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LONDON MEETING

8-10 January 2020



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A scientific meeting will be held at the Department of Cognitive, Perceptual & Brain Sciences, University College London, 26 Bedford Way, London, WC1H 0AP, between 8 - 10 January 2020.

The local organiser is James Bisby.

President's Address

Thursday 9th January, 6:00pm

Integrated intelligence from distributed brain activity.

Professor John Duncan, University of Cambridge

Joint 2019 EPS / BSA Undergraduate Project Prize Winner Talk

Wednesday 8th January, 5:30 pm

Detachment from external influence.

Gwydion Williams, University College London

Local Symposium

Thursday 9th January, 1:30pm - 5:00pm

Cause and effect in action.

Organiser: Dr Daniel Yon

Poster sessions and drinks receptions

Due to the large number of posters, these will be displayed over two nights in conjunction with drinks receptions:

- Wednesday evening at 6:00pm in Room 305, with drinks being served in the Common Room 308 and
- Thursday evening at 7:00pm in the same place.

Delegates may put up posters from 5:00pm and should take them down by the end of the session.

Platform presentations

Sessions will be held in the Ground Floor and Lower Ground Floor Lecture Theatres. Both theatres have data projectors available for PowerPoint presentations. Presenters may provide their own laptops and connector leads, or bring USB keys for the on-site computers. Any queries about facilities in the theatres should be sent to the local organiser, James Bisby (j.bisby@ucl.ac.uk).

Conference Dinner

The conference dinner will be held on Thursday 9th January at 8:15pm at Tas restaurant, which is just a 10-15 minute walk from the meeting rooms. The restaurant address is 22 Bloomsbury Street, London, WC1B 3QJ.

The standard dinner cost for EPS members is £34.00 this year. Please note that postgraduates can book at a reduced fee of £17.00, but must provide evidence of their postgraduate status by emailing a letter from their supervisor (or a direct email from the supervisor) to the London organiser, James Bisby.

For full information, including menu choices and how to book, please see pages 70 – 71.

START OF PARALLEL SESSIONS

Session A

Lower Ground Floor Lecture Theatre

- 1:30 Ciro Civile, Emika Waguri*, Samantha Quaglia*, Brad Wooster*, Adam Curtis*, Aureliu Lavric and Ian McLaren** (University of Exeter) Using transcranial Direct Current Stimulation (tDCS) to modulate the Face Inversion Effect on the N170 Event-Related Potentials (ERPs) Component.
- 2:00 Holger Wiese, Andrew Young, Mike Burton** (Durham University, University of York) Recognising personally familiar and famous faces from highly variable images: Evidence from event-related brain potentials.
- 2:30 Jürgen Kaufmann* and Stefan Schweinberger** (Friedrich Schiller University of Jena, Germany) (Sponsor: Stefan Schweinberger) When distinctiveness hinders face learning: Evoking an other-“race” effect with selectively manipulated same-“race” faces.
- 3:00 Margaret Jackson** (University of Aberdeen) A ‘Situated Perspective’ account of emotional expression effects in face memory.
- 3:30 Tea / Coffee**
- 4:00 Mila Mileva*, Andrew Young, Rob Jenkins and Mike Burton** (University of York) (Sponsor: Mike Burton) Facial identity across the lifespan.
- 4:30 Ryan Jenkins*, Josh Davis, Claire Monks*, Stella Tsermentelli*, David Robertson*, Sarah Stevenage* and Ashley Symons*** (University of Greenwich, University of Strathclyde, University of Southampton) (Sponsor: Josh Davis) Super-recogniser face recognition ability predicts domain-specific superior performances with voices.
- 5:00 Stefan Schweinberger, Louisa Kirchen*, Celina von Eiff*, Jürgen Kaufmann*, Christine Wulf* and Verena Skuk*** (Friedrich Schiller University of Jena, Germany) Parameter-specific voice morphing reveals contributions of F0, timbre, and temporal cues to voice perception.
- 5:30 Lower Ground Floor Lecture Theatre - EPS/BSA 2019 Undergraduate Prize Talk Gwydion Williams** (University College London)
Detachment from external influence.
- 6:00 Posters and Drinks Reception**
Posters displayed in Room 305, with drinks served in Room 308 (Common Room)

START OF PARALLEL SESSIONS

Session B

Ground Floor Lecture Theatre

- 1:30** **Angie Makri* and Christopher Jarrold** (University of Nottingham, University of Bristol) (Sponsor: Christopher Jarrold) Deconstructing Enactment: The role of action-object bindings in aiding memory performance.
- 2:00** **James Randle*, Tim Hollins and Michael Verde** (University of Plymouth) (Sponsor: Tim Hollins) Joint contributions of constrained search and late monitoring to recall accuracy.
- 2:30** **Robert Udale*, Sanjay Manohar* and Masud Husain** (University of Oxford) (Sponsor: Masud Husain) Dynamic in-flight shifts of working memory resources across saccades.
- 3:00** **David Dickins*** (University of Liverpool) (Sponsor: Mark Haselgrove) Some new approaches to the genesis of stimulus equivalence relations.
- 3:30** **Tea / Coffee**
- 4:00** **Chiara Scarampi* and Sam Gilbert** (University College London) (Sponsor: Sam Gilbert) The effect of recent reminder setting on subsequent strategy and performance in a prospective memory task.
- 4:30** **Ruth Horry*, Ryan Fitzgerald* and Jamal Mansour** (Swansea University, Simon Fraser University, Canada, Queen Margaret University) (Sponsor: Jeremy Tree) “Only your first yes will count”: The impact of instructions on sequential line-up decisions.
- 5:00** **Philip Beaman** (University of Reading) How much do we orient? A systematic approach to auditory distraction.
- 5:30** **Lower Ground Floor Lecture Theatre - EPS/BSA 2019 Undergraduate Prize Talk**
Gwydion Williams (University College London)
Detachment from external influence.
- 6:00** **Posters and Drinks Reception**
Posters displayed in Room 305, with drinks served in Room 308 (Common Room)

Session A

Lower Ground Floor Lecture Theatre

- 9:00** **Charlotte Pennington*** and **Daniel Shaw*** (University of the West of England, Aston University) (Sponsor: Helen Nuttall) What do implicit measures of bias actually measure?
- 9:30** **Kathryn Francis*, Philip Beaman, Hannah Stone* and Markus Kneer*** (University of Bradford, University of Reading, University of Zurich, Switzerland) (Sponsor: Philip Beaman) Does mode of presentation influence moral decision-making? Investigating moral responses in Virtual Reality, audio-visual, and text-based dilemmas.
- 10:00** **Daniel Shaw*, Miguel Salazar*, Kristína Czekóová*, Rostislav Staněk* and Jiří Špalek*** (Aston University, CEITEC Masaryk University, Czech Republic) (Sponsor: Helen Nuttall) Back and Forth: An investigation of co-adaptation during social exchange.
- 10:30** **Tea / Coffee**
- 11:00** **Roser Cañigueral*, Antonia Hamilton and Joy Hirsch*** (University College London, Yale School of Medicine, USA) (Sponsor: Antonia Hamilton) Neural mechanisms for reciprocal face-to-face interactions.
- 11:30** **Caroline Catmur, Emma Thompson* and Geoffrey Bird** (King's College London, University of Oxford) Mirror neuron brain regions contribute to the identification of actions, but not intentions: evidence from neuroimaging and neurostimulation.
- 12:00** **Geoff Cole, Abbie Millett*, Steven Samuel* and Madeline Eacott*** (University of Essex) The closing of the Theory of Mind; Why perspective taking is in need of theory.
- 12:30** **Lunch**

Session B

Ground Floor Lecture Theatre

- 9:00** **Qing Han*, Casimir Ludwig and Susanne Quadflieg*** (University of Bristol) (Sponsor: Casimir Ludwig) Decision Avoidance and Regret: A systematic review and meta-analysis. *Substitute Talk*
- 9:30** **Maxine Sharps*, Eleanor Thomas* and Jacqueline Blissett*** (De Montfort University, University of Birmingham, Aston University) (Sponsor: Mark Scase) Examining the influence of visual nudges on children's fruit and vegetable consumption.
- 10:00** **Natalia Stanulewicz*** (De Montfort University) (Sponsor: Mark Scase) The role of Big-5 on reactions to health messages.
- 10:30** **Tea / Coffee**
- 11:00** **Mark Haggard, Helen Spencer and Bojana Bukurov** (University of Cambridge, Independent, Clinical Centre of Serbia) A tale of two (or three?) locations in the Margins of the Multiverse.
- 11:30** **Angela de Bruin*, Arthur Samuel* and Jon Andoni Duñabeitia*** (University of York, Stony Brook University, USA, Basque Centre on Cognition, Brain and Language (BCBL), Spain, Universidad Nebrija, Spain) (Sponsor: Gareth Gaskell) Age-related effects on bilingual language control depend on the interactional context.
- 12:00** **Toms Voits*, Holly Robson*, Jason Rothman* and Christos Pliatsikas** (University of Reading, UiT, The Arctic University of Norway, Norway, Universidad Nebrija, Spain) (Sponsor: Christos Pliatsikas) The effects of bilingualism on the structure of the hippocampus and on memory performance in ageing bilinguals.
- 12:30** **Lunch**

Session A

Lower Ground Floor Lecture Theatre

Symposium Cause and effect in action

Organiser Dr Daniel Yon

- 1:30** **Florian Waszak** (Université Paris Descartes, France)
Action effect anticipation and its consequences on perceptual processing.
- 2:00** **Clare Press** (Birkbeck, University of London)
The perceptual prediction paradox.
- 2:30** **Frederike Beyer** (Queen Mary, University of London)
Sense of agency in social contexts.
- 3:00** **Tea / Coffee**
- 3:30** **Marcel Brass** (Ghent University, Belgium)
Conscious intentions and predictive brain signals: Why neuroscience does not disprove our intuition of conscious free will.
- 4:00** **Camilla Nord** (University of Cambridge)
Adaptive and maladaptive cognitive mechanisms underlying decision-making.
- 4:30** **Sanne de Wit** (Universiteit van Amsterdam, Netherlands)
The neural basis of individual differences in real-world routine formation.
- 5:00** **Lower Ground Floor Lecture Theatre – Annual General Meeting**
- 6:00** **Lower Ground Floor Lecture Theatre - President's Address**
Professor John Duncan (University of Cambridge)
Integrated intelligence from distributed brain activity.
- 7:00** **Posters and Drinks Reception**
Posters displayed in Room 305, with drinks served in Room 308 (Common Room)
- 8:15** **Conference dinner at Tas**

