresponding noun (i.e., maison).Results show that native speakers do not use available gender cues on the determiner in neither the feminine nor masculine conditions ($p>.05$). However, feminine gender cues are seen to aid bilingual speakers when followed by a feminine noun, as evidenced by a trend towards significance ($p=.07$). These results indicate that native speakers are more flexible with gender cues and assignment, whereas bilinguals rely more on a "default masculine" gender system where solely feminine cues are considered as informative.

Abstracts

#119: The role of motor areas in auditory sequence perception by Grahn Jessica

Research in behaviour, neuroimaging, and neuropsychology implicates the motor system in the perception of auditory temporal sequences. In particular, certain motor areas respond more when regularities, such as a regular 'beat', can be detected these sequences. The beat is the regular time interval that humans tap to, and against which other time intervals in the rhythm are measured. Perception of auditory rhythms typically activates premotor cortex, supplementary motor area (SMA), basal ganglia, and cerebellum. Here, I will discuss neuroimaging and brain stimulation research that elucidates the role of these different brain areas in auditory sequence perception, showing that the basal ganglia and supplementary motor area are preferentially activated during perception of rhythms with a regular beat, and that stimulation of the supplementary motor area, but not premotor cortex, alters perception of auditory sequences.

#120: Fight Songs: Are certain song types agonistic signals in a tropical warbler by Lambert Heatlie, Peter Mower, Samantha Krause, David Logue

Many songbirds sing repertoires of discrete song types. These song types have been hypothesized to serve various functions, but the evidence is inconclusive. We tested the hypothesis that certain song types function as agonistic signals by analyzing continuous recordings of vocal behaviours in a sedentary tropical songbird. If certain song types have a temporal association with aggressive interactions, we would interpret this as evidence that certain song types are used as agonistic signals, supporting hypothesis that different song types serve different communicatory functions.

#121: Comparing past and future emotional autobiographical events and impact of individual differences in current life stress by Azara Lalla, Lisa Zhu, Signy Sheldon

Although recalling and imagining future autobiographical experiences relies on similar cognitive processes, there are discrepancies. Research suggests that positive and negative events are accessed differently from the past and future, an ability which is also impacted by current life stress. To synthesize these findings, we recruited a large sample of online participants (N=425) who generated specific past and future autobiographical events to positive and negative cue words, rating event likelihood and task difficulty. All provided an estimate of current life stress (Perceived Stress Scale-10). Specific positive future events were more likely to be accessed than negative future events. Emotion did not affect accessing past events. Current stress interacted with emotion for both past and future events, such that higher stress was associated with increased ratings of likelihood and difficulty for negative events. These results provide new insights into how stress and emotion affect the mechanisms underlying autobiographical memory processing.

Abstracts

#122: Using Measures of Healthy Living to Predict Attentional Engagement in Everyday Life by Tyler B. Kruger, Jeremey Marty-Dugas, Brandon C. W. Ralph, Mike J. Dixon, Daniel Smilek

People often report experiencing a variety of attentional experiences when performing everyday tasks such as studying or driving. Sometimes, people experience moments of deep and effortless concentration (i.e., 'flow') while performing a task while other times they experience attention lapses, absent-mindedness, and mind-wandering. In a sample of 193 participants, we examined how much variance in measures of attentional engagement (i.e., attention lapses, cognitive errors, mind-wandering, and flow) can be explained by three components of healthy living—physical activity, sleepiness, and dietary habits. We found that the measures of healthy living accounted for a significant and substantial amount of variation in the attention measures after controlling for age. Although the present findings cannot address causality, they present the interesting possibility that improving the healthiness of one's lifestyle may positively influence one's attentional engagement in everyday activities.

#123: Receiving texts - not sending them- is associated with academic performance by Laura Schneeberger, Kelson Abagael

Cellphone use has become central to many people's daily lives, but at what cost? Cellular notifications have been found to interrupt performance when participants complete sustained attention to response tasks. However, the attentional cost of engaging with a cellphone during online lectures has yet to be explored. Participants completed an online survey composed of a satisfaction with life scale, the Beck Anxiety Inventory, a cellphone and texting use scale, and specific questions about cell phone use. We found that as anxiety and satisfaction with life increased, so did GPA. We also found that as the number of texts received increased, GPA decreased. The number of texts sent was not a significant predictor of GPA. These findings suggest that it is not necessarily cellphones themselves that impact GPA, but rather the derailment of attention via receiving notifications that does.

#124: Use of Brain Stimulation to Study the Role of Motor Areas in Emotion Perception by Carmen Dang, Frank Russo

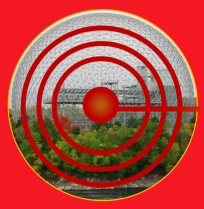
The human mirror neuron system (hMNS) is a prominent brain network encompassing sensory and motor areas that has been implicated in action perception and more recently, emotion perception. We applied transcranial random noise stimulation (tRNS) to the inferior frontal cortex (IFC; a major node of the hMNS) to assess the neural and behavioural effects. Additionally, we used dynamic audio-visual portrayals of emotion to increase ecological validity. Data collection is temporarily paused, but preliminary results will be presented. Compared to sham tRNS, active tRNS led to significantly decreased accuracy, a numeric trend of greater mu-event-related desynchronization (mu-ERD) to emotional stimuli and marginally faster response time. These results suggest that active tRNS over the IFC leads to a mode of embodied responding to dynamic emotional stimuli that involves less cognitive deliberation. The results also support the use of brain stimulation in further understanding the role of the motor areas in emotion perception.

Abstracts

#125: Bilingualism: A cognitive exercise in managing uncertainty by Jason Gullifer, Debra Titone
Bilinguals have distinct linguistic experiences relative to monolinguals, stemming from interactions with the environment and individuals therein. Bilinguals manage several language-related uncertainties which has cognitive consequences. To approximate language-related uncertainty, we use language entropy (LE), computed from self-report measures of language use. LE reflects the number of different "language states" that an individual engages with in their environment. Increases in LE reflect greater language-related uncertainty for an individual or environment. We report two studies characterizing LE for bilingual Montrealers and using it to predict executive control and language outcomes. We find variability in LE, reflecting individual differences in language-related uncertainty. We also observe regularities according to the environment, corresponding to two latent domains: LE for personal or social purposes and LE for professional purposes. LE, in turn, predicts engagement in control strategies (Study 1) and language fluency (Study 2), suggesting that bilinguals adapt to cumulative language-related uncertainties in the environment.

#126: Mapping 'expectation for perception': Directed attention at encoding facilitates response preparation to high probability events by Manda Fischer, Morris Moscovitch, Claude Alain
Long-term memory (LTM) of learned target locations can facilitate target detection. Here, we examined whether this benefit is related to attentional or motor-related processes by comparing lateralized readiness potentials (LRP) in two studies. Participants heard audio-clips (half included a lateralized tone) and classified them as natural/manmade. A surprise test followed, in which participants detected a lateralized tone now embedded in each audio-clip. Reaction times did not differ according to target-context associations. When we manipulated participants' attention such that they made judgements about the target tone, instead of the clip, target detection was faster for clips previously associated with the target location (memory-cue) compared to those that were not (neutral-cue).Comparing the two studies, the stimulus-locked LRP was greatest for the memory-cue condition in the second experiment. There was no difference in response-locked activity between the conditions. These results suggest that directed attention aids "expectation for perception" rather than motor-related processes.

#127: The hippocampus promotes long-term memory formation by preventing sensory interference by Isabelle Groves, Daisy Arkell, Emma Wood, Oliver Hardt
Damage to the medial temporal lobe, in particular the hippocampus, typically leads to anterograde amnesia, i.e., the inability to form new long-term memories. It remains unresolved why this is the case. Addressing this issue, our active decay theory predicts that when the hippocampus is impaired, newly formed neocortical representations are unable to stabilize due to interference arising from ongoing sensory experience. Thus, the normally functioning hippocampus protects these memories shortly after learning, allowing them to stabilize while continuous sensory processing occurs after learning in natural settings. Therefore, without a functioning hippocampus, new long-term memories cannot form, leading to anterograde amnesia. Here, we will present data from a series of experiments supporting the position that anterograde amnesia following compromised hippocampal functioning arises from increased vulnerability to interference.



Abstracts

#128: Drawing in a Diary to Enhance Recall of Younger and Older Adults' Personal Everyday by Sophia Tran, Issac Beech, Myra Fernandes

We examined whether drawing is a more effective means than writing, for maximizing recall for one's personal autobiographical memories, and whether aging influenced this effect. Thirty young adults and twenty-one older adults were given a diary booklet and instructed to reminisce about a random daily event, on 12 days within a 2-week period. They recorded the event on each day in one of two ways: by writing or by drawing a picture about it. Participants were later cued to recall, and write down, a description of each memory using their self-generated keywords. Accuracy was significantly higher for events drawn than written at encoding, and this benefit did not differ across age groups; the proportion of episodic relative to semantic details was also significantly higher. Findings suggest the use of drawing while reminiscing within a diary enhances recollection for personal everyday memories, and is as effective in older as younger adults.

#129: Mental Space and Simple Arithmetic by Maja Mihalj, Jamie Campbell

Cognitive arithmetic literature widely accepts that adults perform simple addition through direct long-term memory (LTM) retrieval, which posits a quick, one-step procedure to retrieve a solution from memory. Recently, this has been challenged by the automatic counting (ACM) model, which argues for an unconscious working memory algorithm whereby fast counting procedures are used to produce a solution. The present study employed a novel design to investigate transfer effects and spatial bias that would be expected with counting-based processes. Participants performed either an odd-colour dot task or a dot counting task, followed by an arithmetic task (i.e., multiplication, addition, subtraction). Results contrasted the counting transfer hypothesis, meaning that no spatial bias was found for counters. Despite some evidence that counting practice benefits addition, the spatial effects remain at odds with our results. Given that we did not successfully prime counters, more research is needed to potentially re-evaluate arithmetic pedagogy.

#130: A Single Dimension of Uncertainty Represented by Feeling of Rightness and Feeling of Error? by Kailyn Phillips, Valerie Thompson

In meta-reasoning literature, monitoring judgements, such as Feeling of Rightness (FOR) and Feeling of Error (FOE), have been studied separately, using different tasks and paradigms. Therefore, the purpose of this paper was to study FOR and FOE together to identify if they are similar monitoring judgements that are sensitive to cues like conflict. A two-response paradigm and a base rate task were used to study participants' sensitivity to conflict, as evidenced by the difference in performance on conflict, no-conflict, and neutral problems. In each trial, participants completed one base rate problem twice. As expected, participants were more confident when completing no-conflict problems as opposed to conflict or neutral problems. Results support that FOR and FOE were relatively identical concerning the base rate responses and sensitivity to conflict. To this point, the data suggest that FOR and FOE represent a continuum.

Abstracts

#131: Two plus one equals three: Perceptual grouping in dyads and small groups by Victoria Fratino, Miriam Cheety, Matthew Milton, Francesca Capozzi, Jelena Ristic

Recent research shows that humans perceive two facing individuals as a perceptual unit. As perceptual grouping facilitates dyad perception but hinders individuation, individuals in non-interacting dyads (two individuals facing away)are perceived more accurately than individuals in interacting dyads. It is presently unknown whether similar processes occur for groups of three or triads. That is, non-interacting triads (e.g., one individual facing away from two individuals facing one another) may be perceived as a collection of dyads (i.e., dyad plus one) or as a disrupted group (i.e., three separate individuals). To test this idea, we asked participants to search for individual targets positioned in non-interacting and interacting triads. We found that individual targets were located less efficiently when they occurred in non-interacting relative to interacting triads. This replicates dyad grouping principles and suggests that small groups may be represented as a collection of dyads rather than grouped as unique units.

#132: Losses loom lesser than gains: Using Cumulative Prospect Theory to predict problem gambling by Jessica Curtis, Evan Curtis

Problem gambling is a non-substance abuse disorder that can cause significant distress and dramatical consequences. Despite extensive research in neuroscience and clinical / social psychology, few contributions have been made from formal models of behavioural economics. We apply Cumulative Prospect Theory (CPT) to provide a formal analysis of cognitive distortions in problem gambling. Participants made decisions between pairs of gambles and completed a gambling assessment. We estimated the values of the parameter values specified by CPT for each participant and used those estimates to predict problem gambling severity. We found two key parameter differences between problem gamblers and non-problem gamblers: The curvature of the value function for gains and the degree of loss aversion. We explore clinical implications of the findings and conclude that problem gambling partially reflects a fundamental distortion to subjective valuation.

#133: Greater language social diversity mitigates increase in perseverative errors in women by Anne Beatty-Martínez, Alicia Duval, Stamatoula Pasvanis, Elizabeth Ankudowich, Sivaniya Subramaniapillai, M. Natasha Rajah, Debra Titone

Increasing evidence suggests that bilingualism does not result in a particular outcome, revealing instead a multidimensional construct that is shaped by biological and ecological variability. For example, a prior study from our group found that bilingual men and women showed differential patterns of age-related decline on executive function as measured by the Wisconsin Card Sorting Test (WCST). Specifically, women showed the greatest degree of age-related decline and a greater likelihood than men to improve performance with increased bilingual experience. Here, we build on this work by examining how social diversity of language use (i.e., language entropy) may further modulate the relationship between biological sex and executive function in a lifespan sample of bilinguals from Montréal (n = 152, 98 female). Regression analyses indicated that for women, but not men, greater diversity in social language use in daily life related to reduced perseverative errors on the WCST.

Abstracts

#134: Changes in Visual Discrimination Abilities during the COVID-19 Pandemic by Jessica Hurtubise, Lori Buchanan

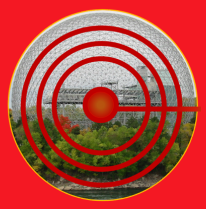
The Behavioural Immune System (BIS) allows people to engage in preventative behaviours to avoid contamination and perceptual, attention, and memory systems are enhanced to facilitate the detection of subsequent cues. Prior to the COVID-19 pandemic, the relationship between BIS and disease avoidance had been studied within an acute timeframe using experimental primes. However, the ongoing COVID-19 pandemic allowed for an exploration of cognitive changes in response to chronic pathogen threat. This study systematically evaluated population-level changes in visual discrimination abilities as a result of the pandemic. To do this, participants completed object and face discrimination tasks at four time points during the pandemic (i.e., April, June, August, and October). Changes in speed and accuracy of visual discrimination were examined as a function of time to test the hypothesis that COVID exhaustion is linked to a decrease in BIS related cognitive vigilance.

#135: We Otter Change Categories: Verbal Fluency Test Differences by Brette Lansue, Julia Borsatto, Lori Buchanan

Verbal Fluency tests are commonly used to measure language productivity and executive functioning in neuropsychological assessment (Strauss et al., 2006). Semantic fluency tasks require people to verbally produce items (e.g., otter) that belong to a designated semantic category (e.g., animals) within a specific time limit. Because repeat assessment is frequently needed, alternate categories (e.g., furniture) that are considered equivalent are used to minimize practice effects. However, anecdotal clinical observations suggest these categories are not comparable in terms of the number of correct items produced. The current study examined the underlying semantic structure of four commonly used categories (i.e., animals, furniture, clothing, fruit) using semantic neighbourhood density (SND; Durda & Buchanan, 2008). Overall, the animal category has many more close neighbours than the other categories. Responses from 100 participants confirm that the animal category is different and that this increased density appears to impart an advantage for animals over the other categories.

#136: Forming Real-World Multisensory Object Concepts by Aedan Li, Heba Qazilbash, Morgan Barense

The study of multisensory integration has a long tradition of using visual images displayed on a computer and sounds played through a headset. Here, we extend this work by studying multisensory integration using real-world 3D-printed objects embedded with playable speakers. Applying a novel measure of representational geometry that quantified the similarity structure of feature concepts, we find that aspects of conceptual knowledge were initially driven by sensory information. Representational geometry was fundamentally reshaped after participants experienced shape-sound pairings, providing evidence of an integrated code acquired through exposure to multisensory objects. Finally, participants were similar to each other in their representation of features and shape-sound pairings but reported no consensus in their conceptual labels, suggesting that sensory representations are shared whereas conceptual knowledge can be unique to the individual. Taken together, we characterize the formation of real-world object concepts for the first time, providing insight into how multisensory features become objects.



Abstracts

#137: I'm more like you than you think: Perspective taking in adolescents and adults by Keely Owens-Jaffray, Nancie Im-Bolter

Although social perspective taking improves with development, little research has examined potential differences between adolescents and adults. We would expect that age and experience would mean better social perspective taking in adults compared to adolescents. In the current study, we assessed social perspective taking in the context of a social problem in 20 adolescents (Mage = 18.60) and 20 adults (Mage = 39.90). We found no significant differences between the two groups. We conducted a thematic analysis of the best strategy proposed to solve the social problem and found four main categories: dismissive, conflict avoidance, manipulation, and negotiation but both groups were equally likely to suggest all four types. Our results indicate that not only does social perspective taking during social problem-solving not improve from adolescence into adulthood, but that the quality of strategies proposed by adolescents and adults to resolve a social conflict do not differ.

#138: How Spatial is Spatial Language? Investigating the Relationship between Spatial Cognition and Spatial Language by Jaimy Hannah, Summer Abdalla, Emiko Muraki, Giuseppe Iaria, Penny Pexman

According to the embodiment hypothesis, cognition is grounded through sensorimotor experience. For example, we often use the sensorimotor domain of space to ground abstract concepts (e.g. feeling down to indicate sadness). As a test of this hypothesis, we investigated the relationship between spatial grounding and spatial cognition. Participants (N = 150) completed three spatial language tasks assessing their sensitivity to spatial grounding and three spatial cognition tasks assessing their navigation and orientation abilities. The language tasks were derived from previous studies showing spatial grounding effects. Only one of these effects was replicated at the group level: the SNARC effect, suggesting the presence of a mental number line. In addition, there was little evidence for relationships between participants' sensitivity scores derived from the language tasks and their performance on the spatial cognition tasks. As such, the results of this study do not support a strongly embodied view of cognition.

#139: An Uneven Playing Field: Perspective Taking During Social Problem Solving by Keely Owens-Jaffray, Nancie Im-Bolter

Effective social problem solving is more likely when an individual can view both sides of the problem. This may be easier, however, during some aspects of the social problem solving process than others. In the current study 90 adults were given a task to assess perspective taking during social problem solving. Analyses showed significant differences in perspective taking across four aspects of social problem solving (strategy generation > problem identification > evaluation of strategies/obstacles > problem resolution). In addition, a scalogram analysis indicated that self-other differentiation across these four aspects of social problem solving was sequential in nature such that a certain level of social perspective taking is achieved on one aspect before that level is achieved on the next aspect. These findings suggest not only that social perspective taking across the four aspects of social problem solving is uneven, but that they follow a particular sequence in adults.

Abstracts

#140: COVID-19 Related Stress in University Students by Jenna Daly, Faly Golshanmoghaddam, Sarah Bains, Marla Mickleborough

During the COVID-19 pandemic, university students have displayed heightened stress and mental illness levels (Tee et al., 2020). We investigated the impact of COVID-19 induced stress on general stress and quality of life in university students. We hypothesized that COVID-19 stress would be positively correlated with general stress and negatively correlated with life quality. Our survey results revealed a strong correlation between general stress and quality of life, and moderate correlations between COVID-19 induced stress and general stress or quality of life.The COVID-19 stress scale focused on fear of the virus, and our results did not correlate this fear strongly to general stress or quality of life in university students. However, students may experience greater impact on quality of life and stress from COVID-19 induced restrictions, rather than fear of the virus itself. Additionally, quality of life and general stress appear highly correlated in university students during pandemic times.

#141: Production Improves Recognition and Reduces Intrusions in Between-Subject Designs by Hannah Willoughby, Maddison Baldwin, Dalainey Drakes, Jonathan Fawcett

The production effect refers to the finding that words read aloud are better remembered than those read silently. This pattern has most often been explained as arising from the incorporation of sensorimotor elements into the item representation at study, which could then be used to guide performance at later test. This theoretical framework views aloud items as being distinctive in relation to silent items, and thus the effect was thought to emerge only when production was manipulated within-subjects. This claim was later challenged, and a reliable (albeit smaller) between-subject production effect has since been shown in recognition memory. Across two experiments and a series of meta-analyses, we extend this earlier work, replicating the between-subject production effect for recognition, and demonstrating no such effect for target recall. We further provide evidence that despite not affecting target recall, production nonetheless reduces off-list intrusions.

#142: The Effect of a Personal Trainer on Workload during Remote Group Fitness Training by Pia Karpowitz, Samuel Clement-Coulsen, Leon Franzen, Aaron Johnson, Ramiya Veluppillai

Previous researchers have demonstrated that using a personal trainer increases perceived workload during physical activity. Given the popularity of online workouts especially during the COVID pandemic, this study aimed to assess subjective workload when exercising with and without a personal trainer. Workload was assessed using the NASA-TLX subscales for effort, physical demand, performance, frustration, and cognitive demand. Participants (n = 12) attended one online group workout per week for six consecutive weeks. Participants were split into two groups, those that conducted a workout with a personal trainer, or those that followed a pre-recorded workout video. Results showed that the personal trainer group exhibited higher subjective effort ratings, higher cognitive demand ratings, and in part higher performance ratings. Together, these findings suggest that remote group training with a personal trainer may lead to a higher workload.

Abstracts

#143: The Effect of Emotions on Syntactic Learning in Children by Myriam Michaud, Catherine Mimeau, Simon Rigoulot

This study examined the effect of emotional words on the learning of a novel sentence structure in 50 children from Grade 1 to 6. Participants completed a learning task, in which 48 sentences containing French words ordered according to the Japanese sentence structure were presented orally. Each sentence had a negative (“furious”), positive (“happy”), or neutral (“thoughtful”) content. Participants were asked to identify which of three pictures best described each sentence. Feedback was given to allow learning. Overall, children responded faster to the neutral sentences than to the positive and negative ones. Children in Grades 1 to 3, but not in Grades 4 to 6, were more accurate and had a faster learning rate for positive sentences than for neutral and negative ones. This suggests that emotional content captures children's attention and that positive words promote learning in younger children. These findings could have important implications for language teaching.

#144: Context-dependent use of the memorizing effort heuristic by Skylar Laursen, Chris Fiacconi

The commonly observed negative relation between self-paced study time and memory predictions (i.e., judgments of learning (JOLs)) has been deemed the behavioural signature of the memorizing effort heuristic, whereby individuals infer that items that require more effort to learn are less likely to be subsequently remembered. Across two experiments, as well as a re-analysis of a prior published dataset (Laursen & Fiacconi, 2020), we provide evidence that place constraints on our current understanding of individuals’ use of the memorizing effort heuristic. Specifically, we found that in the presence of relatively easier items the negative relation between study time and JOLs for difficult items was absent. Interestingly however, when individuals were tasked with making predictions regarding others’ memory performance, we found that they did not adapt their use of the memorizing effort heuristic in the same context-dependent manner as when they predicted their own memory performance.

#145: The effects of context on ambiguous facial configuration processing: An event-related potential (ERP) study by Emma Amyot, Nicole White, Heath Matheson, Annie Duchesne

Understanding others’ facial configurations (FCs) requires contextual information. However, most studies of face processing employ highly caricatured “basic/canonical” FCs and do not account for contextual factors that may be relevant for understanding non-canonical FCs. We investigated the interactive effects of visual and task-related contexts on processing FCs using an oddball paradigm, whereby frequently occurring canonical fear or anger FCs (standards) provided visual context for rare, ambiguous FCs (oddballs) under two task-demand contexts. Using event-related potentials (ERPs), we examined the impact of contextual factors on the size of the oddball effect via the P3 component. In a mixed design, participants (N = 42) performed both an emotion-related rating of FCs (between-groups: fearful or angry) and a control task rating the size of a visually salient dot on the same stimuli. We found a significant interaction between visual and emotional judgment contexts in predicting the size of the oddball effect.

Abstracts

#146: Does restudying impair memory for non-restudied information? by Skylar Laursen, Chris Fiacconi

Despite a plethora of research indicating that retrieving as compared to simply restudying recently encoded material boosts final test performance, restudying remains a popular learning strategy among students. However, in addition to being a suboptimal learning tool, there may also be conditions under which restudying introduces a mnemonic cost. Here, we examined whether restudying a self-selected subset of items impairs memory for the remaining non-restudied items. This question was inspired by research on the list strength effect, in which re-presentation of only a subset of items impairs recall for items presented only once. Across two experiments, we found that following initial encoding of all items, honoring participants' restudy selections did indeed impair recall for the non-restudied items relative to a condition in which all items were presented only once. However, this impairment was driven largely by the increase in list length resulting from the second presentation of the selected items.

#147: Metacognitive Control of Study Decisions by Dorina Sluka, Skylar Laursen, Chris Fiacconi

Are learners' metacognitive control strategies sensitive to expected test format? Previous literature suggests learners are sophisticated enough to adjust their encoding strategies to match the demands of the expected test format. However, it is unclear whether other forms of metacognitive control, such as re-study decisions, are also sensitive to expected test format. We first examined whether individuals adjust their region of proximal learning when expecting a relatively easy test format (multiple choice) as compared to a more difficult test format (cued-recall). Contrary to this prediction, the difficulty of the information learners selected for restudy did not differ across different test formats. We also probed whether re-study decisions made by learners were equally efficacious across expected test formats. Honouring learners' re-study decisions benefitted cued-recall performance, but did not yield such a benefit for multiple choice tests. Together, these results place constraints on our understanding of learners' metacognitive sensitivity to test format.

#148: Individual Differences in Word Class Discrimination by Derrick Bourassa, Alexa Thiessen

The mastery of various linguistic complexities of the English language follows a relatively protracted developmental course. The present study examined university students' knowledge of derivational suffixation in a word class discrimination task. Analyses revealed considerable individual differences in both overall sensitivity and sensitivity to suffixational diagnosticity. Theoretical implications of these findings are discussed.

Abstracts

#149: Differentiating Between Empirical and Preferential Decision Strategies by Noor Al-Azary, Lori Buchanan

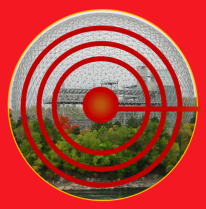
Visual decision-making is a common action that recruits complex cognitive processes. When choosing from an option set, participants use one of two decision strategies, preferential or empirical. In preferential choices, there is a gaze bias effect, where the gaze directed at chosen options is longer than in unchosen options. In empirical choices, which produce similar gaze bias effects; participants select a correct choice from accompanying distractors. Although both decision strategies have been investigated, there are no studies that directly compare them. Participants chose between options in a 2-alternate-forced-choice task with trials grouped into empirical (contained correct/incorrect choice) and preferential blocks (options equal in value) in a within-participants design. Reaction times, number of looks and gaze duration of choices were recorded using a computer and eye-tracker. Different decision stimuli (features, math expressions, words) were used to test gaze bias. These experiments use a novel method to differentiate preferential and empirical decision.

#150: Meaningful Words: How Adjectives Change Noun Imageability by Jahanvi Patel, Tara McAuley, Lori Buchanan

Conceptual combination occurs when associated words alter the properties of each other to form complex concepts (e.g., SHEER BOREDOM). The current study investigated the processing of adjective-noun combinations (e.g., FILTHY GREED) by manipulating noun concreteness and word-pair meaningfulness to see how these variables interacted to change the imageability of nouns. Participants rated word-pair imageability for 42 adjective-noun word pairs that varied with respect to meaningfulness (FILTHY GREED vs SPONGY RUMOR). These ratings were then compared to noun imageability ratings from various databases. The results of this study indicated that imageability of concrete nouns decreased and abstract nouns increased when adding adjectives of increasing meaningfulness. In other words, adding an adjective to a noun increased the imageability for abstract nouns but decreased the imageability for concrete nouns and this interaction was more pronounced as meaningfulness of word pairs increased.

#151: Statistical Summary Representations in Identity Learning: Exemplar Independent Incidental Recognition by Yaren Koca, Chris Oriet

The literature suggests that ensemble coding, the ability to represent the gist of sets, may be an underlying mechanism for becoming familiar with newly encountered faces. The current experiment investigated this phenomenon while introducing a new training paradigm that involves incidental learning of target identities dispersed among distractors. Study 1 showed that unfamiliar observers who learned the faces incidentally performed just as well as the observers who were instructed to learn the faces, and the intervening distractors did not disrupt familiarization. Study 2 replicated the results of Study 1, while also demonstrating that the observers had better recognition performance for faces that were created by averaging previously encountered images compared to the faces that were created by averaging novel images. These results suggest that ensemble coding is a plausible mechanism for face familiarization, and that faces that are interspersed among distractors can be learned incidentally.



Abstracts

#152: Effects of Perceptual Similarity and Target Frequency in Multiple Target Visual Search by Lee-Amber Laderoute, Chris Oriet

In visual search, finding one target increases the risk of missing subsequent targets, producing an apparent disadvantage for multiple target visual search. However, observations of hidden object gameplay suggest performance benefits for a large number of targets. Existing multiple target search experiments typically include only 2 targets; as such, in the current study observers searched for 2, 6, or 18 items in 1 of 3 backgrounds (e.g., 6 batteries on an electronics shelf). In each image, targets were all identical, half identical/half unique, or all unique. Total completion time and average search time per item were measured. Similarity did not affect search time. However, in line with initial predictions, search efficiency was increased by the presence of more targets. Counterintuitively, these results suggest that searching for more targets is easier than searching for fewer targets. The results are interpreted in the context of current theories of multiple target search.

#153: On the relation between two measures of executive control: The Simon and Flanker effects by Raymond Klein, Ibrahim Wassouf, Michael Lawrence

We conducted three experiments to explore whether, when combined in one experiment, Flanker and Simon effects are additive or interactive. The experiments differed in length (number of trials) and the inclusion of neutral trials (for both Simon and Flanker effects). The results indicate an interaction between the two effects with a smaller Simon effect during incongruent flanker trials compared to congruent trials. The interpretation of this interaction using Sternberg's Additive Factor Logic is complicated by the fact that, in some cases, the reduced Simon effect in reaction time was contradicted by an increased effect in errors. The overall pattern, however, is consistent with Hommel (1994) and others who have observed that the Simon effect can be decreased by manipulations that increase reaction time. This decrease may be due to the rapid decay of the response tendency activated by the target's task-irrelevant location.

#154: The role of visual, auditory, and tactile cues in the perception of illusory self-motion (vection) by Brandy Murovec, Jennifer Campos, Julia Spaniol, Behrang Keshavarz

One of the most critical components for a compelling Virtual Reality (VR) experience is the sensation of self-motion in otherwise stationary users (so-called vection). The objective of the present study was to investigate the multisensory nature of vection, specifically how visual, auditory, and tactile cues contribute to the overall intensity and duration of this sensation. Twenty-four healthy adults were seated inside a dome-shaped VR laboratory and exposed to a rotating stimulus inducing the illusion of self-rotation (circular vection). The stimulus contained visual, auditory, and/or tactile cues presented in various combinations (unimodal, bimodal, trimodal). The size of the visual screen was manipulated to be small, medium, or large. Results showed that visual, auditory, and tactile cues all increased vection intensity and duration, with visuals presented on larger FOVs eliciting stronger vection. These results demonstrate that vection is not only a visual sensation but rather a multisensory phenomenon.

Abstracts

#155: Categorization without categories: Applying ATHENA to an unstructured artificial grammar task by Isabella Lebek, Evan Curtis

Categorization behaviour is often thought to rely on implicit knowledge of the structure of the category (e.g., the rules of an artificial grammar). However, competing explanations argue that categorization judgements are the result of simple retrieval processes across studied exemplars. We applied ATHENA, an exemplar model of memory, to an artificial grammar task in which there were no underlying rules (i.e., all strings were random). Participants studied a set of randomly-generated strings and then provided judgements of grammaticality on a novel set of randomly-generated strings. The model stored representations of the same study strings to memory and provided a measure of endorsement for the same test strings. The model's judgements were consistent with the participants' ratings. The correspondence between the model's and participants' judgements provides deductive evidence in favour of an exemplar view of categorization in an experimental procedure where the abstraction of categorical structure seems unlikely.

#156: The Effect of Bilingual Exposure on Language and Cognitive Recovery in Children Following Ischemic Stroke by Monika Molnar, Kai Ian Leung, Nomazulu Dlamini, Robyn Westmacott

This project evaluates the effect of bilingual exposure on the cognitive and linguistic recovery of pediatric ischemic stroke patients. We hypothesise that bilingual children will benefit from protective factors, due to their bilingual environment. The SickKids Stroke Registry and charts were used to gather patient and stroke data, including the Pediatric Stroke Outcome Measure (PSOM) performance at several timepoints post-stroke. 237 children with arterial ischemic stroke across 3 age groups (perinatal – 0-28 days; infant – 1-12 months; childhood – 13+ months-18 years) were identified. Using growth curve analyses, we compared PSOM performance over time based on language exposure and its interactions. No differences were found between monolingual and bilingual performance on composite and cognitive PSOMs; however, on language PSOMs, an interaction revealed better post-stroke performance among bilingual children aged 1-12 months at stroke. Overall, our findings found no negative consequences and possibly even a faciliatory effect of bilingualism on stroke recovery.

#157: Rehearsal Processes in Item-Method Directed Forgetting by Pelin Tan, William Hockley

Intentional forgetting has been widely examined using an item-method directed forgetting (DF) paradigm. Participants view one word at a time, each word is followed by instruction to remember or forget. A DF effect is evidenced by better memory for to-be-remembered (TBR) items than to-be-forgotten (TBF) items. Here, we tested to what extent a forget instruction stops rehearsal of an item. Participants in the DF condition received a typical item-method DF task, while those in the Distractor condition received a blank screen or a distractor task (e.g., a math equation). In the DF condition, participants were asked to only remember TBR items while in the Distractor condition, they were to commit all items to memory. The distractor was analogous to forget instruction. We manipulated the difficulty of the distractor task, durations, and rehearsal processes. Overall, preliminary findings support that terminating the additional processing of TBF items is essential for intentional forgetting.

Abstracts

#158: Learning Faster: The Effects of Speed Watching Video Lectures on Comprehension, Attention, Metacognition, and the Learning Experience by Laura J. Bianchi, Serena Tran, Sameera Singh, Michelle Ashburner, Evan F. Risko

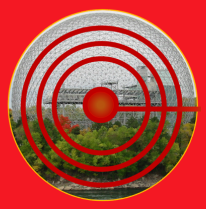
Online classes have been growing in popularity, especially with the COVID-19 pandemic. Pre-recorded video lectures are commonly used in these classes; however, attending to such lectures for extended periods of time is associated with high rates of drop-out and increasing rates of mind wandering. One potential strategy that could be employed to mitigate this issue is to speed lectures. This allows the instructor or instructional designer to reduce the time individuals have to invest in watching the lecture while keeping content fixed. Across four experiments we investigated the effects of speeding video lectures across a range of speeds (1x-3x) on student learning (e.g., comprehension tests), attention (e.g., mind wandering), metacognition (e.g., estimates of performance), and learning experience (e.g., liking). Results demonstrate limited impacts of speeding on comprehension, attention, and metacognition at even seemingly rapid speeds, however the learning experience is affected.

#159: Imaginary Elfs and Other Things You've Never Seen Before: A Comparative Analysis of Computational Memory Models on the Fan and Extra-List Feature Effects by M. Alex Kelly

How do humans judge that a stimulus is novel? Novelty judgement is a fundamental property of human memory and an important problem for artificial intelligence. While computational memory models can predict speed and accuracy of recall and recognition, many models fail to predict response time and accuracy on rejected foil items in experimental tasks. We present a formal analysis of computational models of human memory and test the models on two tasks: the fan effect and the extra-list feature (ELF) effect. The models are able to perform the fan effect on target items when using a multiple recall strategy, but not when using a recognition judgement or single recall. To account for the ELF effect, we propose a new model that uses complex-valued vectors. We compare and contrast our model to existing models and discuss the implications of our theoretical findings for memory modelling and deep learning.

#160: Where to draw the line? by Dirk Bernhardt-Walther, Heping Sheng, John Wilder

We often take people's ability to understand and produce line drawings for granted. But where should we draw lines, and why? We address psychological principles that underlie efficient representation of complex information in line drawings. First, 58 participants with varying degree of artistic experience produced multiple drawings of a small set of scenes by tracing contours on a digital tablet. Second, 37 independent observers ranked the drawings by how representative they are of the original photograph. Matching contours between drawings of the same scene revealed that the most consistently drawn contours tend to be drawn earlier. We generated half-images with the most- versus least-consistently drawn contours and asked 25 observers categorize the quickly presented scenes. Observers performed significantly better for the most compared to the least consistent half-images. The most consistently drawn contours were more likely to depict occlusion boundaries, whereas the least consistently drawn contours frequently depicted surface normals.



Abstracts

#161: Abstract thinking influences on emotional facial expression identification and categorization by Gasser Saleh, Isabelle Blanchette, Simon Rigoulot

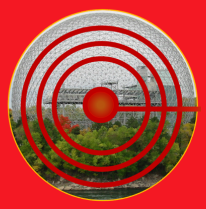
We suggest that abstract thinking, defined as the identification process of invariable and central characteristics of different stimuli, improves the emotional identification and categorization of emotional facial expressions (EFE). To test this, 25 healthy adults performed three online emotion identification and categorization tasks. For each trial, before the presentation of EFE, we showed pictures depicting objects or animals colored in blue or red. Abstract or concrete thinking was induced while participants classified the pictures on an abstract (live-being/object) or concrete aspect (colored in red/blue). Then, participants had either to identify the EFE (experiments 1 and 2) or categorize it (exp.3). Repeated-measures ANOVAs were performed on accuracy rate and reaction times with induction and emotion as within-subject factors. Results support our hypothesis, but only when the identification of EFE is required. These results support the proposition that abstract thinking may influence the precise emotion identification instead of emotional categorization per se.

#162: Is the future on the left for Arabic speakers? by Juana Park, Farah Almohammed, Hessa AlRaqbani, Tala Al Otaibi

The conceptual metaphor theory (Lakoff & Johnson, 1980) states that metaphors help us understand very complex abstract concepts, such as time and relationships, by representing them in terms of more concrete concepts (e.g., people talk about relationships as if they were journeys, and talk about time in terms of space). We investigated the embodiment of the conceptual metaphor TIME IS SPACE among Arabic speakers by analyzing the hand gestures that accompany their talking about the past, the present and the future. Given that Arabic is written from right to left, we expect Arabic speakers to use gestures pointing towards the right when they talk about the past, and more gestures pointing towards the left when they talk about the future.

#163: Can Attention Really be Captured in the Absence of Awareness? by Mickenzie Galan, Chris Oriet

In attentional capture, a target is identified poorly when presented 200-500 ms after a previously attended distractor. Whereas Oriet et al. (2017) argued that awareness of the distractor is not necessary for it to capture attention, Ophir et al. (2020) suggested the opposite, that awareness of the distractor is necessary for capture to occur. To explain the conflicting results Ophir et al. argued that Oriet et al.'s awareness measure was not sufficiently sensitive to detect awareness of the distractor. The present study replicated Oriet and colleagues' design, with the addition of the measure Ophir et al. used in their study. Despite adding this measure, our results replicated those of Oriet et al., with both measures revealing evidence of capture in the absence of awareness. Thus, we conclude that the measure used in Oriet et al. is sufficiently sensitive and that attention capture can occur in the absence of awareness.