Session B

Ground Floor Lecture Theatre

- 1:30** **Francesca Citron*, Nora Michaelis* and Adele Goldberg*** (Lancaster University, Freie Universität Berlin, Germany, Princeton University, USA) (Sponsor: Gabriella Vigliocco) Cognitive and affective responses to metaphors in first and second language speakers.
- 2:00** **Kumiko Fukumura, Sandra Villata*, Francesca Foppolo*, Céline Pozniak* and F.-Xavier Alario*** (University of Stirling, University of Connecticut, USA, University of Milano- Bicocca, Italy, University of Paris, France, Aix-Marseille Université, France) How do speakers avoid ambiguous pronouns? A cross-linguistic study.
- 2:30** **Agnieszka Konopka** (University of Aberdeen) Memory for words and for meaning in native and non-native listeners.
- 3:00** **Tea / Coffee**
- 3:30** **Amanda Hickey*, Emma Hayiou-Thomas and Jelena Mirković** (University of York, York St. John University) (Sponsor: Jelena Mirković) Grammatical Generalisation in Statistical Learning: Is it Implicit and Invariant Across Development?
- 4:00** **Matthew Mak*, Yaling Hsiao* and Kate Nation** (University of Oxford) (Sponsor: Kate Nation) Learning new words from print: the role of semantic diversity.
- 4:30** **Gwen Brekelmans*, Bronwen Evans* and Elizabeth Wonnacott** (University College London) (Sponsor: Elizabeth Wonnacott) The effect of input variability on L2 phonetic training for children.
- 5:00** **Lower Ground Floor Lecture Theatre – Annual General Meeting**
- 6:00** **Lower Ground Floor Lecture Theatre - President's Address**
Professor John Duncan (University of Cambridge)
Integrated intelligence from distributed brain activity.
- 7:00** **Posters and Drinks Reception**
Posters displayed in Room 305, with drinks served in Room 308 (Common Room)
- 8:15** **Conference Dinner at Tas**

Session A

Lower Ground Floor Lecture Theatre

9:00 **F. Blake Morton*** (University of Hull) (Sponsor: David George) Do wild raccoons (*Procyon lotor*) spontaneously use sticks as tools?

9:30 **Annika Boldt* and Sam Gilbert** (University College London) (Sponsor: Sam Gilbert) Distinct and overlapping neural correlates of metacognitive knowledge and metacognitive control.

10:00 **Timothy Hodgson** (University of Lincoln) The countermanding saccade task in children: evidence against go / stop process models of inhibitory control.

10:30 **Tea / Coffee**

11:00 **Patrick Haggard, Antonio Cataldo* and Lucile Dupin*** (University College London) The motoric basis of spatial perception?

11:30 **Matthew Buckley*, Liam Myles* and Anthony McGregor*** (De Montfort University, Durham University) (Sponsor: Mark Haselgrove) The role of the spatial structure of an environment in episodic memory.

12:00 **Luke Holden*, Emma Whitt and Mark Haselgrove** (University of Nottingham) (Sponsor: Mark Haselgrove) Resilient allocentric reorientation following transfer across an environmental boundary.

End of Meeting

Session B

Ground Floor Lecture Theatre

- 9:00** **Corinne Jola*** and **Moa Sundstrom*** (Abertay University) (Sponsor: Matthew Longo) Dance for Parkinson's: The effects of music and dance on gait.
- 9:30** **Ariadne Loutrari*, Cunmei Jiang* and Fang Liu** (University of Manchester, Shanghai Normal University, China, University of Reading) (Sponsor: Fang Liu) Singing in amusia: pitch and rhythm matching ability in Mandarin-speaking individuals with congenital amusia.
- 10:00** **Chen Zhao*, Sanrong Xiao*, Li Wang*, Cunmei Jiang* and Fang Liu** (University of Reading, Nanchang University, China, Shanghai Normal University, China) (Sponsor: Fang Liu) What can pitch perception tell us: evidence from Mandarin speakers with ASD.
- 10:30** **Tea / Coffee**
- 11:00** **Alexander Bacon*, Florence Leung*, Caitlin Dawson*, Cunmei Jiang* and Fang Liu** (University of Reading, Shanghai Normal University, China) (Sponsor: Fang Liu) Auditory processing in autism spectrum disorder (ASD): Evidence from pitch thresholds and music perception.
- 11:30** **Yik Nam Florence Leung*, Jacqueline Sin*, Caitlin Dawson*, Chen Zhao*, Jia Hoong Ong*, Anamarija Veić* and Fang Liu** (University of Reading) (Sponsor: Fang Liu) Emotion recognition across visual and auditory modalities in autism spectrum disorder (ASD): A systematic review and meta-analysis.
- 12:00** **Martin Casassus*, Ellen Poliakoff, Daniel Poole, Emma Gowen and Luke Jones** (University of Manchester, Head Forward Centre, Manchester) (Sponsor: Luke Jones) Time perception in autism and typically developed individuals: a characterisation from psychophysics to more ecological high-order processes.

End of Meeting

1. **Bryony Payne*, Nadine Lavan*, Sarah Knight* and Carolyn McGettigan** (University College London, University of York) (Sponsor: Carolyn McGettigan) Self Reference Effects in the perception of voices.
2. **Nadine Lavan* and Carolyn McGettigan** (University College London, Royal Holloway, University of London) (Sponsor: Carolyn McGettigan) How does familiarity affect trait ratings for voices?
3. **Elise Kanber*, Nadine Lavan* and Carolyn McGettigan** (University College London) (Sponsor: Carolyn McGettigan) Examining voice perception in romantic couples.
4. **Christine Wulf*, Verena Skuk*, Sascha Frühholz* and Stefan Schweinberger** (Friedrich Schiller University Jena, Germany, University of Zurich, Switzerland) (Sponsor: Stefan Schweinberger) The role of timbre and fundamental frequency in vocal emotion adaptation.
5. **Justine Johnson*, Carolyn McGettigan and Nadine Lavan*** (University College London) (Sponsor: Carolyn McGettigan) Performance for identity sorting tasks is correlated across modalities.
6. **Carolyn McGettigan, Li Jiang* and Nadine Lavan*** (University College London) (Sponsor: Carolyn McGettigan) Investigating the role of speech dynamics in face-voice matching.
7. **Ciro Civile, Anna Cooke*, Xin Liu*, Rossy McLaren*, Fraser Milton and Ian McLaren** (University of Exeter) Using transcranial Direct Current Stimulation (tDCS) to enhance or reduce the face inversion effect.
8. **Lisa P.Y. Lin* and Sally Linkenauer*** (Lancaster University) (Sponsor: Matthew Longo) The perception of body width and circumference of the self.
9. **Christina Ralph-Nearman*, Olivia Shadid* and Ruth Filik** (Laureate Institute for Brain Research, Tulsa, USA, University of Nottingham, University of New Mexico School of Medicine, Albuquerque, USA) (Sponsor: Ruth Filik) The relationship between perfectionism and body- and food-related attitudes in preadolescents.
10. **Lydia Hickman*, Diar Abdelkarim*, Jennifer Murphy*, Michel-Pierre Coll* and Jennifer Cook** (University of Birmingham, King's College London, University of Oxford) (Sponsor: Jennifer Cook) Pulling on the Heartstrings: Tightening up the Heartbeat Counting Task.

11. **Emily Thomas*, Daniel Yon*, Floris de Lange* and Clare Press** (Birkbeck, University of London, Goldsmith's, University of London, Radboud University, The Netherlands) (Sponsor: Clare Press) Predicted tactile effects of action are perceptually enhanced, not cancelled.
12. **Caitlin Naylor* and Gavin Buckingham** (University of Exeter) (Sponsor: Gavin Buckingham) Examining whether semantic cues can affect felt heaviness when lifting novel objects.
13. **Sally Linkenauger*, Neil McLatchie*, Lara Warmelink* and Charlie Lewis*** (Lancaster University) (Sponsor: Matthew Longo) The pint glass illusion: Large distortions in the perceived form of everyday objects.
14. **Louisa Salhi*, Arianna Moccia*, David Vogelsang* and Zara Bergstrom** (University of Kent, University of California, USA) (Sponsor: Zara Bergstrom) Electrical brain activity associated with false memory-related increases to subsequent recognition.
15. **Sarah Hendry*, Michael Verde and Tim Hollins** (University of Plymouth) (Sponsor: Michael Verde) Assessing the contribution of meaningfulness in study materials to the testing effect.
16. **Abbie Ball*, Peter Jones and Tim Hollins** (University of Plymouth) (Sponsor: Peter Jones) Exploring the motivational factors behind stopping learning too early.
17. **Ian McLaren, Rosamund McLaren* and Ciro Civile** (University of Exeter) A Developmental Effect on Latent Inhibition: A replication and extension of Kaniel and Lubow (1986).
18. **Alicia Rybicki*, Barbara Franke*, Roshan Cools* and Jennifer Cook** (University of Birmingham, Donders Institute for Brain, Cognition and Behaviour, The Netherlands, Radboud University Medical Centre, The Netherlands) (Sponsor: Jennifer Cook) The influence of genetic variation in monoamine signalling on individual and social learning.

1. **Asma Assanee***, **Linda Wheeldon and Andrea Krott** (University of Birmingham, Universitetet i Agder, Norway) (Sponsor: Jennifer Cook) High lexical selection demands when switching into first language versus switching into second language.
2. **Eva Poort*** and **Jennifer Rodd** (University College London) (Sponsor: Jennifer Rodd) Effects of cross-lingual long-term priming on cognates and interlingual homographs. *Withdrawn*
3. **Hun S. Choi***, **William Marslen-Wilson***, **Bingjiang Lyu***, **Billi Randall and Lorraine K Tyler** (University of Cambridge) Decoding the real-time neurobiological properties of predictive computations. *Replacement*
4. **Laura Wakeford***, **Roger Van Gompel and Leila Kantola*** (University of Dundee, Umeå University, Sweden) (Sponsor: Roger van Gompel) Task-dependent effects in the lexical boost.
5. **Yaling Hsiao***, **Matthew Mak*** and **Kate Nation** (University of Oxford) (Sponsor: Kate Nation) The effect of semantic diversity on serial recall of words.
6. **Gillian Francey*** and **Kate Cain** (Lancaster University) (Sponsor: Kate Cain) The effect of imperfective/perfective verb aspect on children's perception of the ongoingness of events within narratives.
7. **Calvin Laursen***, **Victoria Adedeji***, **Martin Vasilev***, **Tim Slattery, Marcin Budka*** (University of Bournemouth) (Sponsor: Tim Slattery) The role of character information in the programming of return-sweep saccades during reading.
8. **Martin Vasilev***, **Fabrice Parmentier*** and **Julie Kirkby** (Bournemouth University, University of the Balearic Islands, Spain, Balearic Islands Health Research Institute, Spain, University of Western Australia, Australia) (Sponsor: Julie Kirkby) Distraction by auditory novelty during reading: Evidence for disruption in saccade planning but not saccade execution.
9. **Mahsa Barzy***, **David Williams and Heather Ferguson** (University of Kent) (Sponsor: Heather Ferguson) Perspective influences eye movements and language production during real-life conversation: A study on mentalising about self vs. others in autism.
10. **Ruihan Wu*** and **Sarah White** (University College London) (Sponsor: Sarah White) The broader autism phenotype, mentalizing and camouflaging: An eye-tracking study.