Abstracts

#164: The Picture-Superiority Effect: Extensions by Kate F. Higdon, Ian Neath, Aimée M. Surprenant, Tyler M. Ensor

Two accounts—dual coding (Paivio, 1971) and distinctiveness (Mintzer & Snodgrass, 1999)—have been offered to explain the mnemonic advantage of pictures over words (the picture-superiority effect). By enhancing the distinctiveness of some words (presenting them in varying font styles, font sizes, colours, and capitalization patterns) and diminishing the distinctiveness of some pictures (presenting them in black and white), Ensor, Surprenant, and Neath (2019) eliminated the picture-superiority effect. They interpreted their results as support for the distinctiveness account. Here, we present two experiments extending Ensor et al.'s work: In Experiment 1, we test a bizarreness interpretation of their findings, and in Experiment 2, we investigate whether dual coding explains picture superiority in free recall. Our results rule out the bizarreness interpretation and suggest that distinctiveness plays a larger role than dual coding in free recall.

#165: Eliminating cognitive illusions from visual data by Bradley Smith, Jackie Spear, Katherine Davies, Randall Jamieson

In our digital age, appropriate perception and interpretation of visually presented data has become increasingly important. However, people are burdened with cognitive illusions that cause them to misperceive and misinterpret the strength of visually presented relationships. For example, people underestimate the strength of correlations in bivariate scatter plots, they over-interpret data that confirm their beliefs, and they misinterpret the presence/absence of differences between means in bar plots. It would be advantageous to eliminate these misinterpretations through education, however there is little evidence that statistical training provides meaningful release from these cognitive illusions. To investigate the issue, we report a series of experiments that demonstrate some misinterpretations of visual data. We then identify methods that can be used by scientists, and media, to present data in a way that will mitigate peoples' misinterpretations.

#166: Multilingualism Associated with Less Lateralization on Free-viewing Tasks than Bilingualism and Monolingualism by Daria Chernova, Laurie Sykes Tottenham

The present study used a free-viewing paradigm to explore monolingual, bilingual, and multilingual group differences in lateralization of non-linguistic functions, to determine if previous findings from more strictly controlled laboratory studies generalize to more naturalistic viewing conditions. Twelve monolingual, 10 bilingual, and 6 multilingual participants completed a language history questionnaire, four free-viewing laterality tasks, two executive function tasks, and a demographics and handedness questionnaire. The monolingual and bilingual groups had significant leftward biases for all of the laterality tasks, but the multilingual group did not demonstrate any biases. Further, there were significant differences between the bilingual and monolingual groups' bias scores on two spatial laterality tasks, and the difference between the monolingual and multilingual groups approached significance on one. These results extend the current literature by showing less lateralization in multilingual individuals on more naturalistic free-viewing tasks, but surprisingly did not show differences between monolingual and bilingual individuals.

Abstracts

#167: Dyslexia-related slowing in visuo-spatial working memory task by Nathan Gagné, Leon Franzen, Bianca Grohmann, Aaron Johnson

Dyslexia-related impairments in higher order functioning are well-documented but the specific role of visuospatial working memory (WM) in relation to behavioral performance in individuals with dyslexia remains poorly understood. This study examined behavioral performance as a function of spatial WM load. We used an adapted online version of the Sternberg task where participants recalled stimuli presented in either three (low-WM load condition) or six (high-WM load condition) locations. Bayesian modelling provides evidence for increased reaction times in individuals with dyslexia across WM load conditions (BFRT = 1.34x1032), and a main effect of WM load using both accuracy and reaction times (BFACC = 2.12x1049, BFRT = 7.98x10300). Speed/accuracy trade-offs indicate a stronger relation in the dyslexia group than the control group (r_τ = -.37). These findings suggest that individuals with dyslexia require more time to achieve the same level of accuracy as individuals without dyslexia on a visuo-spatial working memory task.

#168: Context and Self-reported Language Proficiency by Nawal Mustafa, Lori Buchanan

The Language Experience and Proficiency Questionnaire (LEAP-Q) is a widely used self-report measure of language proficiency. Despite this popularity, we found that it did not predict English frequency effects for Pakistan-based Urdu-English bilingual participants (Mustafa & Buchanan; 2018). We postulated that this was due to an overall inflation in English proficiency ratings by the Pakistani participants who compared themselves to Pakistan's bilingual population rather than to people with English as their first language. The current study evaluated the reliability of the LEAP-Q by examining how language exposure influences participant self-ratings. We compared self-reported reading proficiency ratings and lexical decision performance of Urdu-English bilinguals from Pakistan and from Canada. Although the self-reported reading proficiency ratings for both groups were similar (highly proficient range), lexical decisions were significantly faster for Canadian Urdu-English bilinguals than their Pakistan-based counterparts. These findings highlight the limitations of self-report questionnaires due to differences in comparator groups.

#169: Language Experience drives Differences in Sentence Repetition Performance in Bilingual Children by Deanna Friesen, Olivia Ward

We examined the role of bilingual language experience on an English sentence repetition task to elucidate language group differences in syntactic knowledge. Fourth and sixth grade students (N = 92) repeated English sentences; their responses were analyzed as a function of sentence difficulty (hard vs. easy), sentence type (active vs. passive), phrase type (noun, verb, prepositional) and word type (content vs. function). Overall, early bilinguals' performance did not differ significantly from that of monolinguals. However, early bilinguals recalled significantly more content words than function words on the difficult sentences. Late bilinguals were less accurate at each level of analysis. Group differences were largest for the passive sentences and for prepositional phrases. Additionally, late bilinguals made significantly more omissions and substitutions. Results are discussed both with respect to bilinguals' English syntactic knowledge and the appropriateness of sentence repetition as a language assessment task for bilinguals.

Abstracts

#170: An attempt to boost out of the attentional blink by Jocelyn Mabson

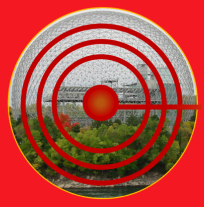
The purpose of this study was to investigate whether the attentional blink effect could be reduced through the use of auditory signals to cue the re-orienting of attention. A two-target attentional blink (AB) procedure was used. In Experiment 1, half of the participants completed the AB procedure without auditory tones; whereas, the other half heard auditory tones simultaneously presented with the second of two target words. In Experiment 2, participants responded to infrequent tones among frequent tones simultaneously presented with the second target word. In Experiment 1, the mere presence of the auditory tones did not reduce the size of the attentional blink effect. In Experiment 2, the additional task of responding to infrequent tones lead to worse performance in the AB task. From these results, we argue that the additional tone detection task did not help reorienting attention, but rather made it more difficult to do so.

#171: Sunk costs as cooperative social signals by Ethan Meyers, Martin Turpin, Alexander Walker1, Michal Bialek, Ori Friedman, Jonathan Fugelsang, Derek Koehler

Persisting in an endeavour because one has invested resources (the sunk cost bias) is widely considered irrational. We challenge this idea by demonstrating that honouring sunk costs can confer social benefit and not honouring sunk costs can lead to social detriment. We find that agents who persist are judged as more dependable, rational and are preferred as cooperative partners compared to those who stop. We find these results when persisting would provide no obvious benefit for the agent. Our results suggest that sunk cost decisions signal cooperative qualities and offer another account of the pervasiveness of the sunk cost bias.

#172: Age differences in facial identity and emotion perception and the relationship with hearing abilities by M. Eric Cui, Eugenie Roudaia, Björn Herrmann, Allison B. Sekuler

Face identification relies on information in the top-half of faces, while the bottom-half is important for the recognition of certain emotions (i.e., happiness and disgust). Older adults show an ubiquitous focus on the bottom-half across different tasks and emotion expressions, and this attentional shift may be related to hearing difficulties in older adulthood: lips could provide additional visual aid to speech perception. Here, we investigated how and why younger and older adults differ in identity and emotion perception. The preliminary results identified the effect of age difference in face scanning patterns on emotion and identity perception accuracy, discriminability, and interference between identities and emotions.The dissociation of critical regions for identity and emotion perception ameliorated younger observers' Garner's interference effect; while the inference exacerbated among older adults, which might be attributed by age difference in face scanning patterns. Some measures of hearing abilities correlated with emotion perception performance in older adults.



Abstracts

#173: More common = more confidence? A meta-analytic review of the effect of word frequency on judgments of learning by Michelle A. Dollois, Chris M. Fiacconi

Although the effects of word frequency (WF) on memory are well established, its impact on metamemory judgments is less consistent. Here we present data from our meta-analytic review of the effect of WF on judgments of learning (JOLs; Fiacconi & Dollois, 2020). The review includes 17 experiments across 7 studies and considers JOLs for both recall and recognition memory tests. We found a small, but reliable effect of WF on JOLs, such that high frequency words elicit higher JOLs than low frequency words. However, the previously reported effect sizes demonstrated considerable heterogeneity, indicating that the effect of WF on JOLs is likely moderated by other factors. Potential moderator variables are considered with particular attention to item-level variability between WF conditions.

#174: Relationships Between Task Difficulty Order, Flow, and Creativity by Bobby McHardy, Lydia Hicks, Dr. Jeremy Marty-Dugas, Dr. Daniel Smilek

Flow (i.e., deep, effortless concentration) and task difficulty are widely studied, but order effects of task difficulty on flow have yet to be examined. Across two samples, one in-person and one online, we investigated how the manipulation of task difficulty ordering impacts aggregate flow experience and self-reported difficulty while simultaneously confirming the relationship between flow and creativity. In both samples, participants completed the Remote Associates Test (RAT), which allowed us to create three difficulty levels and measure creativity. All participants completed the same RAT stimuli, but in differing orders; one group in easy-to-difficult order, another from difficult-to-easy, and a third at a fixed difficulty. Positive associations between flow and creativity were identified. Interestingly, while our in-person sample found order effects of task difficulty on flow and discrepancies between task performance and self-reported difficulty, neither result replicated online. These contradictory results generate future research directions and carry implications for self-report measurements.

#175: Interactive and non-interactive gaze exchanges during real life dyadic interactions by Florence Mayrand, Francesca Capozzi, Jelena Ristic

Humans exhibit different types of nonverbal interactive behaviours during social interactions (e.g., mutual gaze, social referencing, participation). Here we investigated the prevalence of those behaviours in 9 dyads (N=18) who wore dual eye tracking eyeglasses while engaging in a real-life social interaction. Dyads engaged in interactive and non-interactive gaze behaviours about the same amount of time. On average, while interacting, dyads spent more time in unidirectional (social referencing, participation) than in bidirectional gaze exchanges (mutual gaze). The prevalence of interactive behaviours was affected by perceived partner likability such that higher reported likability within a dyad led to more interactive behaviour. Together, these results provide new insights into the dynamics of real-life interactive behaviours and highlight the role of larger social variables in those communicative patterns.

Abstracts

#176: Looking for the next-in-line effect in the spatial Stroop task: Can impending conflict interfere with encoding? by Michelle A. Dollois, Hassan Anees, Mark J. Fenske, Chris M. Fiacconi
The next-in-line effect describes how performance anticipation for reading aloud in front of others results in a failure to encode information that is encountered just prior to the moment of performance. If preparation for an upcoming challenge is at the root of this effect, then it should also be observable in other scenarios that involve anticipation of forthcoming cognitive demand. Across multiple experiments, we used a modified spatial Stroop task to examine whether anticipation of a transition from a series of congruent (easy) to a series of incongruent (difficult) trials induces an analogous mnemonic cost for concurrently presented images. Our results suggest that anticipation of the transition to incongruent trials is insufficient to produce a cost to encoding. In fact, we found some evidence to suggest that anticipating the upcoming transition between conditions may improve memory. These findings offer new insights into the relation between anticipation, attention, and memory.

#177: The Meaning of Words: For Richer or For Poorer by Susan Lutfallah
Various studies discuss semantic richness as an important characteristic of language. Researchers agree that semantic richness is a measure of meaning; however, they infer that measure through the evaluation of other characteristics of language. Semantic richness has been described in terms of context dispersion, number of associates, semantic distance, and semantic density and a number of other variables. This study directly examines what people think of as semantic richness by asking participants to rate the semantic richness of a large sample of words. Those ratings were compiled in a database of semantic richness and evaluated against the proxy variables that were previously used as stand-ins of semantic richness. We compared the newly created corpus ratings of semantic richness to extant variables of language to examine whether measures such as concreteness, semantic density, familiarity etc., alone, or in combination, form an accurate representation of what people think of as semantic richness.

#178: Effects of musical predictability on affective response to short melodies by Alexander Albury, Roberta Bianco, Virginia Penhune
Passive exposure to music leads us to develop internal models of musical structure. Using this implicit knowledge of music, we often generate predictions for upcoming musical events. Previous research has found an inverted U-shaped relationship between predictability and liking in music, such that moderately predictable music is preferred over highly unpredictable or overly predictable music. This research tests this relationship on a set of melodies that vary in predictability, measured using an information theoretic model of music (IDyOM). Participants rated each melody on perceived liking and predictability. Results showed a linear relationship between participant predictability ratings and the predictability estimates from the model. We also replicated the inverted U-shaped relationship between predictability and liking. Notably, the IDyOM model that best fit human ratings was not trained on a corpus, suggesting that people may not have used prior music knowledge when rating the stimuli, instead making predictions based on local context.

Abstracts

#179: Amyloid Beta Protein Facilitates Synaptic Strength in The Medial Entorhinal Cortex by Marcus Suvanto, Julia Saragosa, C. Andrew Chapman

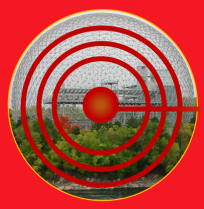
Amyloid beta (Aβ) interferes with excitatory synaptic transmission by activating NMDA receptors which facilitate postsynaptic calcium influx. We incubated slices of rat medial entorhinal cortex (EC) in 100 nM Aβ(1-42) (n=24) or a dimethylsulfoxide control (n=25) to examine excitatory transmission in layer II of the EC using field excitatory postsynaptic potentials (fEPSPs). We examine the effects of 50 μM D-AP5 added to the Aβ incubation (n=13) or control (n=12). The amplitudes of fEPSPs were increased in slices incubated in Aβ relative to control slices. The facilitation of synaptic responses induced by Aβ was blocked by D-AP5, indicating the activation of NMDA receptors is required for the facilitation of synaptic excitability. The facilitation of synaptic responses by Aβ likely results from activation of postsynaptic NMDA receptors enhancing calcium influx and activation of presynaptic NMDA receptors that enhance transmitter release which may contribute to excitotoxicity and cell death associated with Alzheimer's Disease.

#180: Personality traits and self-reported navigation strategies in women by Shayna McNally, Jennifer Sutton

Personality traits associated with a propensity to engage with the environment appear to be correlated with the use of a cognitive map/survey representation when navigating, although whether this finding holds true for women is unclear. In the current study, 77 women reported the degree to which they used cognitive map and route-based strategies when navigating and completed the Big Five personality questionnaire, the Sensation Seeking Scale–V (SSS-V), and the Wayfinding Anxiety Scale. We failed to replicate findings that the personality traits of extraversion, openness, and conscientiousness were associated with cognitive map use. Instead, both cognitive map and route strategies were negatively related to the SSS-V disinhibition subscale, and higher use of the route strategy was associated with lower neuroticism and marginally associated with lower scores on the SSS-V experience seeking subscale. This failure to replicate previous findings, likely due to our participants' reliance on routes versus maps, will be discussed.

#181: Examining the relation between oral contraceptive use and trait- and state-level attention by Alyssa C. Smith, Effie J. Pereira, Daniel Smilek

Oral contraceptives (OC) used by women worldwide include artificial estradiol and progesterone, which can attach to receptors in the brain and potentially influence cognition. In the present studies, we aimed to examine the relationship between OC use and attention in a large, diverse sample of women. In Study 1, we assessed trait-level measures of mind-wandering, attention related errors, and attention lapses in undergraduate women using OCs and those not using OCs (i.e., naturally cycling women not using any form of hormonal contraceptives). We found that women using OCs reported significantly less spontaneous and deliberate mind-wandering and fewer attention related errors than did naturally cycling women. Intriguingly, OC use predicted unique variance in spontaneous and deliberate mind-wandering after controlling for symptoms of depression. We will also discuss preliminary results from Study 2, in which we examined state-level attention during a cognitive task in women using and not using OCs.



Abstracts

#182: A brief intervention mitigates detrimental effects of changes in COVID-19 health guidance by Jeremy Gretton, Ethan Meyers, Jonathan Fugelsang, Alexander Walker, Derek Koehler

Although revisions to COVID-19 health guidance (e.g., masking) might stem from the novelty of the virus and the nature of scientific discovery, this "flip-flopping" might nonetheless lead to distrust of public health authorities and other negative outcomes. We experimentally demonstrate that emphasizing changes (versus consistency) in COVID-19 guidance can lead to more negative impressions of scientists and public health officials (e.g., trust, expertise) with regards to their recommendations related to COVID-19. These changes also reduced intentions to download the COVID Alert contact tracing app (in a Canadian subsample). Changes in guidance might also discourage certain health behaviours such as vaccination against COVID-19. However, a brief, pre-emptive intervention message that provided a rationale for changes in recommendations was able to mitigate many of the detrimental effects of changes in guidance.

#183: Decomposing the Spatial representation of Behavioural Domains in White Matter by Zaki Alasmar, Francis Carter, Yasser Iturria-Medina, Christopher Steele

White matter is composed of axons that are responsible for signal transmission in the brain. Axonal myelination supports the optimal flow of information between brain regions that gives rise to behaviour, yet how white matter is related to behaviour remains under-examined. We used T1w/T2w as a proxy for myelination to assess white matter microstructure and examined how it correlates with behaviour. We first applied Principal Component Analysis (PCA) to 75 behavioural scores from tasks spanning cognitive, emotion, motor, and sensory domains, and extracted four components from each domain. We then grouped these components and correlated them with T1w/T2w images. We observed significant associations between the cognitive domain and cerebellar white matter, emotion and white matter in the cerebellum and in regions adjacent to subcortical structures, and between the motor domain and prefrontal regions. Our results provide evidence for distinct and overlapping spatial representations of behavioural domains within white matter.

#184: Subjective Cognitive Decline and Cognitive Performance in Older Adults: A Systematic Review of Longitudinal and Cross-Sectional Studies by Carl Zhou, Tegh Jauhal, Bassam Jeryous-Fares, Morgan Joseph, Kim Thériault, Brian Trinh, Mikayla Trudeau-Meisner, Christine Sheppard, Vanessa Taler

Background Subjective cognitive decline (SCD) is a condition in which individuals self-report a persistent decline in cognition while showing normal performance on standardized cognitive tests. It is often the first sign of dementia. Unfortunately, SCD remains incompletely understood. Our objective is to examine the concurrent and longitudinal relationships between SCD and cognitive performance in older adults. Methods MEDLINE, PsycInfo, EMBASE, Ageline, CINAHL, Web of Science, and Scopus databases from January 1982 to July 2020 were searched. Longitudinal and cross-sectional studies published in English, French, and Spanish were included. The NHLBI Quality Assessment Tool will be used to assess study quality. Results Our review will provide a qualitative assessment of the association between SCD and cognitive performance in older adults that includes all types of decline. Major confounds in the relationship between SCD and cognitive performance will be considered throughout. All themes will be divided according to longitudinal versus cross-sectional studies.

Abstracts

#185: Intention and Performance When Reading Aloud: Context is Everything by Derek Besner, David McLean, Torin Young, Evan Risko

A widely held account asserts that single words are identified in the absence of an intent (i.e., is automatic). We provide novel evidence that there is no fixed relation between an intention and visual word identification. Participants were cued (Go vs No-Go) as to whether to read aloud a single word on a trial. When the Go probability was 50% (Experiment 1) the effect of stimulus quality was the same size as in a separate block of 100% Go trials. In Experiment 2 when the Go probability was 80% the stimulus quality effect was smaller than in the block of all Go trials. These results can be understood in terms of when processing without prior intent does not occur (Experiment 1) and when it does via "absorption into slack" (Experiment 2). We conclude that there is no fixed relation between an intention and stimulus identification; context is everything.

#186: Do bilinguals integrate meanings of words presented parafoveally and foveally when words come from different languages? Yes, they do to certain extent! by Olessia Jouravlev, Mark MacPhedran, Vegas Hodgins, Debra Jared

To identify factors contributing to cross-language semantic preview benefits, we examined eye-movements of Russian-English (Exp1) and English-French (Exp2) bilinguals reading English sentences. Words from a non-target language (Russian or French) were presented as parafoveal previews of English words, using the gaze-contingent boundary paradigm. In Exp1, previews were cognate (KOHTPAKT-CONTRACT), non-cognate (PAMKA-FRAME), or interlingual homograph translations (MOPE-SEA). The preview benefits were observed for cognates and interlingual homographs only. In Exp2, previews were interlingual homograph translations without (FOUR-OVEN) or with diacritics (FÓUR-OVEN). For the previews without diacritics, the effect was found in early (gaze duration) and late eye-movement measures (total fixation duration), whereas for the previews with diacritics, it was restricted to late eye-movement measures (total fixation duration). These results indicate that bilinguals integrate meanings of words presented parfoveally and foveally when words come from different languages, but only when previews are orthographically permissible in a target language.

#187: Gender Bias in the Classroom by Tamara Dubljevic, Camile Sothe, Katelyn Sushko, Joseph Kim, Constance Imbault

A growing body of research suggests that instructor gender impacts student evaluations of teaching (Becker 1981; Baslow et al., 2006; MacNell et al., 2014). We explored this effect in an introductory psychology course at McMaster University. Students watched an identically scripted module narrated by either a man or a woman and then answered a questionnaire regarding their subjective rating of the module and instructor quality. Students were more likely to want to hire a woman to teach future courses and expected women to care more about their learning. Perhaps most interestingly, the traits students valued when making hiring decisions differed across gender. Women were evaluated based on personal traits and attractiveness, while men were evaluated based on personal and professional traits. Results from this study have implications for the continued use of student evaluations of teaching, which often impact an instructor's confidence, ability to attain tenure, and future in academia.

Abstracts

#188: Lexical Activation in Visual Word Recognition: Novel Evidence for Multiple Modes of Processing by Torin Young, Derek Besner

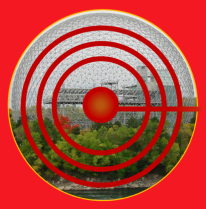
First reported over four decades ago, and multiple times since, the joint effects of Word Frequency and Stimulus Quality are additive on Response Time in the context of the lexical decision task when the foils are word like. One account of these data assumes a discrete stage which deals with the effects of low stimulus quality. Only when that stage is finished does a subsequent stage begin to activate lexical representations. The question addressed here is whether this account holds when the foils are very easy to discriminate from words. The results are discussed in terms of an account in which the early stage is no longer discrete; lexical activation is now affected by stimulus quality.

#189: Politicians, Put on your Poker Face. Voting Attenuates the Leftward Posing Bias by Cassandra Baragar, Austen Smith

The leftward posing bias appears from the lateralization of emotion in the brain, creating an asymmetrical expression of emotion in the face (Lindell, 2013). This subtle disproportionate expression may be important in politics, a career reliant on promotional material. Using leftward and rightward posed image pairs, this study examined biases for lateral pose selection by asking which image looks more friendly, and which image you would rather vote for in an election. In voting selection, we hypothesized that a difference would emerge based on participants' self-identified political orientations. The leftward posing bias approached significance when selecting the friendly image, and became significant when male participants were removed. No significant differences emerged between self-identified left or right-wing participants, largely due to a small sample size that made comparisons difficult. A significant paired samples t-test examining the lateral pose selection between the conditions suggests that task context may bias lateral pose selection.

#190: General Central Processes in Procedural Learning by Jamie Campbell, Elizabeth Langer

One of the oldest debates in cognitive psychology is how learning transfers from one skill to another. The formal-discipline theory holds that learning any task is transferable regardless of how similar or dissimilar the tasks are to each other. The opposing identical-elements theory holds that learning is not generally transferable, but only applicable to tasks that share identical component processes. Using the alphabet arithmetic paradigm (e.g., A + 3 = D) we showed that transfer in procedural learning over six practice blocks included both item-specific and task-general components. Speed-up in response times could not be fully-attributed to speed-up in a counting algorithm or switching to direct answer retrieval from memory. Instead most of the speed-up in response times early in learning must reflect faster general central processes that yield nearly complete transfer to new, unpracticed items.



Abstracts

#191: Interested minds are predictable minds: Establishing a link between individual traits and temporal fluctuations of attentional engagement by Effie Pereira, Samantha Ayers-Glassey, Jeffrey Wammes, Daniel Smilek

Attention varies on a moment-to-moment basis. Here, we characterized temporal fluctuations in attention to determine their link to individual traits. Participants (n=100) completed a trait-level attentional control questionnaire, and watched interesting and uninteresting video lectures while being intermittently probed to introspectively report their attentional engagement. Participants were then presented with short excerpts from the lectures and probed to retrospectively report their engagement when they first watched these excerpts. Introspective and retrospective probe responses were then combined into fine-grained attentional time series for each video condition. Capitalizing on this greater resolution, temporal fluctuations in attentional engagement were evaluated using recurrence analyses to capture differences in attentional patterns across video conditions. Compared to uninteresting video lectures, attentional patterns for interesting videos were more stable and predictable, and better coupled with trait-level attentional measures. These findings illustrate the utility of characterizing temporal fluctuations in attention to tease apart meaningful differences in individual traits.

#192: Dietary Decision Making in the Diabetes Diet: Simplicity is Sweet by Tania Alves, Halana Barbosa, Josée Turcotte, Bruce Oddson

Diabetes is a chronic illness that can lead to many detrimental health consequences without effective glycemic control. This can be achieved by following dietary guidelines. Previous research has shown people struggle with these guidelines. To date, there have not been any quantitative studies examining these difficulties. The present study investigates the role of complexity in accurate dietary decision making.Participants (N=36) completed a dietary decision making task which could be solved following either one or two guidelines. Correcting for trials in which a post-experimental questionnaire showed that knowledge of the relevant guidelines was poor, errors were more frequent on complex (2 rules) than simple (1 rule) decisions.These results, including the surprising number of participants with prediabetes and type 2 diabetes who did not show clear knowledge of the guidelines, suggest that diabetes education may need to be adjusted to better reflect the cognitive complexity of some food choice decisions.

#193: Default-Mode Network Connectivity in Mild Cognitive Impairment: The Influence of Hearing Loss by Nicole Grant, Natalie Phillips, Kathy Pichora-Fuller

Long term sensory deprivation may be associated with changes in the functional connectivity of neural networks in older adults. The default mode network (DMN) is a resting-state network that shows a pattern of increased anterior and decreased posterior connectivity in both individuals with mild cognitive impairment (MCI) and those with hearing loss (HL). This study will examine connectivity differences within the DMN of individuals with MCI as a function of hearing status, measured with pure-tone hearing and speech-in-noise reception thresholds (SRT's). All data are from the Canadian Consortium of Neurodegeneration and aging. Participants include 104 MCI participants (44.2% women and 55.8% men, mean age = 71.4, SD = 6.40, 60% normal hearing, 12% mild HL, 40% moderate HL). We predict that greater severity of hearing loss and poorer SRT's will be associated with decreased activity in the posterior DMN and increased connectivity in the anterior DMN.

Abstracts

#194: The Comprehensive Narrative Elaboration Technique: Expanding the Narrative Elaboration Technique to Increase the Quantity and Quality of Children's Autobiographical Recall by Brittany Marche-Shears, Jennifer L. Briere, Tammy A. Marche

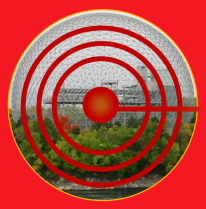
The Comprehensive Narrative Elaboration Technique (CNET) was designed to pictorially cue multiple components of autobiographical memory (sensory/somatosensory, procedural, contextual, temporal, emotional/affective, cognitive) to increase the quantity and quality of information reported without compromising accuracy. To determine whether the CNET increased the quantity and quality of memory reports, children (n = 82) recalled two emotional memories, one at a time. Children first freely recalled all they could and then reported any additional details through the CNET pictorial cues. For both memories, significantly more details were reported with the CNET portion of the output protocol than with the free recall portion, and the quality of the information elicited in each portion of the protocol differed. The CNET appears to increase both the quantity and quality of children's reports beyond that obtained with free recall but an evaluation of whether or not it compromises accuracy is still required.

#195: Will the Colavita Effect Persist in Online Testing? by Sarah Park, Geneviève Desmarais

The Colavita effect is a multisensory phenomenon where we prioritize visual information over auditory information: when presented with a visual and an auditory stimulus simultaneously, participants report the visual stimulus more often than the auditory stimulus. This robust phenomenon has resisted several experimental manipulations. Recently, many studies have migrated online, which presents a particular challenge for cognitive and perceptual studies due to the need for strict environmental controls. We examined if the Colavita effect would be replicable in an online study. Participants were first asked to adjust the volume of an auditory tone so that it could be heard clearly. They then reported the modality of unimodal and bimodal stimuli. We did not observe a Colavita effect: participants did not respond preferentially to the visual component of audiovisual stimuli. The absence of the Colavita effect is likely attributable to both the change and variation in environment between participants.

#196: Slow and steady: Response time variability (and speed) predict depth of mind wandering by Shaela Jalava, Jeffrey Wammes

Mind wandering is a phenomenon where attention is decoupled from the current task, often with associated performance impairments. Episodes of mind wandering have been linked to increased behavioural variance in tasks requiring rhythmic responses to simple stimuli (e.g.metronome tone, Seli et al., 2013; grey box, Laflamme et al., 2018). Interestingly, a parallel literature suggests that speeding up can also predict lapses of attention (e.g., DeBettencourt et al., 2018). We validated a rhythmic response task (N = 60) using 900 unique scene images, showing that response time variance preceding a thought probe predicted depth of mind wandering. Connecting the previously mentioned findings, we found that faster responses also predicted depth of mind wandering, although not as well as variance. Notably, the combination of speed and variance provided the best predictor of depth of mind wandering. Ongoing work will examine how these fluctuations in attention and behavior affect memory precision.



Abstracts

#197: Influence of task type on second-language word and phoneme learning by Alyssa Yantsis, Marc Joanisse, Félix Desmeules-Trudel

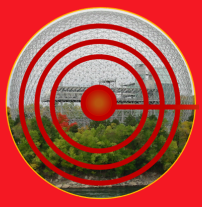
Adults discriminate speech according to phonemic categories in their native language (L1). They assimilate foreign sounds to native categories, whereby these sounds are incorrectly ascribed to L1 phonemes. In this study we examined how the type of learning task might improve ability to learn unfamiliar words and phonemes. We assessed how English-speaking adults learned nonwords containing French [y] compared with native-sounding vowels. Learning task (paired associate learning: PAL vs. auditory discrimination training: ADT) was manipulated between subjects. Participants in PAL required fewer repetitions to learn words to criterion, compared with ADT. Participants demonstrated poorer accuracy and reaction times with words of [y] and [u] than [a] and [e], suggesting phonetic assimilation impeded performance. Reaction times were also slower for participants in ADT compared with PAL. Our results suggest increased cognitive load introduced by ADT led to less second-language learning.

#198: Attention in hindsight: Using video-stimulated recall as a novel approach to capturing fluctuations in self-reported attentional engagement by Samantha Ayers-Glassey, Effie J. Pereira, Jeffrey D. Wammes, Daniel Smilek

Few available methods effectively capture detailed fluctuations in self-reported attentional engagement. Typically, engagement is measured in tasks using intermittent thought probes, but these can be disruptive to the task. Taking inspiration from communication and clinical research, we evaluated the utility of video-stimulated recall for measuring fine-grained temporal dynamics within an attentional task. Participants (n = 100) watched online video lectures, during which they were probed intermittently to report their subjective levels of engagement. Then, they were presented with short clips from the videos and were required to recall the level of engagement they experienced when they initially watched those sections of the lectures. Cross-correlational analyses revealed a high degree of overlap between participants' introspective and retrospective ratings of engagement, indicating a strong concordance between these two measures. Thus, participants' moment-to-moment attentional states can be successfully probed retrospectively, suggesting that video-stimulated recall is a promising method for collecting subjective ratings of attention.

#199: Driving exposure and dual-task interference by Rachel Eng, Heather Walker, Lana Trick

Distracted driving occurs when a driver engages in a secondary task which results in interference. This study aimed to measure the dual-task interference caused by different three different secondary tasks (engaging in a hands-free conversation, using a touchscreen MP3 player, and texting) and to determine if prior driving exposure and distracted driving experience affects dual-task interference. 40 young adults were surveyed about their driving history and experience with driving while engaged in each secondary. Objective driving performance was assessed using a high-fidelity driving simulator to measure average speed and steering variability. Subjective driving performance was measured by self-ratings. Participants' single-task (driving alone) performance was compared to dual-task (driving while engaged in each of the secondary tasks separately) performance. The results indicate that the secondary tasks produced varying amounts of interference based on objective and subjective measures of performance, though driving exposure predicted the amount of interference.



Abstracts

#200: Does “bystander stress” affect spatial learning and memory in adult male and female rats? by Saeideh Davari Dowlatabadi, John Mielke

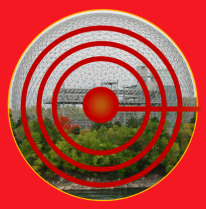
Objective: Our aim was to determine whether indirect social stress could affect brain areas important for learning and memory in adult rats.Methods: Rat siblings from each of 10 litters were randomly assigned to same-sex pairs. Twice daily for 5 consecutive days, one male and one female rat from each set was placed on an elevated platform for 30 min (Platform Stress, PS). The cage-mates of PS animals were considered the ByS rats (i.e., those receiving indirect stress). Each set also had Platform Control (PC) animals that were simply moved to another room twice daily for 30 min. The cage-mates of each PC animal were considered the Bystander Control animals. Spatial learning and memory were then assessed over 5 days using the Morris water maze.Results: Our results suggest that ByS did not significantly affect spatial learning and memory in adult rats.

#201: Let me give you something to think about: Does needing to remember something new make it easier to forget something old? by Anjali Pandey, Nichole Michaud, Jason Ivanoff, Tracy Taylor

In an item-method directed forgetting task, memory cues presumably operate by promoting further rehearsal of to-be-remembered (TBR) items and limiting encoding of to-be-forgotten (TBF) items. Subsequent memory for TBF items is worse than for TBR items but may be better than for uncued items, implying that attempts to intentionally forget are not always successful. We asked whether forgetting could be improved by immediately diverting limited-capacity attentional resources away from TBF items and towards a new item that needed to be committed to memory. To this purpose, study words in our experiments were followed either by an instruction to remember (TBR-single), an instruction to forget (TBF-single), or by a new word to be remembered (TBR-replace) in place of the original study word (TBF-replace). A typical directed forgetting effect was observed across single and replace trials. However, there was no compelling evidence that forgetting was better for TBF-replace compared to TBF-single words.

#202: The influence of translation ambiguity on bilinguals’ reading in L1 by Xuan Pan, Debra Jared

Translation ambiguity occurs when a word in one language has more than one translation in another language. For example, the English word bark means “dog bark” and “tree bark”, and each of these meanings can be translated into a distinct French word (aboie and écorce). The current study investigated the influence of such ambiguity in L2 on bilingual’s L1 reading. French-English and Chinese-English bilinguals read sentences in their L1 in an online self-paced moving-window reading task. Critical sentences were created based on the dominant meanings (e.g., dog bark) of the English homographs but the correct translation (e.g., aboie) was replaced either by the translation of the other meaning (e.g., écorce) or by a spelling control. Bilinguals spent less time reading the translation ambiguity errors than the control errors. These findings provide evidence that bilingual’s native language processing is influenced by L2-L1 translation ambiguity due to L2 semantic ambiguity.



Abstracts

#203: Your Best Effort? Study Strategies and Subjective Experience by Caitlin Reintjes, Jeremy Marty-Dugas, Faria Sana, Joseph Kim

While retrieval practice is more effective for long-term retention, rereading is a more popular study strategy among undergraduates. These differences may be explained by how each technique is subjectively experienced by students. Using a within-subjects design (n = 243), we investigated how students' subjective experience changed as a function of study strategy. Students read short passages and reported on their subjective experience while using each strategy. Of particular interest were perceptions of effort and flow (i.e. deep effortless concentration). Participants found retrieval practice more difficult than rereading, and expended more effort during retrieval practice. However, they reported that rereading was the more fatiguing strategy. There were no significant differences in flow experience. Additional analyses highlighted motivation as a critical factor. Students who reported higher motivation tended to expend more effort, feel less fatigued, and experience more flow while studying—regardless of which study strategy they used.

#204: The relationship between video games and reading performance is related to visual-spatial attentional demands by Shaylyn Kress, Josh Neudorf, Braedyn Borowsky, Chantal Chabot, Ron Borowsky

Previous research has observed reading ability is improved after attention-demanding action video game training in children with dyslexia (Franceschini et al., 2017). Our study seeks to extend the research to skilled adult readers and identify the mechanisms underlying this relationship. Our experiment involves a spatially demanding hybrid reading-attention task, and collects information regarding participants' video game experience. Results to date indicate video game experience is associated with performance in spatially cued reading. In addition, visual demands in video games may drive this relationship via visual-spatial attentional processes. These findings help to elucidate the relationship between reading ability and video game experience. This research has applications in the field of game development, where video games could be designed to target reading and attentional processes. Future neuroimaging studies will be able to localize the networks related to this relationship.

#205: Relations Between Mathematical Vocabulary and Mathematical Performance for Students in Grades 4 and 6 by Chelsee Pierre-Jerome, Heather Douglas, Jo-Anne LeFevre

As mathematical knowledge becomes more advanced, teachers need to use math-specific terminology (e.g., numerator, variable, vector) to explain math concepts to their students. How important is mathematical vocabulary to different aspects of students' mathematical development? We investigated the relations among general vocabulary, math vocabulary, and students' mathematical performance. Students in grades 4 and 6 (N=130) completed measures of their word problem solving skills (for whole numbers and fractions), symbolic math skills (0-1000 and 0-1 number line estimation), and vocabulary (general and math-specific). Mathematical vocabulary predicted unique variance in all outcomes for sixth grade students whereas, for fourth grade students, it predicted unique variance in only one outcome, fraction word problems. These findings indicate that math vocabulary skills are more broadly implicated in mathematical performance for older than for younger students.

Abstracts

#206: Boredom on Later Self-Control by Kristen Lott, John D. Eastwood, Michael Reynolds

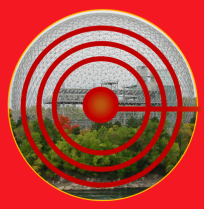
Ego-depletion refers to the observation that using self-control at Time 1 in the sequential task paradigm leads to worse self-control on a subsequent task at Time 2 (Baumeister et al., 1998).Self-control at Time 1 is often manipulated by varying task difficulty so that the control task is a much simpler version of the depletion task. Recently, Wolff and colleagues (2020) suggested that failures to replicate the ego-depletion phenomenon may arise because self-control is required to maintain attention on simple, yet boring, control tasks. In order to test this theory, we examined whether boredom, measured after performing a simple Go/No-Go task at Time 1, predicted self-control at Time 2. Self-control was measured at Time 2 using a solvable anagram task. The implications for theories of ego-depletion are discussed.