- Jia Hoong Ong* and Fang Liu** (University of Reading) (Sponsor: Fang Liu) Probabilistic learning among neurotypicals and autistic individuals: A pilot study.
- 11. Martina De Lillo*, Matthew Fysh*, Victoria Brunsdon, Elisabeth Bradford and Heather Ferguson** (University of Kent) (Sponsor: Heather Ferguson) Tracking social attention across the lifespan.
- 12. Steve Hayward*, Louise Phillips, Margaret Jackson** (University of Aberdeen) (Sponsor: Margaret Jackson) Age effects in gaze cueing and the role of predictiveness.
- 13. Bianca Schuster*, Dagmar Fraser*, Jasper van den Bosch*, Sophie Sowden and Jennifer Cook** (University of Birmingham) (Sponsor: Jennifer Cook) Predictors of performance in Heider-Simmel style animations.
- 14. Divyush Khemka*, Caroline Catmur and Geoff Bird** (King's College London, University of Oxford) (Sponsor: Caroline Catmur) The nature of self-other control processes in social cognition: Domain general vs specialised mechanisms.
- 15. Vilma Pullinen* and Margaret Jackson** (University of Aberdeen) (Sponsor: Margaret Jackson) Eye gaze, social value, and attentional bias.
- 16. Sam Lloyd* and Lee de-Wit** (University of Cambridge) (Sponsor: Lee de-Wit) The factor structure and classes of British politics, and their psychological characteristics.
- 17. Alexandrina Vasilichi*, Joseph Marks*, Lee de-Wit** (University College London, University of Cambridge) (Sponsor: Lee de-Wit) Political polarization and depolarization across the UK Brexit divide.

Using transcranial Direct Current Stimulation (tDCS) to modulate the Face Inversion Effect on the N170 Event-Related Potentials (ERPs) Component.



Ciro Civile, Emika Waguri, Samantha Quaglia, Brad Wooster, Adam Curtis, Aureliu Lavric and Ian McLaren
University of Exeter
c.civile@exeter.ac.uk

The aim of this talk is to provide evidence in support of a specific tDCS procedure able to modulate the face inversion effect on the N170 ERPs peak component. The results from two experiments (overall N=112), with tDCS and EEG combined simultaneously, show that anodal tDCS delivered at Fp3 site for 10 min at 1.5mA (double-blind and between-subjects) can reduce behaviourally the face inversion effect (better recognition performance for upright vs inverted faces) compared to sham (control) stimulation. Importantly, the ERP results from both experiments provide the first evidence for tDCS being able to modulate the face inversion effect on the N170. Our results suggest a dissociation of the tDCS-induced effects where for the N170 latencies the tDCS reduces the usual face inversion effect (delayed N170 in response to inverted vs upright faces) compared to sham. Contrarily, the same tDCS procedure on the same participants increased the inversion effect seen in the N170 amplitudes by making the negative deflection for the inverted faces that much greater than that for upright faces.

Recognising personally familiar and famous faces from highly variable images: Evidence from event-related brain potentials.



Holger Wiese¹, Andrew Young², Mike Burton²
¹ Durham University
² University of York
holger.wiese@durham.ac.uk

People recognise familiar faces from an impressive range of highly variable images. Recently, we found highly reliable event-related potential (ERP) correlates of personally familiar face recognition when participants were tested with large numbers of highly variable “ambient” images, both in the N250 (visual recognition) and in the Sustained Familiarity Effect (SFE; integration of semantic/affective information). Interestingly, corresponding effects were not observed for celebrities. These findings may suggest that famous and personally familiar faces are processed qualitatively differently. However, they might alternatively reflect insufficiently robust representations to identify random celebrities from highly variable images. Here, we compared participants’ ERPs to “ambient” images of their favourite celebrities (Experiments 1-3), personally familiar faces (Experiments 1 and 2), strongly disliked celebrities (Experiment 3), and unfamiliar faces. Most importantly, we found clear familiarity effects for favourite celebrities, both in the N250 and the SFE. Moreover, the SFE was larger for personally familiar faces than favourite celebrities (Experiment 1), and for favourite relative to disliked celebrities (Experiment 3). These findings suggest that ERP familiarity effects are not qualitatively different for personal versus media-based familiarity. Instead, increasing familiarity may result in more robust representations that allow recognition from increasingly variable images.

When distinctiveness hinders face learning: Evoking an other - “race” effect with selectively manipulated same - “race” faces.



Jürgen Kaufmann and Stefan Schweinberger
Friedrich Schiller University of Jena, Germany
juergen.kaufmann@uni-jena.de

While other-race faces and caricatures of same-race faces evoke very similar patterns of event-related potentials (ERPs), behavioural effects clearly differ (advantage for caricatures, disadvantage for other-race faces). These seemingly paradoxical findings might be explained by qualitatively similar processes at learning, but with different consequences for recognition: Deviations from the norm are used for forming basic representations of unfamiliar faces. In caricatures, distinctive information is idiosyncratic and helpful, but for other-race faces, salient deviations tend to be unidirectional relative to the norm, and therefore misleading. In three experiments, we simulated an other-race effect with highly distinctive same-race faces. In each experiment, one particular characteristic in same-race faces was manipulated, always in a uniform direction (big noses, freckled skin texture, distinctive blue eyes). In a learning/recognition task, we compared performance and ERPs for these faces to veridical same- and other-race faces. We found similar ERPs for other-race and manipulated same-race faces, accompanied by costs in behavior, compared to veridical same-race faces. Overall, our results support a perceptual account of the other-race effect. They suggest that qualitatively similar processes mediate the learning of unfamiliar same- and other-race faces, but with different consequences due to differences in the usefulness of respective distinctive information.

A ‘Situated Perspective’ account of emotional expression effects in face memory.



Margaret Jackson
University of Aberdeen
m.jackson@abdn.ac.uk

In this talk I will highlight differences in expression effects on face recognition from long-term memory and working memory studies, and show that a single expression (e.g., of anger or happiness) does not produce consistent facilitative or impairment effects on face memory across tasks. Instead, a core selection of contextual factors are shown to modulate whether and how emotional expressions influence face memory, related to (a) the memory process engaged (long-term versus working memory); (b) the face stimulus - specifically eye gaze direction; (c) East versus West cultural factors. Results from a range of published and unpublished work will be presented. For example, gaze direction (averted versus direct) modulates working memory for happy but not angry faces among Western participants, but conversely modulates working memory for angry but not happy faces among Japanese participants. I propose that this ‘situated’ nature of expression effects on face recognition memory is necessary for flexible and adaptive functionality of emotion processing, and skilfully appropriate social engagement.

Facial identity across the lifespan.



Mila Mileva, Andrew Young, Rob Jenkins and Mike Burton
University of York
mila.mileva@york.ac.uk

We can recognise people across their lifespan. We see family members age, and we can recognise celebrities across long careers. How is this possible, despite the very large facial changes that occur as people get older? Here, we sample faces as they age, using photos of the same people from their 20s to their 70s. Across a number of experiments, we observe that individuals' faces retain some idiosyncratic physical properties across the adult lifespan that can be used to support moderate levels of age-independent recognition. However, we show only a limited success in recognising faces across age when recognition is exclusively based on image similarity. In contrast, more robust recognition can be achieved with the introduction of a minimal top-down familiarisation procedure which allows for the within-person variability associated with a particular individual to be better incorporated. This shows a surprisingly high level of generalisation, even across the lifespan. The analysis of this variability reveals a powerful statistical tool for understanding recognition, and demonstrates how visual representations may support operations typically thought to require conceptual properties.

Super-recogniser face recognition ability predicts domain-specific superior performances with voices.



Ryan Jenkins¹, Josh Davis¹, Claire Monks¹, Stella Tsermentelli¹, David Robertson², Sarah Stevenage³ and Ashley Symons³

¹ University of Greenwich

² University of Strathclyde

³ University of Southampton

R.E.Jenkins@greenwich.ac.uk

This experiment examined whether 'super-recognition' generalises across face and voice modalities, and whether face memory and perception test dissociations would transfer to voices. It was hypothesised that participants with exceptional face memory ability (top 2% of the estimated population) (superior-face-recognisers), based on Cambridge Face Memory Test: Enhanced (Russell et al., 2009) scores, would outperform controls at voice memory tests (Glasgow Voice Memory Test; Aglieri et al., 2017, Famous Voice Recognition Test), while exceptional face matching ability participants (superior-face-matchers), based on Glasgow Face Matching Test (Burton et al., 2010) scores, would outperform typical-range ability participants at voice matching (Bangor Voice Matching Test; Mühl et al., 2017). Superior-face-identifiers, exceptional at both, were expected to excel at voice memory and matching. Including typical-range-ability controls, a between-subjects design compared participants ($n = 529$) on one voice matching and two voice memory tests online. Data were analysed using signal detection theory measures (hits, correct rejections, sensitivity (d') and response bias (C)) using one-way and two-way mixed ANOVAs. Hypotheses were generally supported, as domain-specific excellent face processing participants tended to outperform typical-range participants. Results offer support for suggestions that underlying cross-modal (voices vs.

faces) and cross-domain (memory vs. matching) identity-specific mechanisms may drive superior human-identification processes.

Parameter-specific voice morphing reveals contributions of F0, timbre, and temporal cues to voice perception.



Stefan Schweinberger, Louisa Kirchen, Celina von Eiff, Jürgen Kaufmann, Christine Wulf and Verena Skuk
Friedrich Schiller University of Jena, Germany
stefan.schweinberger@uni-jena.de

The aim of this talk is to demonstrate how parameter-specific morphing techniques can enhance our understanding of the role of sensory information for the processing of social and affective signals from faces and voices. Following the inventions of visual (image) morphing technology by Benson and Perrett around 1990, and of auditory morphing ~ten years later by Kawahara, these techniques can be used beyond classical morphing, averaging, or caricaturing. Specifically, we use them to selectively manipulate independent parameters (e.g., fundamental frequency, timbre, or temporal aspects of voices, or 3D-shape and texture/colouration of faces,). This allows us to determine the relative importance of these sound (or image) characteristics for social perceptions of age, gender, identity or affect in neurotypical participants, but also in individuals with sensory or central impairments. For example, experiments with faces consistently revealed a dominant role of texture information over shape, at variance with older claims that spatial configural information is crucial to familiar face recognition (e.g., Itz et al., 2014). For voices, we present current results from normal listeners, and show data from 28 hearing-impaired cochlear implant users to demonstrate how parameter-specific morphing is a promising novel approach to objectively assess profiles of voice perception abilities.

Itz, M.L., Schweinberger, S.R., Schulz, C., & Kaufmann, J.M. (2014) Neural correlates of facilitations in face learning by selective caricaturing of facial shape or reflectance. *NeuroImage*, 102, 736-747.

Deconstructing Enactment: The role of action-object bindings in aiding memory performance.