#207: Mentalizing the mind of machines: Referential informativity in human-robot communication by Raheleh Saryazdi, Joanne Nuque, Craig Chambers.

Studies of human-human communication have shown that redundant modifiers can facilitate comprehension when they narrow attention to intended targets. As listeners, we assume the speaker is rational and cooperative, producing referential expressions that are helpful and efficient despite being technically overinformative. However, these assumptions are based on our own experience, our beliefs regarding a speaker's perceptual and cognitive abilities, and our expectations that the speaker is following pragmatic rules relevant to the situational context. What we explore here is whether the effects of linguistic redundancy on comprehension are similar when the speaker is a social robot. Do we ascribe human-like characteristics to robots and expect them to follow the same pragmatic rules as we do? And to what extent do other factors such as the type of modifier or the age of the listener affect whether redundant descriptions help or hinder comprehension in the context of human-robot communication?

#208: Eyeing the eyes of predators and prey by Bradley Karstadt, Elina Birmingham, Nicola Anderson, Alan Kingstone, Jessica Yorzinski

Observers preferentially fixate the eyes of people, and this preference is not driven by visual saliency of the eye region (Birmingham, Bischof, & Kingstone, 2009). With nonhuman subjects, observers are faster at fixating animals, especially predators, with directed vs. averted gaze (Coss, Tovar & Yorzinski, 2018). The present study examined whether humans likewise preferentially fixate the eyes of nonhuman animals -- predators (lions) vs. prey (impalas) -- exhibiting either direct or averted gaze. We found that human participants preferentially fixated the eyes of the animals, especially when viewing lions exhibiting direct gaze. Visual saliency of the eye regions of both animals was low, particularly for lions. The results suggest that participants' fixations are largely driven by a default tendency to look towards the eyes for scene comprehension (including possible threat evaluation) rather than visual saliency.



Abstracts

#209: The building blocks of temporal variation in language processing by Fareeha Rana, Elisabet Service

Changes in the rhythm of speech via features like pitch or tempo are known as prosody, and are critical to our understanding of speech. The current experiment manipulated item pacing as an aspect of the temporal structure of speech. Neural activity was recorded using electroencephalography (EEG). Participants were presented with items at a regular pace intermittently disrupted by stimuli presented earlier or later than expected in order to model variations in natural speech. Stimuli varied in linguistic complexity, ranging from simple tones to linguistic syllables. We predicted neural responses to be larger in amplitude as a function of the timing and linguistic complexity of the item. We detected bigger responses for early deviants than late deviants for simple tones, although not for more complex linguistic stimuli. The early deviant showed the most variation across conditions. This response could be used as a marker for individual differences in speech processing.

#210: Twenty years of language research in pediatric epilepsy: A systematic review by Katharine Bailey, Nancie Im-Bolter

Pediatric epilepsy research varies in how language is measured and how epilepsy is categorized, which poses a challenge for understanding how language is affected in different types of pediatric epilepsy. We reviewed 78 pediatric epilepsy articles published between 1996 and 2016 that included measures of language. We found that semantic language was most commonly assessed with focal seizures (k = 16) and verbal fluency was most commonly assessed in children with generalized seizures (k = 5). Few studies examined specific aspects of language, especially in children with generalized seizures (k =7) or symptomatic cases (k = 16). Benign rolandic epilepsy with centrotemporal spikes (k = 20) was the most studied syndrome, but most studies included samples with a mixture of epilepsy syndromes (k = 37). Future research should focus on specific aspects of language and categories of epilepsy, so we have a clear understanding of language development in pediatric epilepsy.

#211: I'll think about it: Language, self-regulation, and theory of mind in pediatric epilepsy by Katharine Bailey, Nancie Im-Bolter

Childhood epilepsy is associated with language problems and poor behavior regulation, as well as difficulty with theory of mind (ToM: understanding the thoughts, feelings, and intentions of others). However, research in pediatric epilepsy fails to distinguish between the affective (feelings) and cognitive (thoughts and intentions) aspects of ToM and their potential association to language and self regulatory processes. The current study considered language, self regulation, and ToM in two groups of children, those with epilepsy (EP: n = 8; Mage= 9.86 years, SD = 2.35) and those with typical neurodevelopment (TD: n = 15; Mage= 9.92 years, SD = 2.30). Our results show that children with epilepsy have difficulties with language, self-regulation, and both affective and cognitive ToM. Moreover, we find associations with affective (language) and cognitive (language, self-regulation) ToM that warrant further investigation of these processes in children with and without epilepsy.

Abstracts

#212: Syntactic factors play a key a role in language intrusions in reading aloud among bilinguals by Emalie Hendel, Annie Roy-Charland, Jean Saint-Aubin

Usually, bilinguals do not produce words in an unintended language. However, intrusion errors can be elicited by asking bilinguals to read mixed-language texts. In this situation, readers are more likely to unintentionally produce the translation of a function than a content word and of a short than a long word. In all previous demonstrations of a word function effect, function and content word length was not equated within and across languages. Here, 31 bilingual participants read French and English pure texts as well as mixed texts. Function and content word length was equated within and across languages (e.g., the/les, sea/mer). Results of mixed-logistic analyses revealed more language intrusions errors on function than on content words, and long function words were less susceptible to intrusion errors than their shorter counterparts. In addition, contrary to previous studies, there was no effect of language dominance on the production of intrusions.

#213: Does skill-challenge balance induce flow? Re-examining the inverted-U. by Jeremy Marty-Dugas, Daniel Smilek

Skill-challenge balance is thought to be a key facilitator of flow experiences. However, conceptual and measurement issues call this central tenet of flow theory into question. We investigated this central tenet by examining the relation between difficulty and flow in a simple computer game. Participants (n = 503) were randomly assigned to play the game at one of 5 speeds (our manipulation of difficulty), and report on their subjective experience. Flow experience was assessed using measures of deep, effortless concentration (DEC), which allow for more precise measurement of the defining characteristic of flow. In contrast to the predictions from flow theory, preliminary results indicate that flow does not follow the proposed 'inverted-U' pattern, and instead has a linear negative relation with difficulty. Critically, task performance was significantly impacted by difficulty, such that performance decreased as difficulty increased. Conceptual and measurement issues in the flow literature are also discussed.

#214: Altered attentional control in paediatric brain tumour survivors when viewing emotional scenes, an eye-tracking study by Elizaveta Igoshina, Iska Moxon-Emre, Donald Mabbott

Paediatric brain tumour survivors (PBTS) spend a considerable portion of their childhood undergoing treatment, but little investigation has been done to establish how this traumatic exposure influences their emotion related cognitive development. Fifty-four youth (18 controls, 36 PBTS) underwent eye tracking while they freely viewed 12 sets of four emotional scenes (happy, sad, threatening, and treatment-related). Regression analysis showed that being a patient predicted greater avoidance of and slower attentional disengagement from treatment-related scenes. Overall, PBTS avoided attending to and had trouble disengaging from treatment-related scenes, suggesting that they may suffer alterations to their sustained attention processes. We can speculate that when PBTS view treatment-related stimuli, a trauma-schema is activated producing an initial protective mechanism in an attempt to suppress an emotional response. But once this emotional suppression mechanism is exhausted, PBTS do not have resources remaining to regulate their emotional response producing a prolonged engagement with the trauma-related stimulus.

Abstracts

#215: Attractiveness and the Mere Exposure Effect by Natasha Pestonji-Dixon, Peter Graf

The mere exposure effect (MEE) is the finding that repeated, unreinforced exposure to a stimulus (e.g. an ideograph, a picture) is sufficient to increase preference for it or its perceived attractiveness. Although regarded as a solidly-established finding, meta-analyses (e.g. Bornstein, 1989) and our lab work on the MEE show it to be fickle and critically dependent on factors such as visual angle and exposure duration. The present study examined the MEE via an online survey of yearbook portraits differing in attractiveness; it also examined the reliability of the ratings typically used as the dependent variable for the MEE. The results showed that the effect due to one exposure depends on a portrait's initial attractiveness.

#216: Rumination induction effects on executive functions within an emotional context by Antoine Bergeron, Jean-Philippe Ferron, Simon Rigoulot

Rumination is the act of repetitively focus its attention towards its negative feelings in a maladaptive way. It is linked to impairments in cognitive processes, such as inhibition and emotional information processing. However, these links were mostly studied in depressed individuals using self-report measures of rumination. Thus, we investigated how, in a healthy population, induced rumination affects response inhibition within emotional context. Therefore, rumination or distraction was induced to 30 participants who then completed a Go/NoGo task using emotional faces (neutral, joyful, or sad). Results showed that inducing rumination may lead to cognitive impairment by overloading limited executive resources. Furthermore, results suggest that induced rumination might increase individual susceptibility to direct their attention toward negative emotions. However, participants showed no deficits on behavioural measures of inhibition. Follow-up projects will use electroencephalography to investigate the effects of rumination on the neural correlates associated with executive functions and emotional processing.

#217: Older adults have an associative deficit but this does not affect directed forgetting performance by Pelin Tan, Myra Fernandes, Colin MacLeod

Intentional forgetting requires removing unwanted information from long-term memory. Past studies show older adults recalled or recognized more to-be-forgotten (TBF) items than younger adults, and this difference in performance has been attributed to an inhibitory deficit in aging. Here, we examine whether performance differences between older and younger adults in an item-method directed forgetting (DF) task arise due to age-related difficulties in associative memory. Participants viewed words, one item at a time, each followed by instructions to remember or forget. Participants were asked to determine which word was to-be-remembered (TBR) and which was TBF. Both older and younger adults demonstrated a DF effect, but older adults were significantly less accurate in correctly identifying item-cue associations than younger adults, but this performance did not differ depending on the type of cue. Results supported that older adults have an associative deficit, but this did not appear to affect their DF effect.

Abstracts

#218: Perceptual Grouping of Fragmented Contours Using Stochastic Completion Fields by Morteza Rezanejad, Sidharth Gupta, Chandra Gummaluru, Ryan Marten, John Wilder, Dirk B. Walther

Human perception can easily infer object shape from contour drawings; even if the contours are fragmented. With contours, Biederman & Cooper (1991) showed that observers are better at classifying objects when shown only junctions than when shown only middle segments. We use a non-biological algorithm from Williams and Jacobs (1995) to reproduce these results, computing a stochastic completion field (SCF) for each of the two aforementioned conditions. The SCF produces likelihoods of completing a broken contour as a probability distribution. We tested our algorithm on the Snodgrass and Vanderwart (1980) dataset and found that junction segments produce a more probable distribution than middle segments in 93% of the drawings; aligning with Biederman & Cooper's behavioural result. Furthermore, we've integrated this algorithm with state-of-the-art image inpainting and denoising neural networks, and have found that SCF's added information helps these neural networks achieve statistically significant better SSIM scores on the ground truth.

#219: Cognition Moderates Pure-Tone and Speech-in-noise Threshold Associations in Older Adults by April Pereira, Kathleen Pichora-Fuller, Huiwen Goy, Christian Giguère

The Canadian Digit Triplet Test (CDTT) has been validated in younger adults with normal audiograms. The goals of the presented studies were to validate the CDTT in older adults with normal audiograms (Exp1) and to examine CDTT results for older adults with varying audiometric status to determine if the association between CDTT speech-in-noise reception thresholds (SRTs) and audiometric pure-tone average (PTA) thresholds is influenced by non-audiometric factors, such as cognition (Exp 2 and 3). In Experiment 1, older listeners with normal audiograms showed about .5 dB worse average performance than younger adults. In Experiments 2 and 3, the CDTT SRT is largely explained by the PTAs of older adults. Importantly, poorer cognition worsens the SRT beyond what would be predicted based on the PTA in a laboratory (Exp 2) and clinical sample (Exp 3). The use of the CDTT for those with cognitive impairment may need to be interpreted differently.

#220: Making spatial mistakes: The influence of learning strategies and congruency on object-location memory across the lifespan by Amelia Semenak, Natalia Ladyka-Wojcik, Morgan D. Barense

Healthy aging is associated with a decline in the precision and binding of object locations in memory compared to younger adults. In verbal associative memory contexts, errorless learning strategies benefit memory performance among older adults relative to trial-and-error learning strategies. However, a direct comparison of these two strategies across the lifespan for the precision of spatial memory representations – beyond yes/no recognition – has not been investigated to date. We administered a series of online spatial memory tasks designed to test both object-scene associations and the precision of object locations within the scenes. Moreover, these tasks varied the congruency between objects and their paired scenes. We report no errorless learning benefit for older adults in this context, but that precision memory of object locations benefitted from prior associative recall success. Taken together, our findings present an avenue for better understanding the relationship between broad, gist-level object-scene binding and precise spatial memory.

Abstracts

#221: The Role of Sensorimotor Experience in Vocabulary Acquisition by Israa Siddiqui, Emiko Muraki, Penny Pexman

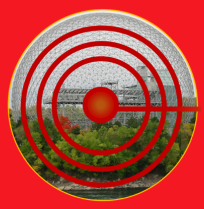
Body-object interaction (BOI) is a semantic dimension that captures how easily one can physically interact with a word's referent. Previous research has found this to be a predictor of lexical processing, suggesting that sensorimotor information is an important aspect of lexical knowledge. Limited research has examined this construct from a developmental perspective. The goal of the current study was to collect ratings for child-centric BOI, to evaluate the role of sensorimotor experience in children's vocabulary acquisition. Parents of children aged five to nine years old were asked to rate words according to how easily an average six-year-old child can interact with each word's referent. The results showed that these child-centric BOI ratings significantly predicted age of acquisition (AoA), and did so more accurately than adult-centric BOI ratings, emphasizing the role of sensorimotor interactions in learning and vocabulary acquisition, and also the importance of deriving child-centric semantic variables.

#222: Appraising the ANT-I: Psychometric Properties of the Attention Network Test for Interactions by Michael Lawrence, Natasha Khawaja, Raymond Klein

Following MacLeod et al (2010)'s psychometric-analysis of the Attention Network Test (ANT), we solicited, and then subjected to mega-analysis, the raw data from the participants (ages 16-65) from as many ANT-I studies as we received. The ANT-I generated highly robust scores for each network (Alerting, orienting and executive control), as well as their interactions. Prophesied test-retest reliability was as good as if not better than (e.g. for alerting) that previously observed for the ANT. A significant positive correlation between network scores for orienting and executive control was observed, suggesting that resisting orienting in response to an uninformative peripheral cue is akin to trying to ignore irrelevant flankers around the target.

#223: How auditory perceptual learning is affected by temporal uncertainty by Tysen Dauer, Molly Henry, Björn Herrmann

Detecting and learning structure in sounds seems fundamental to auditory perception, including speech perception. To examine such auditory perceptual learning (APL), researchers have used a short noise segment repeated within longer, ongoing random noise. They found that participants were able to detect noise repetitions and, moreover, that participants were even better at detecting noise repetitions when the same noise segment recurred across different sounds. Researchers have framed this as evidence for rapid memory formation underlying APL. We tested how timing changes to noise segment repetitions impact detectability. In a series of five online experiments we replicated the finding of better detection for recurring noise segments, found evidence that temporally jittering the repetitions reduced detection performance, and observed that jittering the temporal onset of the repetitions did not impact detectability. We argue that this demonstrates the viability of conducting this experimental paradigm online and clarifies some roles of timing in APL.



Abstracts

#224: Individual Differences in Working Memory Capacity and The Missing-Letter Effect in Reading by Ralph Redden, Kaylee Eady, Raymond Klein, Jean Saint-Aubin

Individual differences in working memory capacity (WMC) are related to variations in myriad cognitive tasks for which attention is required. Visual search tasks are no exception, but the effect seems limited. In the present study, individual differences in a letter search task were examined. In Experiment 1, participants were asked to detect all instances of a target letter while reading an RSVP prose passage. Higher WMC participants detected more target letters than lower WMC participants. In Experiment 2, participants were asked to detect all instances of a target letter while reading a prose passage, a stream of random words, or a stream of non-words. Whereas patterns from Experiment 1 were replicated for the prose passage, the influence of WMC on performance was reduced in the random word stream, and eliminated in the non-word stream. Results show that in visual search, WMC is related to the ability to manage dual-task demands.

#225: Metaphors about religion by Juana Park, Hessa AlRaqbani, Tala Al Otaibi, Farah Almohammed

Metaphors are a figure of speech that consists in describing one thing using a word whose literal definition is not related to the intended meaning (e.g., My husband is a gem). We investigated the metaphors that Catholics, Protestants and Muslims use to describe their faith and their relationship with God (e.g., I am God's slave, My religion is my engine). We also analyzed the type of religious metaphors produced by Muslims during and after Ramadan (i.e., the ninth month of the Islamic calendar, when Muslims fast from dawn to sunset). Given that different religions involve different sensorimotor experiences (e.g., praying with the head on the floor, praying looking up with the hands in the air, singing, dancing), we expect a difference in the type of embodied metaphors people use, depending on their religion and, in the case of Muslims, depending on whether they were produced during or after fasting.

#226: Learning the meanings of fun, happen, and peace: Development of abstract word knowledge by Lorraine Reggin, Emiko Muraki, Penny Pexman

Abstract words are learned later in development than concrete words (Ponari et al., 2016) and explaining the acquisition of these words is challenging for many lexical-semantic models, particularly for strong embodiment accounts of lexical semantics. We tested two specific proposals for how abstract words are learned: the affective embodiment account (Borghi et al., 2017; Kousta et al., 2011), that emotion provides key experiential knowledge to support abstract word acquisition, and the learning through language proposal (Andrews et al., 2009; Hills et al., 2010), that abstract words are acquired through language experience. We found support for the affective embodiment account in that word valence, interoception, and mouth action all facilitated abstract word acquisition. Contextual diversity facilitated vocabulary acquisition, but equally for both abstract and concrete words. Our results provide evidence that emotion and sensorimotor systems are important to children's acquisition of abstract words.

Abstracts

#227: The properties of general and personal semantics by Annick Tanguay, Kim Thériault, Louis Renoult, Patrick Davidson

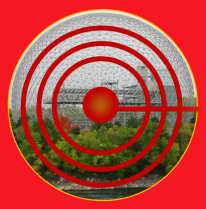
Although personal semantics (e.g., knowledge about my family) is often thought of as part of general semantic memory (e.g., knowledge about families in general), recent research suggests that their neural bases are different, for instance a greater involvement of the hippocampus for personal semantics. However, the cognitive processes underlying these differences have rarely been studied. Here, we randomly assigned 244 participants to complete a Features task from a general semantics perspective (e.g., bedrooms in general; as in McRae et al., 2005) or from a personal semantics perspective (e.g., my bedroom). We hypothesized that personal semantics should involve more relational processing than general semantics, leading to a richer semantic network. Preliminary findings suggest that concepts were associated with more idiosyncratic and also more shared features across participants in the personal than the general semantics condition. Hence, personal semantics may be associated with a richer semantic network, consistent with brain studies.

#228: Do breaks during online lectures boost attention and learning? by Kitty M. Q. Guo, Noah D. Forrin, Faria Sana, Joseph A. Kim

We examined the effect of break length and frequency on attention and learning during a pre-recorded lecture video. Participants (n = 360; recruited on Prolific) either took no breaks, one 6-minute break halfway through, one 2-minute break halfway through, or three 2-minute breaks equally distributed throughout the lecture. Attention probes and a post-lecture quiz were used to measure attentiveness and learning, respectively. There were non-significant differences in attention and immediate learning between the no-break groups and the break groups, and between the three break groups. Interestingly, there were significant positive correlations between more favourable attitudes towards break(s) and higher attentiveness and quiz performance. This study suggests that the attitude towards lecture break(s) is an important moderator of the effect of lecture break(s) on attention and learning. Future studies should investigate what individual factors may result in some individuals having better attitudes towards break(s) than others, and ultimately benefiting from break(s).