Angie Makri¹ and Christopher Jarrold²
¹ University of Nottingham
² University of Bristol
angie.makri@nottingham.ac.uk

This project investigated whether the action advantage frequently observed over verbal memory, as examined using action-object phrases (i.e. Enactment Effect), is driven by a memory advantage for the performed actions per se. To test this, Experiment 1 presented participants with action-object phrases but tested separately memory for the actions and objects after Enactment Encoding (EE) and Enactment Recall (ER). EE led to greater memory compared to verbal encoding but only for the actions. However, contrary to previous research findings, no ER effects were observed for actions or objects. It was hypothesised that the absence of ER effects was due to the splitting of action-object phrases at recall. Experiment 2 examined memory for whole action-object phrases in ER and found a

strong enactment effect. Together, these findings suggest that although EE benefits are driven by memory superiority for the performed actions, action-object bindings may play a determining role in the ER advantage.

Joint contributions of constrained search and late monitoring to recall accuracy.



James Randle, Tim Hollins and Michael Verde
University of Plymouth
james.randle@plymouth.ac.uk

It is believed that memory output accuracy is controlled by processes operating before and after retrieval. Early search processes generate candidate items to a cue while late monitoring of these items against the search criterion helps minimise output errors. Post-retrieval monitoring is well-studied but relatively little is known about the effectiveness of early search processes. A series of experiments aimed to explore the joint contributions of constrained memory search and post-retrieval monitoring to accuracy in source recall. In each experiment participants studied items associated with two (or more) sources (e.g. list membership, location, colour). Selectively retrieving items from one of two lists was driven largely by search. Selectively retrieving items from one of two sources mixed within a list showed a negligible contribution of search but reliable evidence of late monitoring. This pattern did not change whether a single or multiple source cues were present in the list, or whether the multiple source cues were independent or related. Implications for models of memory accuracy control and retrieval will be discussed.

Dynamic in-flight shifts of working memory resources across saccades.



Robert Udale, Sanjay Manohar and Masud Husain
University of Oxford
robert.udale@psy.ox.ac.uk

Although much is known about serial working memory, little is known about how memory resources are allocated in real-life situations such as across sequential fixations, as people extract information from the visual environment. Here, we used gaze-contingent eye tracking to examine in three experiments ($N = 30, 23$ and 32) how resources are dynamically reallocated from old to new items, before and after a saccade. Participants sequentially fixated items in a memory display (locations of colours or orientations of arrows). At different points in the sequence, we interrupted the process by extinguishing the display as soon as a saccade was initiated towards the next item. After a brief interval, recall was cued using analogue report (e.g., re-orienting the probed arrow) for either the upcoming saccade target or a previously fixated item. Paradoxically, across all experiments, the (unfixated) saccade target was encoded with greater precision when more items had previously been fixated. We provide a model in which encoding occurs first via a covert pre-saccadic shift of attention, followed by fixational encoding. When encoding is characterised as dynamic reallocation of a proportion of each fixated item's resource to the saccade target, the model accounts extremely well for the pattern of results.

Some new approaches to the genesis of stimulus equivalence relations.



David Dickins
University of Liverpool
dickins@liverpool.ac.uk

The formation of equivalence classes encompassing subgroups of minimally overlapping stimulus pairs are typically demonstrated after training of these ‘premise pairs’ by matching-to-sample (MTS) (e.g. Bentall, Dickins, & Fox, 1993). Sidman (2000) saw equivalence relations as a component of the conditional discriminations inherent in MTS. From a more ‘cognitive’ perspective, equivalence class formation (ECF) seemingly entails the retrieval of items from memory, followed by a process of inference leading to their appropriate re-combination. Typically, this may not be achieved by all participants. To disentangle memory and inference, untaught premise pairs were presented in plain sight during tests. Two within-participant studies compared this procedure with conventional pre-training, using MTS test trials and sorting tests. Discounting interactions memorization conferred a small advantage. In another study most participants achieved ECF even when the premise pairings were rearranged between each trial. Finally, inspired by Wason (1960), participants had to choose novel pairs from a constant array, being told after each choice whether or not it conformed to the (undeclared) rules of equivalence. Their hypothesising was recorded and after achieving consistently correct choices they were able to partition the classes appropriately. In traditional studies retrieval processes themselves may provide implicit cues for such inferences.

Bentall, R.P., Dickins, D.W. & Fox, S. (1993). Naming and Equivalence: Response Latencies for Emergent Relations. *Quarterly Journal of Experimental Psychology*, 46, 187-214.

Sidman, M. (2000). Equivalence relations and the reinforcement contingency. *Journal of the Experimental Analysis of Behavior*, 74(1), 127-146.

Wason, P.C. (1960). On the failure to eliminate hypotheses in a conceptual task. *Quarterly Journal of Experimental Psychology*, 69, 129-140.

The effect of recent reminder setting on subsequent strategy and performance in a prospective memory task.



Chiara Scarampi and Sam Gilbert
University College London
c.scarampi@ucl.ac.uk

The technological advancement that is rapidly taking place in today’s society allows increased opportunity for “cognitive offloading” by storing information in external devices rather than relying on internal memory. This opens the way to fundamental questions regarding the interplay between internal and external memory and the potential benefits and costs of placing information in the external environment. In three pre-registered online experiments we investigated the effect of prior cognitive offloading on A) subsequent unaided memory ability, and B) subsequent strategic decisions whether to engage in future cognitive offloading. We administered a web-based task requiring participants to remember delayed intentions for a brief period and manipulated the

possibility of setting reminders to create an external cue. Our results suggest that short-term use of a cognitive offloading strategy has little influence on subsequent unaided performance, in a context where the information that was originally offloaded or stored internally is no longer relevant. However, there can be strong effects of prior offloading on participants' subsequent likelihood of setting reminders. These findings suggest that the short-term impact of cognitive offloading is more likely to be seen on individuals' strategy choices rather than basic memory processes.

"Only your first yes will count": The impact of instructions on sequential line-up decisions.



Ruth Horry¹, Ryan Fitzgerald² and Jamal Mansour³

¹ Swansea University

² Simon Fraser University, Canada

³ Queen Margaret University

r.horry@swansea.ac.uk

In eyewitness identification tasks, witnesses are presented with a line-up that includes a suspect (who may be guilty or innocent) and several fillers. Several recent studies have reported higher discriminability for simultaneous than sequential line-ups. We investigated whether the instructions provided to witnesses in these studies – which indicated that only their first “yes” would count – systematically undermined the effectiveness of the sequential line-up. Participants (N = 896) viewed a videotaped staged crime and were randomly allocated to view a target-present or target-absent line-up. Three types of line-ups were used: a simultaneous line-up, a sequential line-up with a “first yes counts” caution, and a sequential line-up without such a caution. The probability of identifying the suspect was significantly lower when a first yes counts instruction was used. The first yes counts instruction also reduced both the discriminatory value and utility of suspect identifications. Our findings suggest that recent findings of a simultaneous line-up advantage are largely attributable to methodological shortcomings that selectively disadvantage participants viewing sequential line-ups. To make meaningful generalizations from laboratory studies to the real world, it is crucial that we establish and adhere to gold-standard laboratory protocols that reflect the administration of line-ups in practice.

How much do we orient? A systematic approach to auditory distraction.



Philip Beaman

University of Reading

c.p.beaman@reading.ac.uk

Theories of auditory distraction can be broadly divided into domain-general accounts, making reference to divided attention and/or orienting, and domain-specific accounts positing interference between the distractors and specific cognitive processes or representations. A failing of all accounts is their lack of specificity and the degrees of freedom they allow researchers when deriving predictions. Here the mathematical function a particular manipulation – the token set size effect (Tremblay & Jones, 1998) – might be expected to take is considered. Under a Bayesian analysis, the prediction that there is no further auditory distraction effect on immediate serial recall beyond the “changing-state point” of two discrete distractors (the strong changing-state hypothesis) is shown to

be less likely than two competing alternatives: an orienting response (OR) and a stimulus mismatch (SMM) hypothesis, representing general and task-specific accounts respectively. In a direct comparison of these two accounts the data are further shown to be more likely under the SMM hypothesis. Prospects for a parametric account of auditory distraction are considered. As per Newell (1973) it is concluded that if researchers wish to play 20 questions with nature and win, they must first define more clearly what they would regard as a “correct” answer.

Newell, A. (1973). You can't play 20 questions with nature and win. In W.G. Chase (Ed.), Visual information processing. New York: Academic Press

Tremblay, S., & Jones, D. M. (1998). Role of habituation in the irrelevant sound effect: Evidence from the effects of token set size and rate of transition. *Journal of Experimental Psychology: Learning, Memory & Cognition*, 24, 659–671.

What do implicit measures of bias actually measure?



Charlotte Pennington¹ and Daniel Shaw²

¹ University of the West of England

² Aston University

charlotte.pennington@uwe.ac.uk

Borne out of the limitations posed by self-reports, social psychologists developed implicit measures capable of assessing unconscious bias (e.g., the IAT). Scepticism towards the IAT has grown in recent years, however, with studies revealing the weak relationship between explicit and implicit measures and the apparent disconnect between implicit bias and behaviour. This has led researchers to call for innovative ways to measure the key processes underpinning implicit bias. The aim of the current study was to develop a novel battery of behavioural measures capable of assessing implicit racial bias. In a within-participants design, 257 participants completed a battery of socio-cognitive measures that were adapted to feature a race-based component. We pre-registered the prediction that participants would show more imitative tendencies, higher empathy, better perspective-taking and emotion recognition towards people of their own race. Moreover, it was predicted that these indicators of own-race bias would be related to implicit racial bias. Findings indicate that participants exhibited better emotion recognition but poorer perspective taking and empathic concern for in-group relative to outgroup members. None of the measured socio-cognitive mechanisms correlated with IAT scores. These findings are discussed in relation to the construct, discriminant and predictive validity of the IAT.

Does mode of presentation influence moral decision-making? Investigating moral responses in virtual reality, audio-visual, and text-based dilemmas.



Kathryn Francis¹, Philip Beaman², Hannah Stone² and Markus Kneer³

¹ University of Bradford

² University of Reading

³ University of Zurich, Switzerland

k.francis1@brad.ac.uk

Moral psychologists have investigated moral decision-making using hypothetical vignettes adopted from philosophy. Typically, these trolley-type problems are presented via text and participants are asked whether the action described in the scenario is morally appropriate. To examine what individuals might actually do in these up-close and personal moral dilemmas, we've incorporated Virtual Reality (VR) simulations of trolley-type problems and examined the influence of audio-visual and haptic features on moral responses. Across several studies, we find that utilitarian decision-making (sacrificing one person in order to save many more) is higher in VR moral dilemmas compared to text-based dilemmas (e.g., Francis et al., 2016; 2017; Patil et al., 2017). To develop a clearer picture of how these modes of presentation influence moral decision-making, we examine responses to trolley-type problems that are presented in different formats. We find that moral responses in text-based dilemmas do not differ to decisions in simple visual dilemmas (Experiment 1), complex visual dilemmas with audio (Experiment 2) or to 2D video sequences (Experiment 3). These findings might suggest that features specific to VR prompt differences in moral responses or that VR enables us to measure the construct of moral action as opposed to moral judgment.