#229: Self-paced Study and Word Dimensionality in Metacognition by Ryan Lee, Jonathan Fawcett, Kathleen Hourihan

Self-paced Study and Word Dimensionality in MetacognitionRyan Lee (Msc. Student), Dr. Jonathan M. Fawcett, Dr. Kathleen L. HourihanThis research was conducted to help understand how emotion influences metamemory including both monitoring and control processes. We conducted two online studies of university students measuring metacognition for emotional words across three related dependent variables: Study Time, JOLs and Recall. In experiment 1 words were distinctly categorized on basis of emotional valence (negative, neutral, and positive), while holding arousal neutral. In the second experiment words were categorized based on arousal (low, medium, and high), while holding valence neutral. We found that valence and arousal both influenced JOLs. Emotional valence increased recall, though arousal did not. Emotional factors did not significantly influence study time. Participants were surveyed on their metacognitive beliefs underlying their study habits. This qualitative data will be used to discuss how individuals' metacognitive strategies vary based on word quality.



Abstracts

#230: Exploring Individual-Difference Factors in the Devaluation-by-inhibition Effect: Behavioural Inhibition and Risk-Taking by Mackenzie Bain, Elizabeth Clancy, Mark Fenske

Stimuli that are ignored or from which a response is withheld receive more negative ratings than novel stimuli or the targets of attention/response; an effect attributed to devaluation by inhibition. We looked for the source of large individual differences in these effects by assessing the possibility that increasing levels of trait behavioural inhibition may predict greater devaluation-by-inhibition effects for items appearing in attentional-inhibition (visual search) and response-inhibition (Go/No-go) tasks. We found devaluation of both distractor and No-go items, but no evidence of a link between these effects and scores on the Adult Measure of Behavioural Inhibition scale. And while distractor devaluation was correlated with a measure of behavioural inhibition obtained from the Balloon Analogue Risk Task, it was not in the expected direction. Taken together, trait behavioural inhibition does not appear to be a critical factor for understanding how stimuli become affectively devalued when associated with attention- or response-related inhibition.

#231: Hemispheric contributions to deferent forms of co-reference during discourse processing by Deanna Hall, Todd Ferretti

Although research has shown that both hemispheres contribute to the resolution of co-reference during discourse processing, there has been little research that has directly contrasted different forms of co-reference. The present research combined the visual half-field technique with ERP methodology to investigate the resolution of different referential relationships. Participants read short passages that contained a target concept that was previously mentioned (match), mentioned with a general term (general), unmentioned in lieu of another concept (mismatch), or was completely unmentioned (indeterminate). When target words were presented to the right hemisphere, N400 amplitudes revealed that the mismatching targets were the most difficult to integrate, followed by the indeterminate, general, and then matching targets. In contrast, the left hemisphere showed the most integration cost for indeterminate targets, followed by mismatching, general, and then matching targets. These results highlight hemispheric differences in the ability to resolve different referential relationships.

#232: The role of sensorimotor simulation in the memory advantage for vocal melodies by Frank Russo, Emily Wood, Joseph Rovetti, Karla Kovacek

In a recent study (Wood, Rovetti & Russo, 2020), we examined whether the established memory advantage for vocal melodies over non-vocal melodies is attributable to spontaneous sensorimotor simulation that occurs during encoding. Participants were presented with unfamiliar vocal and piano melodies across three encoding conditions: whispering (vocal-motor interference), tapping (non-vocal motor interference), and no-interference. Afterwards, participants heard the original melodies presented among foils and judged whether melodies were old or new. A vocal-memory advantage was found in the no-interference and tapping conditions only, leading us to conclude that the vocal-memory advantage depends on spontaneous sensorimotor simulation that occurs during encoding of vocal melodies. In a follow-up study, we present vocal and piano melodies under two conditions: (a) passive listening or (b) imagined singing. Because our imagined singing condition encourages sensorimotor simulation to occur regardless of timbre, we expect that it will yield an attenuation in the vocal-memory advantage.

Abstracts

#233: Constructing face emotion and gender: Testing constructivist accounts of face categorization using event-related representational similarity analysis by Emma Amyot, Annie Duchesne, Aaron Newman, Heath Matheson

In neurophysiological investigations of face categorization, people are often instructed to make judgments about the categories of emotion and gender. The goal of such an approach is to discover the neurophysiological indices of processing facial information that reflects these categories. However, constructivist approaches to categorization suggest that these judgments are shaped by situational, embodied, and social information. In the present study, we used a novel representational similarity approach to analyzing event-related potentials in a face categorization task. Database images of faces with different facial configurations were shown and participants judged the 'emotion' or the 'gender' of the face. Importantly, images were presented in congruent or incongruent contexts based on social stereotypes and embodied information. We tested whether ERP patterns were better predicted by constructivist models vs. null models. Our preliminary results (N=12) provide some evidence that constructivist categories are reflected in ERP waveforms at right temporal electrodes.

#234: On the relationship between legality and morality by Mane Kara-Yakoubian, Alexander Walker, Ethan Meyers, Martin Turpin, Konstantyn Sharpinskyi, Jonathan Fugelsang

While the relationship between legality and morality has been the topic of legal and philosophical debate, minimal empirical work exists. Across three studies, we explore this question empirically. In Study 1 we found that illegal actions were judged as more wrong than legal actions. Relatedly, moral character was judged as less moral when engaging in illegal activities compared to legal activities. In Study 2, we found that breaking the law unintentionally was regarded as more wrong than legal acts; moral character was judged as less moral when engaging in intentional illegal activities compared to unintentional illegal activities or control legal activities. In Study 3, we found that the form of government creating laws (democratic vs. totalitarian) did not influence these moral judgements. Overall, our findings demonstrate that engaging in illegal activity is perceived to be wrong despite intent and circumstances.

#235: Eliminating the context incongruency effect using a change detection task by Sydney Woodin

When viewing scenes for change, attention is attracted to semantically incongruent objects over congruent objects. The purpose of this study was to investigate whether this robust finding could be eliminated or reversed. In Experiment 1, a flicker procedure was used to first establish the incongruency benefit. In Experiment 2, cues were introduced at the beginning of each trial. In one block, the cues accurately identified the upcoming target object (valid). In another block, the cues did not accurately identify the target object (invalid). For the invalid block, an incongruency benefit was found. However, for the valid block, the incongruency benefit was eliminated. We interpret these findings from a dual process framework. In some cases, task requirements encourage the use of a congruent context to guide attention to congruent targets. In other cases, task requirements do not encourage the use of a congruent context, leading to attention to the incongruent targets.

Abstracts

#236: Developing an ERP paradigm to assess conceptual processing in DoC patients: A proof of principle study by Netri Pajankar, Adianes Herrera-Diaz, John Connolly

The purpose of this study was to develop a protocol capable of inducing event-related potentials (ERPs) exhibiting semantic or conceptual processing without taxing working memory or focused attention excessively in patients with Disorders of Consciousness (DoC). Currently, there is a small and subjective database of findings on the N400 ERP component which reflects several cognitive mechanisms such as concept formation and semantic processing from patients with DoC. We examined the N400 ERP component in response to related and unrelated environmental sound and spoken word pairs in healthy participants. Our results showed the N400 effect - a significantly higher N400 peak in response to the unrelated pairs compared to the N400 peak for the related pairs. The presentation of the N400 effect in these participants suggests that such an auditory priming paradigm composed of verbal and non-verbal but meaningful stimuli could be used to evaluate cognitive processing in patients with DoC.

#237: Advancing our Understanding of Visual-Perceptual Illusions in Pilots via Case Studies and Emerging Technologies by Anya Pejemsky, Kathleen Van Benthem, Chris Herdman

In aviation, the “black hole” illusion results in serious landing mishaps. This visual illusion occurs when depth cues are distorted causing pilots to misjudge altitude and touchdown positions. In-flight training to identify and manage the black hole illusion is dangerous. However, virtual reality (VR) flight simulation may offer an adequate alternative. Presently, it is not known whether a VR flight simulator can be configured to elicit realistic flight illusions. The present work investigated the feasibility of online research to study visual illusions in VR. The data for a case study was collected via an online synchronous experiment with a licensed pilot and their personal VR flight simulator. The novel experimental protocol and the likelihood of eliciting flight illusions using high-fidelity VR flight simulation is discussed. The findings extend our understanding of how visual illusions can be studied using VR, even in challenging physical distancing conditions.

#238: Is Searching in Time Similar to Searching in Space? by Brett Feltmate, Ray Klein

In 1989 Duncan & Humphreys presented their ‘search surface’, which identified two principles which interact to determine the difficulty of finding a target amongst distractors during spatial search: the similarity of the target to distractors, and heterogeneity of the distractors themselves. Neither principle alone is particularly deleterious to performance, but in conjunction they interact to make spatial search exceedingly difficult. Klein & Ishigami (2012) proposed that these principles ought to similarly apply to temporal search performance, but to date no direct comparison has been made. To address this gap our participants completed separate temporal & spatial search tasks under stimulus conditions representing the four corners of D&H’s search surface. Comparing derived discriminability scores, performance in spatial search replicated the pattern of effects seen by D&H. Similarly, temporal search performance was observed to follow the same pattern, suggesting that Duncan & Humphreys’ principles are indeed generalizable to temporal search.

Abstracts

#239: Infants' word segmentation of low statistical frequency in onset phonotactics by Stephanie Archer, Natalia Czarnecki, Suzanne Curtin

There are many cues that signal word boundaries and it is crucial for infants to learn them. One cue is phonotactics (language-specific restrictions on sound combinations). Sensitivity to phonotactics begins to emerge at 9 months and infants use phonotactics in fluent speech. Moreover, 9-month-olds can track statistical frequency of phonotactics, especially word-initially (e.g., /tr-/). Previously, English-learning infants showed that, when familiarized with high-frequency phonotactics, infants were successful at recognizing a target word, though this was not true of low-frequency phonotactics. How do 9-month-olds store and access low-frequency phonotactics? Using a headturn procedure, we tested 9-month-olds' abilities to segment a target word from fluent speech by adding a pre-exposure phase prior to the familiarization and test phases. Infants in the low-frequency condition were successful at test ($p < .05$), but those in the zero/illegal-frequency condition were not (n.s.). This suggests that 9-month-olds can access their mental representations when primed to low-frequency forms.

#240: Curiosity and reward following unsuccessful memory recall by Gregory Brooks, Stefan Köhler

Curiosity is an intrinsic motivational state tied to information-seeking behaviour. The relief of this state results in a sense of satisfaction akin to reward. We recently demonstrated that subjective experiences accompanying unsuccessful memory recall trigger information-seeking behaviours. Whether this behaviour parallels experienced curiosity, and whether subsequent access to the unrecalled information is experienced as rewarding, has not been examined. We addressed these critical links through two online experiments that used Feeling-of-Knowing (FOK) judgements, for previously studied face-name pairs, to gauge how close to successful participants perceived their recall. In both experiments we replicate prior findings relating FOK ratings to recall response times, a proposed marker for memory search. We also show that participants' FOK ratings correlate with subsequent curiosity for the unrecalled names, and the satisfaction experienced when the face-name pairs were shown together again. These results provide clear evidence that how we experience unsuccessful memory recall modulates our curiosity.

#241: Role of autonomic arousal in curiosity sparked by unsuccessful memory recall by Monique Chatterton, Gregory Brooks, Haopei Yang, Stefan Köhler

States of curiosity, which reflect motivational tendencies to seek out information, play a critical role in learning and memory. Recent work from our lab suggests that metacognitive retrieval experiences related to unsuccessful memory recall can spark curiosity; we have found that feeling-of-knowing (FOK) experiences predict to what extent participants will subsequently seek information that they cannot recall. Here, we asked whether autonomic arousal plays a role in the generation of this retrieval-induced curiosity as suggested by Berlyne's theory of epistemic curiosity. We examined pupil size as a marker of autonomic arousal while participants ($N = 17$) made FOK judgments about previously studied face-name pairs. Subsequently, participants were provided with an opportunity to re-study select items, which offered a marker of information-seeking. Behaviourally, we replicated our previous findings. In ongoing analyses, we aim to determine whether the pupil response at the time of FOK judgment predicts subsequent restudy choice.

Abstracts

#242: When Does Time Fly? Investigating Passage of Time Judgements Under Various Experimental Conditions by Jesika Walker, Mohammed Aswad, Guy Lacroix, Denis Cousineau

To determine whether people's perception of time is distorted by a task, researchers typically compare duration estimates with objective clock time. However, a person might still feel as though time has passed slowly yet provide an accurate estimate (self-correcting for bias in their responses; Droit-Volet, 2018). We thus measured the subjective feeling of time passing (termed passage of time judgements; PoTJs), rather than stop-watch type duration estimates. We varied task length and task difficulty under two estimation paradigms (prospective vs. retrospective). Unlike what is typically found of duration estimates (see Block & Zakay, 1997), PoTJs did not differ between prospective and retrospective paradigms. However, time felt faster in the more challenging task, but only in our shorter condition. This research contributes to a recent call for investigations of various forms of time judgement at various durations, to further the development of general models of human time perception (Droit-Volet, 2018).

#243: Comparing Posner's beam and Treisman's glue in endogenous orienting by Richard Drake, Raymond Klein

Posner's beam and Treisman's glue are metaphors that describe visual attention as a spotlight that enhances the detection of items within its focus, and as the glue of object feature integration. In a series of experiments using an adapted Posner cueing paradigm, Briand (& Klein, 1987; 1998) showed that peripheral, exogenous cueing effects were larger when the target stimulus was defined by a conjunction of features. This interaction did not hold when cues were endogenous (at fixation), suggesting that the beam and glue are the same only under exogenous conditions. We conducted a replication of Briand's (1998) endogenous paradigm using both the original and an increased number of distractors, to determine whether perceptual load may be responsible for contradictory results in the literature (e.g., Kawahara & Miyatani, 2001). Data collection just concluded; we are analyzing the data in accordance with our preregistered plan: https://osf.io/t5sz9/.

#244: Temporal dynamics of fMRI activation during face processing in naturalistic audiovisual movies by Chelsea Ekstrand

Naturalistic stimuli (e.g., audiovisual movies) can offer novel insight into the multiscale dynamics of "real-world" processing, including human face processing. We examined the temporal dynamics of fMRI activation directly after onset and offset of faces in three feature-length audiovisual movies. For each participant, 10-second Face-On and Face-Off voxelwise activation patterns were reshaped into 3-dimensional matrices, with time as the third dimension. We performed a paired-sample t-test using permutation testing. Results from the Face-On > Face-Off contrast showed early activation of the bilateral fusiform gyri and V1, followed by flow of activation from posterior to anterior portions of the ventral stream. Results from the Face-Off > Face-On contrast showed early activation of the lateral occipital cortices, followed by flow of activation from posterior to anterior portions of the dorsal stream and fusiform gyri. This novel analytic technique provides exciting insight into temporal activation flow during face processing in naturalistic stimuli.

Abstracts

#245: Metronome and Pitch: Tapping into human music perception by Hong (Ocarina) Zheng, Emily Ready, Kristi Von Handorf, Jessica Grahn

Groove is a musical feature that elicits an urge to move with rhythmic patterns, and an integral component of music in therapy to cue for synchronized movement to auditory stimuli in Parkinson's patients with walking impairments. However, musical properties that maximize these therapeutic benefits remain unknown. Currently, there is evidence that human brains synchronize better to lower-pitched sounds indicating timing information. Therefore, we manipulated the pitch of the beat track (metronome) overlaid and groove of the music to examine the effect of pitch on people's perception of groove, and whether that relationship is affected by groove conditions. Results from a sample of 48 young adults showed that regardless of groove, the low-pitched metronome received significantly higher groove ratings than its high-pitched counterpart ($p<0.001$). These findings provide a foundation for future gait studies that involve both patients and healthy adults, and inform stimulus selection for clinical applications.

#246: Spontaneous Monitoring During Test Promotes Metacognitive Sensitivity to Recognition Memory Performance by Mitton Evan, Fiacconi Chris

Much previous research on metamemory has focused on the factors that guide learners' monitoring judgments (judgments of learning; JOLs) during encoding. In contrast, there has been relatively less focus on how monitoring of test performance can impact such judgments. Here, we report two experiments that investigate how spontaneous monitoring of test performance can inform subsequent JOLs for novel visual images across multiple study-test cycles. In Experiment 1 we demonstrate that spontaneous monitoring during old/new tests promotes an increase in JOLs that reflects participants' metacognitive sensitivity to their memory performance in the absence of any feedback given. Furthermore, in Experiment 2 we show that this effect extends beyond old/new recognition paradigms where memory performance is near ceiling by manipulating lure similarity in a 2-alternative forced choice procedure. These findings suggest that learners do spontaneously monitor their test performance, and that such monitoring can shape subsequent metacognitive judgments.

#247: Being dominant in a minority language train executive functioning: The case of Franco-Ontarian code-switchers by Leah Gosselin, Laura Sabourin

The controversial 'bilingual advantage' is often treated dichotomously: bilinguals either experience an executive functioning advantage, or they do not. We stray away from this monolithic representation of bilingualism, and instead investigate which linguistic experiences may result in benefits. Language background data was obtained from 77 French-English bilinguals (Myears=24) who currently reside (and have primarily resided) in Ontario. These bilinguals learned French (AoE=0.91) before English (AoE=2.00), but many self-reported being more dominant in English currently (n=41). Crucially, bilinguals who remained French-dominant at testing reported more frequent contextual code-switching than English-dominant Franco-Ontarians ($t=3.876$, $p<.001$). Preliminary results from a subsequent Flanker task indicated that code-switching habits were correlated to overall faster response times for French-dominant (congruent: $p=.031$; incongruent: $p=.086$), but not English-dominant (ps>.35) Franco-Ontarians. As contextual code-switching is linked to inhibitory control advantages, being dominant in a minority language may be a bilingual experience that positively impacts executive functioning.

Abstracts

#248: The effect of contextual interference and feedback on learning composers' musical styles by Seung Heyck Lee, Rebekka Lagacé-Cusiac, Jessica Grahn

Musicians most commonly learn to distinguish musical styles through repeated listening in long blocks. However, alternating between tasks using an interleaved schedule demands more effort and improves retention. The study's objective was to investigate the combined benefits of interleaving and feedback in classifying musical styles. 134 participants listened to music excerpts from six composers, half presented in blocked schedule and another half presented in interleaved schedule. Participants then classified novel excerpts from the same six composers with or without corrective feedback. On the second day, participants were tested and indicated which condition they felt they learned best. Without feedback, performance was similar across blocked and interleaved conditions. With feedback, interleaving produced significantly greater accuracy than blocking (interaction: $p<0.05$). Yet, the majority of participants misjudged blocking to be more effective than interleaving. Combining an interleaved practice schedule and feedback were both required to improve test performance.

#249: To wait or not to wait: how experimenter racial and linguistic background affect children's performance in a delayed gratification task by Thomas St. Pierre, Katherine White, Elizabeth Johnson

Children's success in the marshmallow task, though dependent on self-control, is additionally influenced by environmental factors (e.g., SES, experimenter reliability, etc.). The current study investigated whether the perceptible similarities between children (3;10–5;2, N=159) and experimenters influenced wait times in the marshmallow task, focusing on accent (whether the experimenter shared the local accent with children or spoke with a foreign accent) and grammaticality (whether they produced grammatical errors). Two experimenters were White and two were Asian, allowing us to further explore influences of race similarity on children's waiting. Although we found minimal evidence that accent or grammaticality influenced waiting, there was an effect of race, such that White children waited more when interacting with an Asian experimenter compared to a same-raced experimenter. These results could suggest that White children felt less comfortable with unfamiliar, out-group members, and therefore, less free to eat the immediately available treat (should they have wanted to).