Francis, K. B., Howard, C., Howard, I., Gummerum, M., Ganis, G., Anderson, G., & Terbeck, S. (2016). Virtual morality: Transitioning from moral judgment to moral action? Plos One. doi: 10.1371/journal.pone.0164374

Francis, K. B., Terbeck, S., Briazu, R. A., Haines, A., Gummerum, M., Ganis, G., & Howard, I. S. (2017). Simulating moral actions: An investigation of personal force in virtual moral dilemmas. *Scientific Reports*, 7. doi: 10.1038/s41598-017-13909-9.

Patil, I., Cogoni, C., Zangrando, N., Chittaro, L., & Silani, G. (2014). Affective basis of judgment-behavior discrepancy in virtual experiences of moral dilemmas. *Social Neuroscience*, 9, 94-107.

Back and Forth: An investigation of co-adaptation during social exchange.



Daniel Shaw¹, Miguel Salazar², Kristína Czekóová², Rostislav Staněk² and Jiří Špalek²

¹ Aston University

² CEITEC Masaryk University, Czech Republic

d.shaw1@aston.ac.uk

Social interactions require mutual co-adaptation; to steer a social exchange towards a desired outcome, all interactants must adapt their own behaviour to that of their interaction partner(s). This study developed an interactive paradigm to investigate mutual adaption during bargaining – a context in which interactants must strike a balance between their own goals and those of their partner to if they are to achieve any payoff. Over iterated exchanges, pairs of players were asked to divide a sum of money (the “pie”) between themselves and their opponent. When disagreement emerged, players were required to bargain – they observed the two divisions requested by themselves and their partner, and the pie decreased at a fixed discount rate. Either player could stop the reward from decreasing by conceding and accepting their opponents’ proposal. This allowed us to investigate the strategies that individuals adopt. The data reveal several distinct forms of player strategy: Those who follow an aggressive or passive fixed strategy, those who adapted to their co-player by reciprocating their prior behaviour, and those who adapted to group norms. Importantly, these various patterns of bargaining behaviour could be estimated accurately with two just parameters, revealing an important aspect of social behaviour.

Neural mechanisms for reciprocal face-to-face interactions.



Roser Cañigueral¹, Antonia Hamilton¹ and Joy Hirsch^{1,2}

¹ University College London

² Yale School of Medicine, USA

rosier.canigueral.15@ucl.ac.uk

Second-person neuroscience suggests that neurocognitive mechanisms engaged during reciprocal social interactions are different from those engaged in non-interactive situations. Here, we created a situation where pairs of participants engaged in reciprocal (or non-reciprocal) social interactions. By combining simultaneous eye-tracking, face-tracking and functional near-infrared spectroscopy (fNIRS) recordings, we examine how reciprocal social interactions modulate social signalling and

brain activity while pairs of participants disclose (or not) personal information. When information was disclosed, participants directed more eye gaze to the face of the partner and produced more facial displays. Moreover, activity in brain regions related to mentalising (right TPJ) and strategic decision-making (left dlPFC) increased when information was disclosed. We also found that spontaneous production and observation of facial displays was associated with activity in the left SMG and right dlPFC, respectively. Wavelet coherence analysis further showed that face processing regions were more synchronised between dyads during reciprocal interactions. These multimodal findings are consistent with the second-person neuroscience approach, and advance our current understanding of neurocognitive mechanisms that underlie reciprocal social interactions.

Mirror neuron brain regions contribute to the identification of actions, but not intentions: evidence from neuroimaging and neurostimulation.

Caroline Catmur¹, Emma Thompson¹ and Geoffrey Bird^{1,2}

¹ King's College London

² University of Oxford

caroline.catmur@kcl.ac.uk

Previous studies have struggled to determine the relationship between mirror neuron brain regions and two distinct ‘action understanding’ processes: identifying actions, and identifying the intentions underlying those actions. This may be because the identification of intentions from others’ actions requires an initial action identification process. Functional magnetic resonance imaging was performed during a novel cognitive task to determine which of these ‘action understanding’ processes is subserved by mirror neuron brain regions. Participants identified either the identity of observed hand actions or the intentions underlying those actions. During action identification, responses were widespread within mirror neuron areas including inferior frontal gyrus (IFG) and inferior parietal lobule. However, no independent responses were found in mirror neuron brain regions during intention identification. Instead, responses occurred in brain regions associated with two distinct mentalizing localizer tasks. We also administered disruptive transcranial magnetic stimulation to IFG during the same task. The extent to which intention identification was disrupted by IFG (versus control site) stimulation was dependent on the level of disruption to action identification. This supports an account in which mirror neuron brain regions are involved in an initial action identification process, but the subsequent identification of intentions requires additional processing in mentalizing brain regions.

The closing of the Theory of Mind: Why perspective taking is in need of theory.



Geoff Cole, Abbie Millett, Steven Samuel and Madeline Eacott

University of Essex

gcole@essex.ac.uk

In recent years, a number of authors have argued that one particular Theory of Mind process occurs spontaneously. Specifically, it has been suggested that humans rapidly compute the visual perspective of other individuals. We present a critique of this notion both on empirical and

theoretical grounds. Data will be presented showing that an agent located in a display does not provide an observer with any information that the observer had not already generated. In other words, a perspective is not ‘taken’ from an agent. We also suggest that the perspective-taking field has not been clear when arguing that humans can represent the visual experience of others. In this sense, perspective-taking suffers from the same problem that afflicted the ‘pictorial’ theory in the mental imagery debate, i.e., a sensory homunculus is required. Indeed, in order to represent what another person is experiencing a second homunculus is needed that has access to the person’s attention system. We argue that a reassessment of what perspective-taking actually means is now required.

How Do I See Myself? A multi-group structural equation modelling approach of identity predicting pro-environmental energy behaviour.

Alina Mia Udall, Christian Klöckner and Stepan Vesely *Withdrawn*

Decision Avoidance and Regret: A systematic review and meta-analysis. Substitute Talk

Qing Han, Casimir Ludwig and Susanne Quadflieg
University of Bristol
qh17843@bristol.ac.uk

Decision avoidance is very common in human behaviour, for example, choosing to maintain the status quo, deferring or delegating a decision. Anticipated regret is hypothesised to mediate this decision avoidance behaviour. However, previous studies showed inconsistent results on relationship between decision avoidance and regret. In addition, decision avoidance is actually a collection of behaviours, each of which may have different relationship with regret. In order to elucidate the relationship between decision avoidance and regret, we conducted a meta-analysis on different types of decision avoidance behaviour. A total of 38 studies were identified and included for meta-analysis. The results show that certain decision avoidance behaviours (e.g. maintaining the status quo) are associated with experiencing less regret. However, this relation does not hold for all decision avoidance behaviours. Furthermore, this relation is also influenced by the outcome of the decision (e.g. win/lose): knowing their decision led to a negative outcome will change the direction of the effect in that people experience more regret after avoiding making a decision. In conclusion, this study confirms the role of regret in decision avoidance, but also suggests that this role varies for different types of avoidance behaviour and depends on the nature of the potential outcomes.

Examining the influence of visual nudges on children’s fruit and vegetable consumption.

Maxine Sharps¹, Eleanor Thomas² and Jacqueline Blissett³

¹ De Montfort University

² University of Birmingham

³ Aston University

maxine.sharps@dmu.ac.uk



Children's fruit and vegetable consumption is low. Nudges influence children's eating behaviour. Less is known about the influence of pictorial nudges on children's fruit and vegetable consumption. Study 1 examined whether a pictorial fruit nudge influenced children's fruit consumption relative to control (no image). In a between-subjects design, children (n=63, Mean age=8.9 years, SD=1.41, 38 females, 25 males, 73% had a healthy-weight) were randomly assigned to one of two conditions (fruit nudge vs. control). Study 2 examined the influence of a large portion pictorial vegetable nudge vs. a small portion pictorial vegetable nudge vs. control (no nudge) on children's vegetable consumption. In a between-subjects design, children (n=59, Mean age=8.57 years, SD=2.13, 31 females, 28 males, 85% had a healthy-weight) were randomly assigned to a condition. In Study 1 children consumed significantly more fruit in the pictorial nudge condition than the control condition. In Study 2 children ate significantly more vegetables in the large portion pictorial nudge condition than the other two conditions. Pictorial nudges on tableware influence children's fruit and vegetable consumption, and the portion size of this type of nudge may be key to whether it influences children's eating behaviour.

The role of Big-5 on reactions to health messages.



Natalia Stanulewicz
De Montfort University
natalia.stanulewicz@dmu.ac.uk

Even though recent literature has been recommending designing persuasive messages with the focus on the fit between the potential target audience and the message (Hirsh et al., 2012), research exploring the role of personality factors on reactions to such communications are scarce (Dijkstra, 2008). Thus, this study aimed to investigate the moderating role of neuroticism and extraversion for reactions to gain vs. loss-framed health messages in regard to gum flossing. 95 UG students were randomly presented with one of the messages and filled in personality and reaction to advert measures. Participants' willingness to collect a free sample of floss was also noted. The results demonstrated no effect of the message frame, but there was a clear effect of both neuroticism and extraversion on reactions to both messages. Specifically, high neuroticism was related to more negative attitude (but not flossing intentions) toward the health adverts, whereas high extraversion was linked to more positive intentions to floss (but not advert attitude). Neither of the traits, however, influenced actual behaviour of collecting the floss sample. These results support the characterisation of neuroticism and extraversion as indicators of approach-avoidant temperament (Elliot & Thrash, 2002), and highlight the differentiation between attitudes and one's willingness to perform health behaviours.

A tale of two (or three?) locations in the Margins of the Multiverse.

Mark Haggard¹, Helen Spencer² and Bojana Bukurov³

¹ University of Cambridge

² Independent

³ Clinical Centre of Serbia, Serbia

mph38@cam.ac.uk

‘Model choice’, mature in statistics, is rare amid psychology’s primary concern for non-nullity of isolated hypothesised effects. Statistical methodology rightly emphasises sweet-spots between model parsimony and goodness-of-fit; however, models face four further scientific evaluation criteria: theory-driven interpretability, generalisability, reliability of data subsets, and validities (of diverse types.) The fashionable ‘multiverse’ idea (1), comparing many alternative analyses, can embrace such multi-attribute model choice, but needs directed focus, to avoid antagonising reviewers (over word count and cognitive effort). Alternative analyses should be tapered according to argued necessity, e.g. justified need, for separate applications or scientific sub-goals. The illustration in this latest Methods Update involves factor-structure decisions, but has wider relevance. A small original dataset documenting a questionnaire as equivocal between 2- or 3-factor solutions, but for caution and subset reliability, two was tentatively recommended. In a larger dataset, interpretation and eigenvalues then somewhat favoured extracting three (3rd rotated EV=1.70). Pragmatic validation with this dataset, taking factor weights from regressions documenting their real-world importance, latterly favours the 2-factor solution, with a weighted average SD effect size for treatment of 1.219, against 0.935 with three factors. By such multi-attribute reconciliation of results from studies, conditions or analysis types, premature model choice can be avoided.

Steegen S, Tuerlinckx F, Gelman A, and van Paemel W. Increasing transparency through a multiverse analysis. *Perspectives on Psychological Science* 2016, Vol. 11(5), 702–712.

Age-related effects on bilingual language control depend on the interactional context.

Angela de Bruin¹, Arthur Samuel^{2,3} and Jon Andoni Duñabeitia⁴

¹ University of York



² Stony Brook University, USA

³ Basque Centre on Cognition, Brain and Language (BCBL), Spain

⁴ Universidad Nebrija, Spain

angela.debruin@york.ac.uk

How bilinguals control their languages and switch between them may change across the lifespan. Furthermore, bilingual language control may depend on the demands imposed by the context. We examined how Spanish-Basque bilinguals of different ages switched languages in voluntary and cued picture-naming tasks. In the voluntary task, bilinguals could freely use a language while the cued task required the use of a pre-specified language. Experiment 1 compared 25 younger ($M_{age} = 27$) and 25 older adults ($M_{age} = 68$) while Experiment 2 focused on 20 children ($M_{age} = 8$), 30 teenagers ($M_{age} = 12$), and 25 younger adults ($M_{age} = 25$). Youths and older adults showed larger cued language-mixing costs than younger adults, suggesting that maintaining and using two languages in response to cues was more effortful. They also showed larger cued language-switching costs, in particular when switches were predictable. Age effects on the voluntary task were more limited. Only older adults, but not children and teenagers, showed larger voluntary switching costs. Furthermore, a voluntary mixing benefit was found for all age groups implying that freely using two languages was less effortful than using one language. These findings show that age effects on bilingual language control depend on task demands.

The effects of bilingualism on the structure of the hippocampus and on memory performance in ageing bilinguals.

Toms Voits¹, Holly Robson¹, Jason Rothman^{2,3} and Christos Pliatsikas^{1,3}

¹ University of Reading



² UiT, The Arctic University of Norway, Norway

³ Universidad Nebrija, Spain

toms.voits@pgr.reading.ac.uk

Managing more than one language has been shown to lead to changes in cognition (Bialystok,2017) and brain structure (Pliatsikas,2019) in bi-multilinguals. In particular, the hippocampus, a bilateral structure implicated in learning and memory, has been shown to increase in volume (Mårtensson et al.,2012) and change in shape (DeLuca et al.2018) in bilingual young adults. Bilingualism also confers protective effects against cognitive and neural decline in older age (Perani & Abutalebi,2015). As the hippocampus is vulnerable to ageing (O'Shea et al.,2016), in this study we examined hippocampal structural changes associated with bilingualism and the associated memory performance in healthy ageing monolingual ($M_{age}=65.2, SD=10.5$) and long-term bilingual ($M_{age}=58.5, SD=6.77$) adults. We collected and analysed detailed language background data (Anderson et al.,2018), episodic memory measures (ACE-III; NIH Toolbox) and anatomical MRI scans. Results revealed larger volume for bilinguals in the right hippocampus only, accompanied by significant reshaping of the structure and marginally better episodic memory scores. Notably, length of immersion in L2 environment significantly predicted the volume of the right hippocampus in bilinguals. These results suggest that bilingualism might counteract age-related deterioration of the right hippocampus, suggesting that bilingualism feeds into a neural reserve mechanism and acts as a neuroprotective factor in older age.

Symposium – Cause and effect in action
Organised by Daniel Yon

Action effect anticipation and its consequences on perceptual processing.

Florian Waszak
Université Paris Descartes, France
Florian.waszak@parisdescartes.fr

Ideomotor theory posits that actions are selected on the basis of their predicted effects. I will present several experiments which 1) support the notion that actions and their effects become coded in a common ideomotor representation, and 2) study the consequences of actions on the perception of action effects (sensory attenuation, intentional binding). Finally, I will try to bring the elements of these experiments together to suggest an account of sensory attenuation and other perceptual consequences of action effect anticipation.

The perceptual prediction paradox.

 Clare Press
Birkbeck University of London
c.press@bbk.ac.uk

From the noisy information bombarding our senses our brains must construct percepts that are veridical – reflecting the true state of the world – and informative – conveying what we did not already know. Influential theories suggest that both challenges are met through mechanisms that use expectations about the likely state of the world to shape perception. However, current models explaining how expectations render perception either veridical or informative are mutually incompatible. While the former propose that perceptual experiences are dominated by events we expect, the latter propose that perception of expected events is suppressed. The models predominate in different disciplines – normative sensory cognition and action, respectively – but I will outline evidence that the effects do not differ between disciplines when using comparable paradigms and analyses. I will conclude by presenting a new model that may solve the paradox

Sense of agency in social contexts.

 Frederike Beyer
Queen Mary, University of London
f.beyer@qmul.ac.uk

Sense of agency, the feeling that we are in control of our actions and their consequences, is an important aspect of human voluntary action. A great proportion of human behaviour occurs in social settings, and the presence of others can have substantial effects on individual behaviour. Combining findings from behavioural, EEG and neuroimaging research, we have shown, how social action contexts can affect outcome monitoring and sense of agency. Based on this research, I will discuss the effect of socio-cognitive processes on individual action.

Conscious intentions and predictive brain signals: Why neuroscience does not disprove our intuition of conscious free will.

Marcel Brass

Ghent University, Belgium
marcel.brass@ugent.be

I will address the question whether neuroscientific findings based on Libet-style experiments challenge our intuition of conscious free will. I will argue that while neuroscience shows that conscious decisions are preceded by specific pattern of brain activity, these unconscious precursors of conscious decisions reflect the unfolding of a decision process rather than the outcome of the decision. In Libet-style experiments, the decision is only taken at the time of conscious intention. Furthermore, I will argue that the decision process is configured by conditional intentions that participants form in the beginning of the experiment. Hence, from a neuroscientific perspective there is no convincing evidence against the idea of conscious intentions playing a pivotal role in controlling voluntary action.

Adaptive and maladaptive cognitive mechanisms underlying decision-making.



Camilla Nord
University of Cambridge
Camilla.Nord@mrc-cbu.cam.ac.uk

Approaching rewards and avoiding punishments is essential to survival. Across many neuropsychiatric disorders, disruptions in these basic mechanisms drive maladaptive cognition and behaviour. I will explore two types of decision-making about aversive outcomes. In the first, we examined instrumental approach and avoidance during reward- or loss-related Pavlovian cues in major depressive disorder, a task translated from the animal literature. In the second, we developed a novel effort-based paradigm to measure vigour while avoiding ecologically-valid, ‘irreversible’ losses. In both, we demonstrate an interrelationship between negative emotional state and motivated decision-making in the context of aversive outcomes. These findings have broad significance for the understanding of disrupted motivational processing in neuropsychiatric disorders.

The neural basis of individual differences in real-world routine formation.

Sanne de Wit
Universiteit van Amsterdam, Netherlands
s.dewit@uva.nl

Why do some people succeed in crossing the intention-behaviour gap, while others struggle? In the present study, we investigated the prospective memory challenge of daily pill intake. Seventy-seven healthy, young volunteers underwent magnetic resonance imaging with diffusion tensor imaging, and subsequently were invited into a study of the cognitive benefits of vitamin supplements. They were instructed to take a (placebo) pill daily during three consecutive weeks. We show that their ability to form and automatise a routine was related to individual differences in white-matter connectivity between striatal and prefrontal regions that have been proposed to support prospective memory, goal-directed action and executive function. We also investigated the relation between routine formation and performance on a computerised outcome-devaluation task designed to assess the balance between goal-directed and habitual control.

End of symposium

Cognitive and affective responses to metaphors in first and second language speakers.



Francesca Citron¹, Nora Michaelis² and Adele Goldberg³

¹ Lancaster University

² Freie Universität Berlin, Germany

³ Princeton University, USA

f.citron@lancaster.ac.uk

Metaphors are pervasive in everyday communication and more persuasive than plain, literal language. Recent neurophysiological research has shown that conventional metaphors, He was in a sticky situation, elicit stronger emotive responses in readers than their literal counterparts (difficult situation), i.e.: significantly enhanced amygdala activation, associated with emotion processing, and stronger heart rate responses. In addition, enhanced activation of prefrontal cortices indicates recruitment of executive functions during metaphor processing. This study aimed to replicate and generalise previous findings to metaphorical sentences devoid of emotive content and to explore how second language (L2) speakers process metaphors. L2 speakers struggle with metaphors and are more emotionally distant from L2. Italian proficient L2 learners of German and German native speakers read conventional metaphors and literal paraphrases while their brain activity was recorded (fMRI). While native speakers' results are consistent with previous research, L2 speakers show little to no neural distinction for increasingly metaphorical sentences: they show enhanced activation of the extended language network and executive functions than native speakers, regardless of metaphority, and no apparent emotional engagement. This suggests that L2 speakers activate multiple lexico-semantic representations during processing of both metaphorical and literal expressions, with the latter possibly including representations from their native language.

How do speakers avoid ambiguous pronouns? A cross-linguistic study.

Kumiko Fukumura¹, Sandra Villata², Francesca Foppolo³, Céline Pozniak⁴ and F.-Xavier Alario⁵

¹ University of Stirling

² University of Connecticut, USA

³ University of Milano- Bicocca, Italy

⁴ University of Paris, France

⁵ Aix-Marseille Université, France

kumiko.fukumura@stir.ac.uk

How speakers avoid ambiguity for their addressee remains a central issue in language production research. Here we contrasted two accounts that explain how speakers avoid gender ambiguous pronouns. The non-linguistic competition account claims that speakers use fewer pronouns when biological gender congruence increases the referents' non-linguistic similarity. The ambiguity avoidance account claims that speakers avoid pronouns when gender congruence affects pronoun ambiguity independent of non-linguistic similarity. Three referential communication experiments thus examined how biological and grammatical gender congruence affect pronoun use, by exploiting cross-linguistic variations in French, Italian, and English. In French, gender congruence between the referents resulted in fewer gendered pronouns, regardless of whether pronouns marked biological

gender (for humans) or grammatical gender (for inanimates). In Italian, neither biological nor grammatical gender congruence affected the rates of null pronouns that do not overtly mark gender. Finally, in English, biological gender congruence led to fewer pronouns, whereas grammatical gender congruence, specified for French and Italian, had no effect on the use of pronoun it. These results are most compatible with the ambiguity avoidance account that claims that speakers avoid pronouns when they are gender-ambiguous independent of non-linguistic similarity. We discuss the potential mechanisms that underpin successful gender ambiguity avoidance.

Memory for words and for meaning in native and non-native listeners.