#250: Their guess is not as good as ours: Children find in-group voices more believable but not more memorable by Thomas St. Pierre, Elizabeth Johnson

Children recognize speakers of their native language (in-group talkers) better than speakers of other languages (out-group talkers) (Fecher & Johnson, 2018). Holding language (and accent) constant, we investigated whether group membership alone (red team or green team) influences recognition of native speakers, looking at whether 7- to 9-year-old children identify and recognize in-group voices better than out-group voices. Children were exposed to other children's voices, and then tested on their abilities to identify and recognize the talkers. During exposure, children heard in-group and out-group members guess how many objects were depicted in visually complex scenes, and were asked to provide their own guesses, allowing us to additionally examine the influence of group membership on children's guesses. Although group membership influenced children's guesses, such that children's guesses were higher when in-group guesses were high, across two experiments (N=83; N=82), we found no evidence that group membership influenced talker identification and recognition.

Abstracts

#251: Drawing as an Encoding Tool: Generalizing to Emotional and More Complex Stimuli by Sophia Tran, Myra Fernandes

Drawing, as an encoding strategy has been shown to provide robust memory benefits. Past research has also shown that emotional compared to neutral information is typically better remembered. We examined whether the drawing and emotionality effects would interact. We presented participants with positive, negative, and neutral words (in experiment 1), neutral sentences (in experiment 2a), and emotional ones (in experiment 2b). Participants were asked to either write out or draw a picture of the item, with encoding type intermixed, in random order. Participants were later given two minutes to recall as many items as possible in written format. In experiment 1, recall accuracy was higher for words drawn than written, and the magnitude of the boost was enhanced for negative compared to neutral words. In experiments 2 and 2b, recall was higher for sentences that participants drew at encoding. Our findings suggest that drawing and emotional valence independently enhance memory.

#252: Sleep impairs memory in a patient with anterograde amnesia by Nelly Matorina, James Drake, Donald Mabbott, Morgan Barense

Sleep benefits episodic memory (Aly & Moscovitch, 2010). Recent evidence suggests that hippocampal damage affects sleep physiology (Spanò et al., 2020), but there is limited evidence regarding how sleep affects episodic memory in those with hippocampal system damage. We tested an amnesic patient (C.T.), who underwent surgery for a low-grade intraventricular septum tumour. The tumour was immediately above both fornices and appeared to invade the right fornix. Following diagnosis and an incomplete tumour excision, C.T. experienced memory loss, which – paradoxically – was exacerbated by sleep. C.T. watched two episodes of a TV show on two consecutive days with a 100-minute interval between study and test, during which C.T. either napped or stayed awake. C.T. was able to recall details of the episode if she remained awake, but was unable to remember any details if she had slept. These data suggest that the fornix is required to support sleep-dependent episodic memory consolidation.

#253: Assessing psychosocial stressors, sex, and menstrual cycle phase in a monetary risk task by Cinthia Tao, Ashmita Mazumder, Suzanne Erb

Risky decisions are often accompanied by stress, though the impact of stress on risk-related behaviours is inconclusive. The present study compared the effects of two acute psychosocial stressors, the Trier Social Stress Test (TSST) and Montreal Imaging Stress Test (MIST), on performance in the Balloon Analogue Risk Task (BART), a well-validated measure of monetary risk. Importantly, we also considered sex and menstrual cycle phase as factors in this relationship. A sample of emerging adults (n = 495) underwent the TSST, MIST, or a no-stress control task before completing the BART. This study used a more nuanced measure of risk to account for intraindividual variability: the coefficient of variance (CV). We found global effects of stress, sex, and menstrual cycle phase on risk aversion, though the expected interaction between stress and sex was absent. Overall, our findings support the individual influences of acute psychosocial stress and sex on risk-related behaviours.

Abstracts

#254: Challenges Underlying Replicability For Complex Tasks During Online Testing by Elizabeth M. Clancy, Mark J. Fenske

The COVID-19 global pandemic forced many researchers to switch from in-person testing to online-only data collection. Here we report the results of an experiment investigating the affective consequences of task switching that directly compares data obtained from a pre-pandemic in-person sample (N = 97) with that from a separate pandemic-era online-only sample (N = 272). Ratings of art-like patterns that had just appeared on key trials of a task-switching paradigm (ABA vs CBA sequences) showed behavioural evidence of backward inhibition, while the stimuli from trials showing backward inhibition received more negative affective ratings than those from other trials. However, whereas this pattern of results was evident in the entire in-person sample, it was only evident in a subset of online-only participants (N=146) who also reported high task engagement and no external distractions in a post-experiment questionnaire. This underscores the importance of incorporating attention and other checks in online-format cognitive-behavioural experiments.

#255: Clark's nutcrackers (Nucifraga columbiana) process featural and geometric cues using either brain hemisphere by Breanna Cheri, Debbie M. Kelly

Clark's nutcrackers use geometric and featural cues when reorienting in an environment. However, the extent to which spatial cues are processed by the two brain hemispheres remains unknown. Although previous research has shown different patterns across avian species (Tommasi & Vallortigara, 2001; Wilzeck et al., 2009). In the current study, nutcrackers were examined for hemispheric specialization when using geometric and featural cues. Two groups learned to locate a target in a featureless fully-enclosed square arena, or an identical arena containing a central feature. Once accurate searching was established, the geometric or featural cues were manipulated, under binocular and monocular viewing conditions. Our results support that nutcrackers encoded geometric and featural cues similarly using either hemisphere, but showed a preference to rely on features. When presented with a conflict between absolute versus relative metric information, nutcrackers searched for the goal by interpolating the two sources of information.

#256: When Familiarity Not Novelty Motivates Information-Seeking by Hannah Whitehead, Gregory Brooks, Stefan Köhler

Research has shown that both novelty and familiarity in the environment can motivate information-seeking behaviour. What drives behavioural preferences on this dimension, however, remains unknown. Recent work in our lab revealed that feeling-of-knowing (FOK) experiences during memory recall subsequently bias participants towards seeking out familiar information that they could not access. FOK experiences reflect a subjective prediction about whether such information would still be recognized if shown. Here we address whether the observed familiarity bias in information-seeking arises because of the predictive nature of FOK memory judgements or because of the unsuccessful recall attempt that typically precedes them. Results show that when participants were asked to make a recall attempt and that recall attempt was unsuccessful they exhibited subsequent familiarity preferences, regardless of whether any prediction had to be made. We suggest that this bias reflects the engagement of motivational mechanisms tied to curiosity for inaccessible information.

Abstracts

#257: Relations Between Individual Differences in Working Memory and Order Judgements for Numerical Sequences by James Vellan, Lauren Brown, Jo-Anne Lefevre

We attempted to replicate Lyons and Beilock (2009: Experiment 2; L&B) in an online environment. Participants completed two working memory measures and an order judgment task. In the order judgment task, participants were shown three types of sequences and asked to decide if they were in increasing order, counting (e.g., 1 2 3 vs. 2 1 3), balanced (e.g., 2 4 6 vs. 6 2 4), and skewed (e.g., 1 2 7 vs. 2 7 1). Consistent with L&B, participants responded more slowly to unordered than ordered sequences. However, in contrast to L&B, working memory was only related to performance on skewed and not on balanced sequences. Participants with high working memory had greater error rates and response times for ordered than for unordered sequences. We discuss potential sources of the discrepancies between L&B and the current results in terms of stimuli, task demands, and the online format.

#258: Offloading memory does not reduce the benefit of list categorization by Xinyi Lu, Megan Kelly, Evan Risko

When we can offload to-be-remembered information to an external store, our ability to recall that information from internal memory can be diminished. However, previous research has suggested that memory for semantic or thematic information may remain intact in the face of offloading behavior. Across six experiments, we examined how the opportunity to offload memory demands affects the benefit of list categorization in free recall. When participants expected to have access to their written lists during recall (i.e., could offload) but were not given access to it, we found that the benefit of categorization for recall was the same size or larger than a condition where participants did not expect to have access to their written lists during the recall test (i.e., could not offload). We propose that the opportunity to offload may reduce memory for verbatim item-level information to a greater degree than gist memory supported by semantic associations.

#259: Cognition and well-being during the COVID-19 pandemic: unique events enhance episodic richness, mood, and temporal context of life experiences by Melissa Meade, Miranda Chang, Katarina Savel, Bryan Hong, Chris Martin, Morgan Barense

We examined how actively engaging in unique, relative to routine, events during an uneventful period of COVID-19 isolation enhances memory, mood, and ability to place experiences in a temporal context. Using a smartphone-based application called the “HippoCamera”, memory cues of daily life events were captured by recording short videos, which were then replayed by participants. Over an 8-week period we interleaved weeks of “active replay” (recorded and replayed unique events) and “hidden control” (recorded routine events which were not replayed). Unique events were recalled in more episodic detail and were more accurately placed in a temporal context. On days with unique events, participants experienced increased positive affect, increased mindfulness, decreased boredom, and perceived time to go by faster compared to routine days. We suggest that this improved memory for events within a temporal context provides a sense of normalcy and enhanced well-being in an otherwise uneventful period of isolation.

Abstracts

#260: The Perceived Predictability of Immoral Actors Guides Judgments of their Moral Character by Alexander Walker, Martin Turpin, Jonathan Fugelsang, Michal Bialek

The current study demonstrates the role that perceptions of predictability play in judgments of moral character. Across five studies (N = 2,408), participants judged agents performing an immoral action (e.g., assault) for an unintelligible reason as less predictable and less moral than agents performing the same immoral action, along with an additional immoral action (e.g., theft), for a well-understood immoral reason. Additionally, participants judged agents performing immoral actions in an unusual way as less predictable and less moral than those performing the same immoral actions in a more common manner. The present research demonstrates how immoral actions performed without a clear motive or in an unpredictable manner are perceived to be especially indicative of poor moral character. In revealing peoples' moral preference for predictable immoral actors, we propose that perceptions of predictability play an important, yet overlooked, role in judgments of moral character.

#261: Age Differences in the Phenomenological Experience for Highly Emotional Public and Personal Events by Cheryl Techentin, Naomi Phung, David R Cann, Malinda Desjarlais

As typical examples of flashbulb memories (e.g., death of Princess Diana, 9-11, etc.) are more remote, it raises the question if the phenomenological experience of younger individuals' memories for highly emotional events are similar to previous generations. The present study compared the type and quality of memories in across different age groups. Participants were asked to report a memory for both a public and personal emotional event and completed the Memory Experiences Questionnaire (MEQ) for each event. Younger adults reported higher phenomenological experiences than older participants on the MEQ for both public and personal events. A significant age difference was also found for the time elapsed since the reported event. Discussion focuses on the types and recency of events reported in both the young and older participants.

#262: Grey matter plasticity in international adoptees: Effects of early language exposure by Stephanie Deschamps, Jen-Kai Chen, Lara Pierce, Fred Genesee, Shari Baum, Denise Klein

Here, we compared the grey matter volume of three groups of speakers: 1) International Adoptees (IA) originally born in China (during which they were exposed to Chinese) and adopted into French-speaking families, subsequently discontinuing their birth language for the new language of their adopted family, 2) bilingual Chinese-French speakers, and 3) monolingual French speakers. Our results revealed a significant difference in grey matter volume in the left planum temporale (PT) between the bilingual and the monolingual groups ($p = 0.02$), with the bilinguals having greater volume compared to the monolinguals. Interestingly, the left PT grey matter volume of the IA group was found to fall between those of the monolinguals and the bilinguals. This suggests that early but discontinued exposure to a language during infancy modulates brain structures well into adulthood, although to a lesser degree than does maintained exposure to the language

Abstracts

#263: The Effects of Imagery on Recognition Memory for Pictures and Sounds by Savannah A. Tremblay, Marium H. Alvi, Fahad N. Ahmad, Michael D. Karkuszewski, William E. Hockley

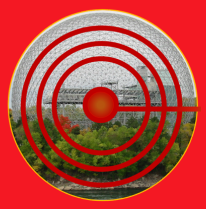
We examined the mechanism for the superior recognition memory of pictures compared to sounds in a yes-no recognition test. For Experiment 1, we showed that recognition memory was higher for pictures than sounds, replicating previous results. For Experiment 2, we investigated if imagery would reduce the superior recognition memory for pictures. During the test phase, participants were asked to visualize the studied stimulus and provide a rating of vividness for their mental image of the studied picture or sound. Imagery did not enhance recognition memory for sounds. Overall vividness ratings were higher for pictures compared to sounds. Importantly, mean vividness ratings were greater for accurately recognized pictures than sounds. We suggest that pictures may be more vividly retrieved from memory than sounds in a recognition test leading to more accurate recognition memory for pictures than sounds.

#264: Children's learning of second language words and sensitivity to fine-grained phonetic detail by Félix Desmeules-Trudel, Elizabeth Johnson, Craig Chambers

A second language (L2) can contain sounds that do not exist in a learner's native language (L1). We investigated the consequences of this for word learning in childhood, using a task where five-year-olds differentiated nonwords containing nasal vowels (like in the real French word bain 'bathtub') and oral vowels followed by nasal consonants (like beigne 'doughnut'), found in French but not English. We also explored sensitivity to the relevant phonetic cue (duration of nasalization) by varying its duration along a continuum. Participants (ongoing data collection) successfully learned to differentiate nonwords. French-speaking controls (N=18) displayed categorical patterns of recognition, perhaps because they use nasal vowels in their L1. English-speaking children (N=13) were less able to differentiate nonwords, but were overall more sensitive to phonetic variations. This highlights how children's L1 impacts L2 learning and recognition abilities, and crucially shows that L2 learners use very fine-grained phonetic cues for L2 word recognition.

#265: Morphological Processing of Ambiguous Trimorphemic Words by Foveal Split by Kyan Salehi, Roberto de Almeida

We investigated the early morphological analysis of ambiguous trimorphemic words (i.e., unlockable) using red/blue anaglyph glasses and coloring different word segments. The stimuli were presented in five color combinations, with retinotopic projections following different visual pathways: black (both pathways), red/blue (ipsilateral pathways), blue/red (contralateral pathways), red/blue/red and blue/red/blue. The red/blue and blue/red conditions allowed for splitting the word at a morpheme boundary (legally split: prefix-stripping and suffix-stripping; e.g., UN+LOCKABLE and UNLOCK+ABLE) or in the middle of the root (illegally split; e.g., UNLO+CKABLE). The red/blue/red and blue/red/blue color combinations isolated the root from its affixes, reflecting an affix-stripping parse. Participants performed a masked lexical decision task with stimuli presented at 133 milliseconds. Preliminary analyses of accuracy demonstrate an advantage for the prefix- and affix-stripping condition over the suffix-stripping condition. We interpret these findings to suggest an early preference for the right-branching structure of ambiguous trimorphemic words over the left-branching structure.



Abstracts

#266: To pay or just play? Examining individual differences between purchasers and earners of loot boxes in Overwatch by Chanel Larche, Katrina Chini, Mike Dixon

Video-game loot boxes are a popular form of microtransaction that have been widely criticized for their structural similarities to gambling. This pre-registered study explores gambling, gaming and loot box-related harms between loot box purchasers and loot-box earners (i.e., "grinders") in the scope of the game Overwatch. We found that loot box purchasers experienced greater video-game related expenditure harms, risky loot box use, impulsivity related to planning and reward reactivity in comparison to loot box earners. Surprisingly, Overwatch loot box earners displayed greater gambling-related harms and there were no differences in general problem video-gaming between the two groups. Our results suggest that the relationship between loot box purchasing and gambling is in need of refined examination. Particularly, our results indicate that potential harms stemming from loot box engagement should be assessed on a game-by-game basis in order to better understand the potentially problematic nature of loot box use.

#267: Cardiac function in the cockpit: Is it a reliable, objective indicator of pilot workload? by Samuel Clement-Coulson, Alaa Boutella, Ramiya Veluppillai, Aaron Johnson

Cardiac function (measured by heart rate and heart rate variability) have been investigated as objective measures of workload by comparing cardiac function between different tasks. However, few studies have investigated whether cardiac function measures can detect workload changes between similar tasks with different levels of difficulty in an ecologically-valid airplane cockpit environment. The present study aims to clarify the changes in objective workload measures (heart rate, heart rate variability) across different airplane manoeuvre types and difficulty. Pilots flew a scenario consisting of a take-off, normal turn, simple stall, steep turn, and complex stall while wearing a portable electrocardiogram and completing a subjective workload questionnaire after each task. Our findings suggest that cardiac measures are sensitive to workload changes linked to manoeuvre type, but not task difficulty.

#268: Individual differences in how reward associations affect Stroop performance by Brent Pitchford, Karen Arnell

Reward-associated stimuli can elicit improved performance when they are relevant to the task but can elicit impaired performance when they are irrelevant. A modified colour Stroop paradigm was performed where two of four ink colours were rewarded if participants responded fast enough when the word appeared on the screen. Overall, responses were faster when words were presented in reward-associated ink suggesting that individuals were responsive to reward. Responses were slower when the reward-associated colour was the word meaning instead (e.g., the word RED in blue ink where red was a reward-associated font). This has been described previously as the modulation of interference by reward associations (MIRA) of word meanings. Individual differences in behavioural measures of reward responsiveness were reliable across 4 weeks while individual differences in MIRA - a potential behavioural marker of trait Self-Control - were not, suggesting that MIRA should not be used as an individual difference measure.

Abstracts

#269: Switching off the need for the hippocampus by Daniel McCallum, Kassidy Roberts, Michael Reynolds, Hugo Lehmann

Damage to the hippocampus typically results in retrograde amnesia for context fear memories. However, distributed learning can make a context fear memory become stronger and less vulnerable to hippocampal damage, suggesting a greater memory trace in non-hippocampal memory networks. This transition is thought to involve an incremental (linear) change in the trace outside the hippocampus with each new learning episode, but the transition could involve a sudden switch (threshold; nonlinear sigmoidal). To examine the transition process, rats received sham or hippocampal lesions after being trained in contextual fear conditioning using different distributed learning protocols (i.e., 2, 4, 6, 8, 10 conditioning sessions). It was found, during the retention test, that the transition occurs between the second and sixth conditioning session. Having now identified this transition window, current analyses are focused within it to determine whether the process is incremental or threshold-based for individual lesion cases.

#270: Structure and function of hippocampal dentations among healthy young adults by Margret Lo, Ariana Bujold, Julia ten Hove, Jordan Poppenk

We applied a novel manual labeling approach of hippocampal dentations, yielding more details and enhanced precision over holistic measurement. Drawing on healthy young adults, we provide an anatomical and functional characterization with the highest-resolution scans used for this purpose. Dentations varied widely, but were not explained by sex or age. Within-subjects, we found more in the left hemisphere than right, and linked this asymmetry to handedness. We found smaller and denser dentations towards the hippocampus' posterior extent. All dentations lay within in CA1, which was thicker at dentations, protruding downwards below the typical standard space boundary of the hippocampus. We were unable to replicate positive associations between dentations and verbal or visual recognition, but we did observe an association between dentations and visual source memory; and participants with more dentations were biased towards "know" responses. Our protocol serves as a reference point for study of this intriguing neuroanatomical feature."

#271: From the hippocampus to another memory network within a learning day by Shannon Smith, Daniel McCallum, Kassidy Roberts, Michael Reynolds, Hugo Lehmann

A context fear memory typically requires the hippocampus, but distributed learning episodes over a number of days (e.g., three days) can make a context fear memory become hippocampal independent and more strongly represented in non-hippocampal memory networks. It is unknown, however, whether this increased trace in non-hippocampal networks can be achieved within a single learning day. To examine this possibility, rats received contextual fear conditioning sessions within a single day or over three days, followed by sham surgery or complete hippocampal lesions. Post-recovery, when the rats were returned to the context for a retention test, all groups showed high levels of freezing and no significant differences were found between the lesion and control groups. These findings suggest that distributed learning over the course of a single day can make a context memory become independent of the hippocampus.