Agnieszka Konopka
University of Aberdeen
agnieszka.konopka@abdn.ac.uk

Previous research on sentence memory showed that listeners have poor memory for sentence wording (verbatim memory) but good memory for sentence meaning (gist memory). This study tested whether memory performance at both levels varies with the linguistic proficiency of the listener and the type of input. Native (L1) and non-native (L2) listeners (n=182 in total) studied pictures of events presented with simple sentences (e.g., The dog chased the postman) that were recorded either by a native speaker (L1 input) or a non-native speaker (L2 input). Participants then received a recognition memory test with two kinds of lures: sentences with wording changes (The dog ran after the postman) to test retention of verbatim detail and sentences with changes in meaning (false memories: The dog bit the postman) to test retention of sentence gist. L2 listeners had lower rates of false recognition for sentences with gist changes (i.e., lower false memory rates) than L1 listeners, particularly when listening to L2 input. L2 listeners with poorer linguistic proficiency also had lower rates of verbatim errors. Thus, listeners with lower proficiency may show a memory benefit for information communicated linguistically due to stronger memory for verbatim detail.

Grammatical generalisation in statistical learning: Is it implicit and invariant across development?



Amanda Hickey¹, Emma Hayiou-Thomas¹ and Jelena Mirković^{1,2}

¹ University of York

² York St. John University

ajh650@york.ac.uk

The learning and generalisation of grammatical regularities is fundamental to successful language acquisition and use. Statistical learning research has started to consider how this process occurs through the implicit detection and assimilation of grammatical regularities. This study focuses on how adults and children generalise regularities, and explores the role of word knowledge and explicit awareness in this process. Across three experiments, adults and children learnt an artificial language containing two semantic categories denoted by a co-occurring determiner and suffix, implementing a system akin to grammatical gender. Level of artificial word knowledge influenced generalisation performance in adults, although this influence appears to be indirect. Explicit awareness of the regularities was associated with generalisation performance in adults but not children, even when adult word level knowledge was similar to children's. The implications of these findings for developmental theories of grammar learning and generalisation are discussed.

Learning new words from print: the role of semantic diversity.



Matthew Mak, Yaling Hsiao and Kate Nation
University of Oxford
matthew.mak@psy.ox.ac.uk

Recent studies (e.g., Hoffman & Woollams, 2015) suggest that words appearing in more semantically diverse contexts are processed more efficiently. In three experiments, we investigated how well novel words were learned by manipulating the semantic diversity of the contexts. In Experiment 1, undergraduates read passages containing novel words. Half of the novel words were experienced in same-themed passages (low SemD) while the other half were experienced in different-themed passages (high SemD). Results from a pseudo-word inferiority task, speeded recognition, and semantics judgement suggest that in the initial stage of word learning, low-SemD contexts facilitated word learning. Experiment 2 adopted a similar design, but all words were first experienced in low-SemD passages. Afterwards, half of them were experienced in a different semantic context (high SemD) while the other half remained in the same context (low SemD). Results from pseudo-word inferiority and speeded recognition showed that words experienced in the high SemD condition established more accessible orthographic representations. We concluded that: (1) Low SemD of the context helps anchor new words into pre-existing memory, facilitating the learning of new words in the early stage. (2) In the longer-run, high SemD is required to further enhance and refine lexical representation of new words. Experiment 3, a computer simulation study, corroborated our behavioural results.

The effect of input variability on L2 phonetic training for children.



Gwen Brekelmans, Bronwen Evans and Elizabeth Wonnacott
University College London
gwen.brekelmans.15@ucl.ac.uk

Acquiring a second language (L2) speech contrast that does not exist in your native language is often difficult. High variability phonetic training (HVPT) with multiple speaker input (compared to low variability (LV) input with one speaker) has been used successfully to teach adults L2 contrasts. However, whether HV is beneficial over LV for children is not clear, as variability is known to increase processing costs, and the little research with children directly comparing HV and LV input shows mixed results. To investigate whether children benefit from HV input, we ran a two-week phonetic training study in which two groups of Dutch children, aged 7/8 and 11/12, were trained on English phoneme contrasts that are notoriously difficult for Dutch learners. Children received either HV (4 talkers) or LV (1 talker) training input. Effects of variability were investigated using a pre/post-test design testing children's identification and discrimination, as well as generalisation abilities. Results show that while both ages learn during training, only older children improved at post-test. Crucially, no evidence of a HV benefit was found, and Bayes factor analyses found evidence for the null in some tests. These results suggest there is a trade-off between task complexity and potential variability benefits.

Do wild raccoons (*Procyon lotor*) spontaneously use sticks as tools?

F. Blake Morton
University of Hull
b.morton@hull.ac.uk

Until the 1960's, using inanimate objects to manipulate one's environment to achieve a goal, i.e. "tool use", was thought to be a defining behaviour separating humans from other animals. Since then, tool use has been found across many taxa (e.g. insects, birds, mammals), challenging notions of what it means to be a "cognitively advanced" and "technically intelligent" species. For reasons that remain unclear, however, tool use is still rare in terms of the number of species within taxa that do it. Raccoons are innovative, have relatively large brains comparable to primates and dogs, are extractive foragers, have excellent visual and manual dexterity for object manipulation, and live in social networks. Thus, based on some prevailing hypotheses for the evolution of technical intelligence, raccoons should be good candidates for tool use. To formally test this, up to twenty wild raccoons from the Croatan National Forest in coastal North Carolina freely engaged in a task requiring them to use a stick to push food from a pipe. No participant solved the task, indicating they either did not understand how to retrieve the food, or were simply unmotivated. Practical and theoretical reasons for the raccoons' (seemingly) lack of tool use are discussed.

Distinct and overlapping neural correlates of metacognitive knowledge and metacognitive control.



Annika Boldt and Sam Gilbert
University College London
a.boldt@ucl.ac.uk

Metacognition is the act of reflecting on one's own mental states, often for the purpose of cognitive control. Previous research has shown that people can accurately report their confidence in their decisions and memories. Research has also investigated how these metacognitive signals are generated and which brain networks encode them. However, we are only just beginning to understand how metacognitive knowledge can then be used to optimise behaviour (metacognitive control). In the present fMRI study, we ask whether metacognitive knowledge and metacognitive control rely on similar neural mechanisms in the context of cognitive offloading—the use of physical action to reduce cognitive demands. In our paradigm, people had to remember delayed intentions (pressing a button when a target colour appeared) whilst completing an unrelated discrimination task. They were sometimes allowed to set reminders, meaning the to-be-remembered colour remained on screen throughout the block. There were two key conditions: In the MetaKnowledge condition people rated their confidence in remembering the delayed intention. In the MetaControl condition, they rated how much they would like to set a reminder. Here we show both similarities and differences in the networks that encode metacognitive knowledge and control, using a combination of univariate and multivariate analyses.

The countermanding saccade task in children: evidence against go / stop process models of inhibitory control.



Timothy Hodgson
University of Lincoln
tlhodgson@lincoln.ac.uk

A total of 143 children (3-10 years) completed a saccade stop signal / countermanding saccade task in which a cartoon bee (target) moved to the left or right on each trial. In an Instructed condition, children were told to “follow busy bee” when a green flower appeared at fixation, but “when the flower turned red” to “look straight ahead instead”. In an Uninstructed condition, the stop signal (red flower) still appeared on 25% of trials, but children were told to “ignore the flowers and follow busy bee”. Surprisingly, children as young as 3 years successfully inhibited target elicited saccades on 40% of stop signal trials. In the Uninstructed condition, older children (>6 years) followed the bee on close to 100% of trials, but younger children still withheld responses on 40% of “stop” trials, even though there was no explicit instruction to do so. Analysis of reaction time distributions indicated that the stop signal exerted an exogenous inhibitory effect on saccades in young children, whereas older children were better at optimising the timing of their saccades. The findings cannot be easily explained by models of saccade inhibitory control which rely on competing Go and Stop control process.

The motoric basis of spatial perception?



Patrick Haggard, Antonio Cataldo and Lucile Dupin
University College London
p.haggard@ucl.ac.uk

How and why do we perceive stimuli as having a subjective quality of location? The seminal work of von Helmholtz and Wundt attributed the perceptual quality of ‘thereness’ to the motor actions required in order to orient towards a stimulus. Classical accounts generally discuss two cases where motor commands might underpin spatial perception: saccadic eye movements required to foveate a visual stimulus, and manual reaching movements to a tactually stimulated location on the skin surface. Interestingly, experimental data for the motor basis of perceived spatial location is sparse, and even apparently non-existent for the tactile case. We report a series of experiments designed to test the role of motion information in tactile spatial perception. In a robotised self-touch apparatus, movements of the right hand produced tactile stimulation of the left forearm, but the spatial relation between movement and touch could be systematically varied. Classical accounts predict that movement extent should influence the perception of tactile extent, but not vice versa. In fact, we found strong effects of touch on movement perception, in addition to effects of movement on touch perception. Our results do not straightforwardly support the classical account of a motoric basis of spatial perception.

The role of the spatial structure of an environment in episodic memory.



Matthew Buckley¹, Liam Myles² and Anthony McGregor²

¹ De Montfort University

² Durham University

matthew.g.buckley@hotmail.com

In the episodic memory literature, it is thought that boundaries in the spatial world are used to segment different memories. In a recent paper by Marchette et al. (2017), participants were required to learn the location of 32 objects that were located in 4 different buildings. Following learning, participants were given memory probes in which they were required to navigate to the remembered position of a given object. Across a number of experiments, when participants committed an error, they were more likely to navigate to the correct position within the wrong building than they were to navigate to the wrong position in the correct building. On the basis of these results, it was concluded that participants recalled object locations with respect to local boundaries surrounding the object, but without recalling the global position of objects with respect to the wider environment. In the three experiments reported here, we draw on theories of spatial encoding from the navigational and reorientation literatures to examine whether this bias could be driven by aspects of the spatial configuration of the environment, by manipulating 1) the predictiveness of local and global cues, 2) the ease in which object locations could be encoded egocentrically from doorways, and 3) the ease in which memories for positions within a building could be transferred between buildings. The data to-be-reported in this presentation suggest that the level at which object positions are encoded (i.e. locally or globally) is driven, at least in part, by the spatial structure of the environment.

Resilient allocentric reorientation following transfer across an environmental boundary.

Luke Holden, Emma Whitt and Mark Haselgrove

University of Nottingham

luke.holden1@nottingham.ac.uk

Three experiments investigated search behaviour following transfer across an environmental boundary. In Experiment 1, participants were required to locate a hidden goal on the inside of a cross-shaped arena over 2, 4 or 16 training trials, before a surprise test trial was conducted on the outside of the arena. During the test, participants were found to spend significantly more time searching within a region more consistent an allocentric than an egocentric encoding strategy, implying that the formation of shape-based allocentric spatial representations is rapid within a typical adult sample. In Experiment 2, participants still preferred to navigate with reference to their allocentric spatial reference frame at test, irrespective of whether one, or multiple, start locations was employed during training. In experiment 3, coloured panels were introduced to the environment both internally and externally to further explore this effect, alongside an allocentric shape-recognition task. The results of these experiments will be discussed with reference to dual-encoding analyses of spatial navigation and re-orientation.