Abstracts

#272: Exploring the Cause of Age Decrements in Visual but not Auditory Cue-based Prospective Memory by Oluchi Audu, Kathleen Van Benthem, Chris Herdman

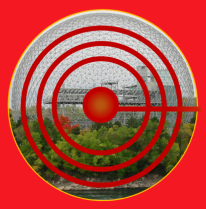
Prospective memory failures in pilots can have catastrophic results, yet the reasons for poor prospective memory are not well-understood. For example, researchers have observed age decrements in visual but not auditory cue-based prospective memory in licensed pilots. Prospective memory relies on monitoring of the environment for cues, thus, factors including age and workload may interfere with monitoring and cause cue detection failures. The present work explored pilot monitoring ability using the NASA Multi-Attribute Battery - II (MATB-II) with a sample of 47 pilots. Results showed main effects of age and workload on visual monitoring, with the strongest negative effects of age seen in the tracking and system monitoring tasks. In contrast, both age groups performed well for auditory monitoring. Findings suggest that visual monitoring deficits during multitasking could be exacerbated by older age and may account for the deleterious effect of age seen in visually-cued prospective memory tasks.

#273: Structure Can Predict Function in the Human Brain: A Graph Neural Network Deep Learning Model of Functional Connectivity and Centrality Based on Structural Connectivity by Josh Neudorf, Shaylyn Kress, Ron Borowsky

Although functional connectivity and associated graph theory measures (e.g., centrality - how centrally important to the network a region is) are widely used in brain research, the full extent to which these measures are related to the underlying structural connectivity is not yet fully understood. The most successful whole-brain methods have accounted for 36% of the variance in functional connectivity based on structural connectivity. Graph neural network deep learning models offer an ideal model architecture for predicting connectivity given the maintenance of inherent network structure. The variance accounted for by structural connectivity in this model was 81% for functional connectivity, and 99% for functional centrality. Regions of importance to the model's performance confirmed that regions with higher centrality have greater impact on performance. This new benchmark may ultimately lead to a way to predict functional connectivity in individuals who are unable to do fMRI tasks (e.g., non-responsive patients).

#274: Can proactive control facilitate selective attention?: Evidence from a two-target method by Sevda Montakhaby, Ellen MacLellan, David Shore, Bruce Milliken

Selective attention to task relevant information is essential for successful behavior when both relevant and irrelevant information is perceived. In this study, we examined whether proactive preparation to attend selectively influences its efficiency. Participants performed a two-target task, in which a first target word (T1) was followed in quick succession by another target word (T2). T1 was presented alone (no-selection trials) or interleaved with a distractor word (selection trials), while T2 was a single pattern masked word. Prior research using this method has demonstrated a pronounced attentional blink effect for selection trials only. Preparation to attend selectively was manipulated by cueing in advance of each two-target trial whether T1 would or would not require selective attention. The results did reveal a cueing effect. However, this proactive control effect on selective attention was remarkably small in magnitude, and only significant when informative and uninformative cues were randomly intermixed.



Abstracts

#275: Eye spy: Gaze communication and deception in a visual hide-and-seek task by Jacob Gerlofs, Nicola Anderson, Alan Kingstone

Gaze behaviour is an important component of successful social interactions. Existing research on social gaze and attention has largely focused on gaze detection and following, and not on how gaze is used to communicate and how gaze can be interpreted. The present study sought to address this in two related experiments. First, "hiders" were eye-tracked while they selected hiding places among a grid of boxes on a computer screen, sometimes being prompted to communicate hiding locations with their eyes and sometimes being prompted to deceive. Second, another group of participants – "seekers" - were asked to guess where hiders have hidden their object after viewing a play-back of hider's fixations. Compared to control conditions, we found that seekers were more accurate when hiders were trying to communicate, but below chance when hiders were being deceptive. The results empirically demonstrate that gaze can be used strategically, and successfully, to facilitate communication or deception.

#276: Don't take it at face value: The effect of external store availability on predicted and actual value-directed recall by Joyce Park, Megan Kelly, Evan Risko, Mary Hargis

We examine how the availability of an external memory store influences actual and metacognitive predictions of memory performance for information differing in value. We presented participants with to-be-remembered words, each paired with a high or low value and assessed predicted and actual recall across two conditions: individuals told at encoding that (1) they would have access to their external store at test or (2) they would not. Critically, all participants completed the recall test without access. Across four pre-registered experiments, we found no significant difference between memory for high and low value items when participants were told that they could rely on the store pointing to differential encoding of valuable information when external stores are available. In addition, participants' metacognitive judgments revealed a perception that retrieving without access to an external store would be costly, while the effect of value on these judgments was inconsistent.

#277: Structure and function of hippocampal digitations among healthy young adults by Ariana Bujold, Margret Lo, Jordan Poppenk

Even less well understood than hippocampal dentations are digitations, or "bumps" that fall on the superior surface of the hippocampal head. We applied a novel manual labeling approach to quantify the prevalence of these structures in a healthy sample of young adults. We observed an even distribution of digitation counts and heights across hemispheres. Most digitations fell in the middle portion of the hippocampal head, with digitations appearing more posteriorly in the left hemisphere than in the right. In terms of cognitive associations, we observed a moderate positive association between the sensitivity of picking "know" or "remember" to targets over lures and left hippocampal digitation count in a verbal recognition task; and a moderate negative relationship between "remember" responses and left hippocampal digitation count in a visual recognition task. Analyses revealed digitation and dentation counts to be independent, highlighting the need to investigate digitations as separate structures from dentations.

Abstracts

#278: How Much is Enough? Exploring the Effects of Display Time on the Recognition of Facial Expressions of Emotion by Justin Chamberland, Houssein Chahrour, Charles Collin

The ability to recognize facial expressions of emotion has previously been demonstrated to be influenced by the presentation duration of the expression stimulus. However, it is still unclear how this effect varies across emotions. The current study sought to explore these differences using three stimulus presentation durations (500, 1000, and 2000 ms) and stimuli showing six basic emotions, which were serially inserted between two neutral face masks. Results revealed a significant interaction between the category of expressed emotion and its display duration, where only some emotions displayed recognition benefits from longer display times. Specifically, improved recognition rates were only observed with expressions of anger, disgust, and fear, while the remaining emotions displayed no such benefits. These results are in contradiction to prior literature and suggest recognition rates do not plateau with durations greater than 500 ms—not for all types of expressed emotion at least.

#279: As soon as you recognize the dog, you know it's an animal: Investigating conceptual representations through rapid object categorization by Caitlyn Antal, Roberto G. de Almeida

We investigated the nature of object recognition using a picture-word congruency task with brief exposures (50-200ms), while participants wore anaglyph glasses. Anaglyphs allowed us to investigate the role of early posterior visual projections during object and word recognition, by projecting words (coloured red) to the left hemisphere and pictures (blue) to the right hemisphere, using either ipsilateral or contralateral pathways. For each picture, one of four word probes was presented for congruency decision: the basic level category label of the picture (dog), a high-prototypical (bark), low-prototypical (fur), or superordinate feature (animal). Preliminary results suggest that, at 50 ms, object names and superordinate features yield shorter response times and greater accuracy than high- and low-prototypical features. Results also show greater accuracy for word probes projected to the left hemisphere via ipsilateral visual pathways. We suggest that concept tokening relies on non-decompositional processes, whereby conceptual features are processed only after conceptual access.

#280: The Influence of Environmental Symmetry on Adult Reorientation Strategies by Iroshini Gunasekera, Debbie Kelly

This study examined whether environmental symmetry influences the use of featural and geometric cues when adults reorient in one of two octagonal arenas. The arenas contained a distinct feature, but different geometric information. One arena was bilaterally symmetrical along the main dividing axis, whereas the other was bilaterally asymmetrical. Adult participants searched for a hidden target, located in one of the eight corners, in one of the arenas. Reorientation using only geometry was examined by removing the feature (Geometry Only test). The relative weighing of the featural and geometric information was examined through a conflict situation by moving the feature (One-Move Cue Conflict and Two-Move Cue Conflict tests). Sex differences in the use of these cues for reorientation was also examined. Results showed that environmental symmetry influenced cue reliance. Test order influenced the use of featural and geometric cues during cue conflict. Overall, a significant sex difference was not found.

Abstracts

#281: Right on the Money: Financial Literacy of University Students by Aura Pop, Marcie Penner

Financial literacy is important, especially in times of financial stress, because individuals are required to make complex decisions about debt management and financial goals. However, financial literacy interventions do not meaningfully improve financial behaviours, indicating other variables influence financial behaviours. In the current study, the relations among financial knowledge, financial behaviours and numeracy were investigated. Numeracy was examined using both objective and subjective numeracy. Additionally, we investigated both financial and math anxiety as predictors of financial literacy measures. Eighty-seven university students completed the study with measures assessing financial knowledge, financial behaviours, numerical ability, arithmetic, subjective numeracy, math anxiety, and financial anxiety. All numeracy measures, and math anxiety, predicted financial knowledge; when examined together only subjective numeracy was a unique predictor of financial knowledge. Only financial anxiety significantly predicted financial behaviours; numeracy and financial behaviours were unrelated. The current findings further illustrate the disconnect between financial knowledge and financial behaviours.

#282: A killer or a piece of cake? How ease of understanding contributes to metaphor judgement by Parastoo Harati, Rachel Mustaklem, Chris Westbury

Despite the intricate nature of metaphor, ample research suggests that healthy individuals seem to treat them no different from their literal counterparts when it comes to comprehension. However, the role of ease of understanding in computationally modelling metaphors has not received the attention it deserves. Building on the foundation of Kintsch's (2000) predication algorithm, we modelled goodness judgments in a previous study (Harati et al., 2021). In this study, we assessed and extended our model's performance when dealing with ease of understanding of metaphors. 129 pairs of novel metaphors of the form "x is a y" were chosen from the battery, where ease of understanding was rated using best/worst judgements (see Harati et al., 2021). We used a linear mixed-effects model to analyse the data. The model's ease-of-understanding estimate reliably predicted human judgment, as participants chose the easier metaphor faster than the one further apart in terms of this measure.

#283: G protein-coupled estrogen receptor-1 activation potentiates excitatory synaptic transmission in the superficial layers of the entorhinal cortex by Ariel Batallán Burrowes

Estrogens and progestogens are thought to affect hippocampal-dependent cognition via changes in excitatory and inhibitory synaptic transmission. The entorhinal cortex provides considerable cortical sensory and associational inputs to the hippocampus, but it is unclear if estrogens and progestogens can also affect the entorhinal cortex. The present study assessed the effect of brief 17-β estradiol (E2) and progesterone exposure on synaptic transmission in the entorhinal cortex of ovariectomized female rats using excitatory postsynaptic field potential (fEPSP) amplitudes in vitro. Acute exposure to E2 or the G protein-coupled estrogen receptor-1 (GPER1) agonist, G1, increased fEPSP amplitudes. The effect of E2 was blocked by the GPER1 antagonist G15. Selective activation of estrogen receptors **α** and β did not change fEPSP amplitudes, nor did exposure to progesterone or allopregnanolone. The E2-induced potentiation of synaptic transmission supports the contribution of estrogen to cognitive function in the entorhinal cortex.

Abstracts

#284: Examining the Influence of Conformity on Attention in an Online Classroom by Simrandeep Kalsi, Noah Forrin, Faria Sana, Joseph Kim, Colin MacLeod

Prior research suggests that attention contagion—the spread of (in)attentive states between members of a group—occurs within in-person classrooms. Our objective was to examine whether attention contagion also occurs during live online lectures. In an online classroom, participants (undergraduate students) watched a pre-recorded lecture along with confederates who either modeled attentive or inattentive behaviours. Participants and confederates had their webcams on during the lecture. Overall, we found consistent evidence of attention contagion. Additionally, we assessed the extent to which publicness (e.g., the extent to which a participant felt like others were watching them) affected participants' attentiveness. Feelings of publicness were related to less phone use during the lecture and were more likely to arise when participants perceived the confederates as being highly motivated. Altogether, instructors should encourage their students to turn their webcams on (when possible) to promote adherence to the norms of attentive behaviour in the classroom.

#285: Sensory attenuation distinguishes self- from other-produced sounds in joint action by Nicole Bolt, Janeen Loehr

Successful human interaction relies on people's ability to differentiate between the sensory consequences caused by their own and others' actions. One potential mechanism of this self-other differentiation is sensory attenuation, the reduced neural processing of sounds produced by one's own actions compared to sounds produced by an external source. However, little research has investigated sensory attenuation when two people coordinate their actions towards a shared goal. In a series of studies, we investigated whether sensory attenuation of auditory event-related potentials (ERPs) differentiates self- and other-produced tones in a joint sequence production task. In Experiment 1, we provide evidence of sensory attenuation for self- compared to partner-produced tones in joint action. In Experiment 2, we replicate our findings and show that increased attention in the joint task also influences auditory processing alongside sensory attenuation. Together, these studies show that sensory attenuation differentiates between self- and other-produced sounds during joint action.

#286: Mistakes Increase the Sense of Agency: Evidence from Intentional Binding by Michael Jenkins, Sukhvinder Obhi

Mistakes can be interpreted as negative, but also as opportunities for self-improvement. This is relevant for the sense of agency, that is, the experience of influencing the world through our actions. Agency is related to action monitoring and is associated with cognitive processes that are enhanced for mistakes, suggesting mistakes boost agency. However, mistakes are often revealed by negative feedback, which can reduce agency. We aimed to isolate the effect of perceiving an action as a mistake before experiencing its consequence. We induced mistakes using a novel bug-splatting game with unpredictably changing stimuli, and measured implicit agency via the intentional binding paradigm, whereby action-outcome intervals are perceived as shorter when agency is high. Participants reported shorter action-outcome intervals when stimuli changed just before their action, but only when this change induced a mistake according to the game's rules. This suggests that high-level perception of actions as mistakes boosts agency.

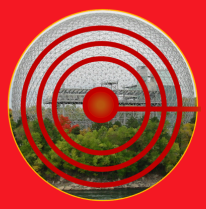
Abstracts

#288: Singing skills of members of a choir for persons with Parkinson's Disease: Pitch accuracy and ability to improvise an ending by Kristin Gallant, Emma Campbell, Annabel Cohen

Parkinson's Disease (PD), a degenerative neurological disorder, impacts gross and fine motor co-ordination, often including that for speech production. Singing employs the same neuromuscular system as that underlying speech but has more precise acoustic goals. We examined vocal performance of 4 persons with PD on 7 online vocal tasks on 2 occasions. All persons belonged to a PD choir but differed in years attending. Pitch accuracy was within a semitone on the simplest task (sol mi mi sol mi), but on a complex task, less music experience was associated with less accuracy despite an average of 5 years shorter incidence of PD. All persons were able to improvise the ending of a melody, consistent with a link between PD and creativity. The results suggest that monitoring singing skills provides a means of tracking both an audio-motoric aspect of PD progression and the impact of prior or current vocal music experience.

#289: A "Likely" Quantity is a "Most Likely" Quantity, But Not as Likely as We Like to Think by Karl Teigen, Marie Juanchich, Erik Løhre

Research on verbal probabilities and standard scales issued by IPCC, NATO and other authorities indicate that only probabilities above 60% should be described as "likely". We find, in contrast, that when people apply this term to continuous quantities, like expected costs, it describes the most likely (modal) outcome or a central range, regardless of actual probabilities, which may be quite small. This was demonstrated in five studies in which lay participants were shown bell-shaped probability distributions from various domains and were asked to provide or to select "likely" outcome intervals. They also gave numeric estimates of probabilities of these intervals. Participants neglected numeric and graphically displayed information, and considered central, narrow but representative outcomes as "likely" (as opposed to much larger intervals in the tails) We conclude that the p > .6-interpretation of "likely" is only valid for binary outcomes but not for continuous quantities.



Abstracts

#290: Gesture influences resolution of ambiguous contrasting statements by Jennifer Hinnell, Fey Parrill

To address the importance of gesture as a cue in reference resolution, we investigate the comprehension ofgestures that index abstract referents, namely expressions of preference. Scenarios like (1) were recorded with audiovideo stimuli in two conditions: a gesture-disambiguating version (GD) and a gesture non-disambiguating version (GND). Findings based on mixed model logistic regression suggest that participants choose the A statement 70% of the time when it co-occurred with a gesture, in contrast to the audio only and GND conditions. The key finding is that the co-articulation of a gesture influenced how participants interpreted the speaker's preferences, contributing to our understanding of gesture's role in discourse processing and reference resolution (Goodrich Smith & Hudson Kam 2012; Debreslioska et. al 2019; authors 2020).(1)Toni says pizza is best with pineapple (A). On the other hand (concessive), Marco really prefers more traditional pizza (B). I think he's right (preference).

#291: The role of the body in production, enactment, and drawing effects by Heath Matheson, Jonathan Fawcett

Across domains, performing an action during one task (e.g., encoding) results in superior performance in reproducing information later (e.g., retrieval). These robust effects of production or enactment all implicate the importance of the body for skilled cognitive performance. Though numerous approaches within the respective literatures of these effects acknowledge this, there remains little integration of the theoretical accounts. Recent developments in embodied and grounded cognition have resulted in several informal and formal theoretical models that help account for these effects, and in doing so present new opportunities for understanding their nature and their relationships to other cognitive domains. Further, by committing to specific ideas about the body and its role in mental and neural representation, these embodied and grounded theories offer new insights into the ontology of cognition—challenging many traditional views of memory itself—and our explanations of it.

#292: Can we change how people reason? by Henry Markovits, Valerie Thompson

The Dual strategy model of reasoning claims that people use one of two reasoning strategies: a Statistical strategy which uses rapid associative access to a wide variety of information in order to generate the likelihood of a potential conclusion or a Counterexample strategy that uses a more focused representation that is particularly sensitive to counterexamples to conclusions. We examined whether giving people explicit instructions to reason either probabilistically or by looking for counterexamples would modify how they reason on an unrelated task. In two studies, we found that reasoning strategy was a strong determinant of how successful people were at following these instructions: Statistical reasoners were twice as successful at following probabilistic instructions, while Counterexample reasoners were twice as successful at following counterexample instructions. There was no evidence that instructions changed how people reasoned subsequently, but there was evidence that people who were successful in following instructions were better reasoners.

Abstracts

#293: Your Earliest Memories – Probably Earlier and More Numerous Than You Think by Carole Peterson

People's earliest memory has long been identified as around age 3½. Yet recent research has challenged this. I have re-analyzed more than 20 years of childhood amnesia data collected from children, adolescents, and adults in my laboratory, and these re-analyses clearly show that there is not a single watershed memory that is a person's 'earliest.' Rather, it is methodologically easy to elicit much earlier memories. Specifically, the date of one's earliest memory depends on (a) how many memories were requested when asked for "your earliest memory,' (b) the type of interview, (c) prior tasks done by the participants, and (d) which memory comes to the fore at any given time when multiple tasks are used. In addition, (e) systematic telescoping errors commonly result in people dating memories of events that had occurred prior to age 4 to older ages, i.e., they think they were older than their parents assert.

#294: The influence of similarity within pictures and sounds on recognition memory by Michael D. Karkuszewski, Fahad N. Ahmad, Marium H. Alvi, Savannah A. Tremblay, William E. Hockley

We investigated whether superior recognition memory for pictures over sounds is due to higher judged similarity for sounds compared to pictures. From Experiment 1, we showed that accuracy was higher for pictures than sounds in both exemplar and novel test conditions of a forced-choice recognition test. In three experiments, the degree of similarity of pictures and sounds in the exemplar and novel conditions was rated by participants. In Experiment 2A, instructions on perceptual and semantic similarity were provided. In Experiment 2B, labels for pictures and sounds were also presented. Finally, in Experiment 2C, there were no instructions or labels. All three experiments showed that pictures had higher similarity ratings than sounds in the exemplar condition. The higher recognition memory for pictures compared to sounds cannot be due to greater similarity for sounds. In similarity judgments, different weightings of perceptual and conceptual similarity for sounds and pictures may be present.