Dance for Parkinson's: The effects of music and dance on gait.



Corinne Jola and Moa Sundstrom
Abertay University
c.jola@abertay.ac.uk

Dance classes designed for people who suffer from Parkinson's disease are very popular despite inconsistent quantitative evidence of its benefits. For a better understanding of the contradictory findings between participants' felt experiences and quantitative data we employed a mixed method approach that focused on the effects of music. We measured gait changes within-subjects through the Timed Up and Go (TUG) test before and after class, with and without music and conducted semi-structured interviews. In line with existing research, we found that the gait of 16 participants improved significantly when accompanied by a soundtrack. However, after class, the Bayesian factor indicates a statistically insignificant yet psychologically relevant reduction in performance with music. Since the gait without music remained largely unchanged before and after class, it is unlikely that we measured fatigue effects. Hence, we suggest that the music may act as an external stimulator for movement before class, whereas after dancing, music is internalised and externally played music might thus interfere. The importance of music was further emphasised in the qualitative data besides social themes. A better understanding of how music and dance affects Parkinson's symptoms and what aspects make individuals 'feel better' will help in the design of future interventions.

Singing in amusia: pitch and rhythm matching ability in Mandarin-speaking individuals with congenital amusia.



Ariadne Loutrari¹, Cunmei Jiang² and Fang Liu³

¹ University of Manchester

² Shanghai Normal University, China

³ University of Reading

ariadne.loutrari@manchester.ac.uk

Individuals with neurogenic abnormalities collectively known as 'amusia' appear to experience difficulties with pitch processing (Peretz & Hyde, 2003) often both in terms of perception and production (e.g., Ayotte et al., 2002; Liu et al., 2016). Given the paucity of studies investigating pitch production in amusia, we set out to explore this ability in 13 Mandarin-speaking amusics and an equal number of matched controls. The participants were recorded while imitating melodies with lyrics and melodies in which lyrics were replaced with the syllable /la/. The acoustic analysis was conducted using ProsodyPro (Xu, 2005-2013) and included three types of analysis in relation to the target melodies: absolute pitch deviation, pitch interval deviation and duration difference. Statistical analysis demonstrated a significant difference on all three measures in both lyrics and syllable conditions. It is, however, worth noting that closer inspection of our data revealed that one amusic performed slightly better than the average control in both pitch measurements, and the duration difference results showed that more than one third of the amusics performed slightly better than the average control on the lyrics condition. Overall, results suggest that pitch imitation is severely compromised among amusics, but consideration of individual cases is also warranted.

What can pitch perception tell us: evidence from Mandarin speakers with ASD.

Chen Zhao¹, Sanrong Xiao², Li Wang¹, Cunmei Jiang³ and Fang Liu¹

¹ University of Reading

² Nanchang University, China

³ Shanghai Normal University, China

c.zhao5@reading.ac.uk

Although there are inconsistent findings on whether individuals with autism spectrum disorder (ASD) have impaired language ability and music perception relative to their typically developing counterparts^{1,2}, the two cognitive abilities share brain mechanisms and are associated with low-level auditory perception³⁻⁵. It is unknown whether the association between pitch perception and language as well as music perception exists in tone language speakers with ASD. The present study assessed speech and non-speech pitch perception, music ability, verbal and non-verbal IQ in 30 Mandarin speaking ASD individuals and 30 age and gender matched controls. Our results show that the ASD group have increased pitch thresholds for both speech and non-speech, and reduced music perception compared to the control group. The impairments in pitch and music perception in ASD participants may be associated with verbal and non-verbal IQ, as well as autistic traits, but not with age. Better non-speech pitch thresholds were associated with better music perceptual scores in the ASD group, while better speech pitch thresholds were associated with better music perceptual scores in the control group. This study provides the first evidence of tone language speaking ASD participants' music and auditory perception, and calls for further research on this topic.

Auditory processing in autism spectrum disorder (ASD): Evidence from pitch thresholds and music perception.

Alexander Bacon¹, Florence Leung¹, Caitlin Dawson¹, Cunmei Jiang² and Fang Liu¹



¹ University of Reading

² Shanghai Normal University, China

A.J.M.Bacon@student.reading.ac.uk

Research on auditory processing in ASD has produced contradictory findings. While some studies suggested increased low-level pitch processing and enhanced musical abilities, other studies revealed central auditory processing disorders in children with ASD, as evidenced by impaired auditory brainstem response and reduced mismatch negativity and P3a. The present study measured pitch thresholds in pure tones, piano tones, and speech syllables as well as music perception in 43 individuals with ASD and 62 typically developing controls, aged 7-56, in order to examine the developmental trajectory of auditory processing in ASD and whether IQ, short-term memory, and musical training affect the performance. Results indicate that the ASD group performed significantly worse than controls on music perception, although the two groups did not differ in any of the pitch threshold measures. While age played a significant role in performance on pitch thresholds, musical training, IQ, and short-term memory contributed to music perception. In addition, musical training and IQ predicted performance on pitch thresholds in piano tones and speech syllables, but not in pure tones. These findings suggest that auditory processing abilities are associated with different cognitive processing abilities and age, which may explain the mixed results on auditory processing in ASD.

Emotion recognition across visual and auditory modalities in autism spectrum disorder (ASD): A systematic review and meta-analysis.

Yik Nam Florence Leung, Jacqueline Sin, Caitlin Dawson, Chen Zhao, Jia Hoong Ong, Anamarija Veić and Fang Liu
University of Reading
y.n.f.leung@pgr.reading.ac.uk

Individuals with ASD often find it difficult to understand emotional cues, which may affect their social experiences. Behavioural studies investigating the recognition of visual and auditory emotions in ASD have produced mixed results. The aim of this systematic review and meta-analysis was to clarify the overall findings by outlining both the strengths and weaknesses of emotion recognition in ASD. A total of 184 articles were included following the exclusion of 9870 titles, abstracts and full-texts, among which only 17 studies reported a composite score for all six basic emotions (anger, fear, happiness, sadness, disgust, and surprise). The overall meta-analysis revealed that the ASD group had more difficulty recognising emotions across face, prosody and face-prosody domains. This effect was more pronounced among adults than children and when compared with neurotypicals than with other comparison groups. Emotion recognition in music is an understudied area despite that strong musical abilities are often reported in individuals with ASD. Heterogeneity in the literature may be due to methodological differences such as extended exposure times that enabled the use of compensatory strategies by individuals with ASD. While compensatory strategies have been explored in the face domain, less has been studied in the prosody domain.

Time perception in autism and typically developed individuals: a characterisation from psychophysics to more ecological high-order processes.



Martin Casassus^{1,2}, Ellen Poliakoff¹, Daniel Poole¹, Emma Gowen¹ and Luke Jones¹
¹ University of Manchester
² Head Forward Centre, Manchester
martin.casassus@manchester.ac.uk

There is a growing belief in researchers, clinicians, parents, and caregivers that there are atypical time perception abilities in Autism Spectrum Conditions (ASC). However, the evidence of timing impairments in ASC is far from conclusive, and it has been suggested that problems with timing in ASC could be anchored on other cognitive processes (e.g. working memory or executive function) instead of a true impairment in the perception of duration (Casassus et al., 2019). This study compared a group of 33 autistic adults and matched controls in a battery of questionnaires and in three experiments assessing different time perception behaviours. The two first experiments are psychophysics tasks assessing temporal sensitivity thresholds and interval timing. The third experiment is an ecological task assessing time-based prospective memory through a modified version of the Dresden breakfast task, where participants were video recorded while preparing breakfast following a set of rules. Results suggest that at a group level, autistic individuals' performance is comparable to controls in all the tasks. Individual profiles of deviant performance of participants from both groups will be presented. Finally, reflections on theoretical and methodological challenges and the impact of this line of research in clinical settings will be discussed.

Self-reference effects in the perception of voices.



Bryony Payne¹, Nadine Lavan¹, Sarah Knight² and Carolyn McGettigan¹

¹ University College London

² University of York

bryony.payne.16@ucl.ac.uk

Speakers are implicitly biased towards their own voice (Hughes and Harrison, 2013) yet it remains unclear whether vocal stimuli need to be self-generated to elicit this bias. We explored whether an externally-generated voice can be incorporated into the self-concept and thus receive the processing bias of a self-associated stimulus. In a first experiment, participants were instructed about associations between three unfamiliar voices and three identities (self, friend, other). In a task, participants then made speeded judgements of whether voice-identity pairs were correctly matched, or not (after Sui et al., 2012). Results showed faster and more accurate responses to the self-associated voice relative to either the friend- or other-associated voice, showing a clear self-bias. In two further experiments, we measured whether bias increases if the self-associated voice is sex-matched to the gender identity of the participant (Experiment 2) or if the self-voice is chosen by the participant (Experiment 3). Sex-matching did not significantly influence bias. However, when participants chose their self-voice, we observed that the friend-associated voice became relatively de-prioritised compared with when the identities were randomly allocated. Our findings have implications for the design and selection of individuated synthetic voice identities used for assistive communication devices.

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Sui, J., He, X., & Humphreys, G. W. (2012). Perceptual effects of social salience: Evidence from self-prioritization effects on perceptual matching. *Journal of Experimental Psychology: Human Perception and Performance*, 38, 1105–1117. doi:10.1037/a0029792

How does familiarity affect trait ratings for voices?



Nadine Lavan^{1,2} and Carolyn McGettigan¹

¹ University College London

² Royal Holloway, University of London

n.lavan@ucl.ac.uk

Listeners readily form first impressions when hearing an unfamiliar voice (McAleer et al., 2014). These first impressions are to change when listeners become familiar with a person. We explored what the nature such changes may be in the context of naturally-varying stimuli. In a voice learning paradigm, listeners provided ratings of trustworthiness for 4 voices. One group provided ratings without having been familiarized with these voices. Another group provided ratings after learning to recognize the voices by name (e.g. "This is Anna", modelling a familiarity-only scenario). The two remaining groups completed the same training but were also presented with either positively-valenced or negatively-valenced information about the voices (e.g. "This is Anna. She helped an elderly man cross the road"; "This is Anna. She lies about her age on her dating profile"). We

investigated whether (valenced) familiarity influences overall ratings of trustworthiness. A planned Contrast confirmed that overall ratings follow the predicted pattern of Positive>Familiarity Only>Negative. Interestingly, unfamiliar listeners (who received no training) gave equivalent ratings to those who received negative-valenced training. We furthermore investigated whether familiarity reduces within-person variability in ratings when voices are familiar. Against predictions, no effect was found, with all listener's groups providing similarly variable ratings.

Examining voice perception in romantic couples.



Elise Kanber, Nadine Lavan and Carolyn McGettigan
University College London
Elise.Kanber.18@ucl.ac.uk

Personally familiar voices – compared to trained-to-familiar or famous voices – are assumed to be more robustly represented in the brain; this may afford benefits for voice perception (e.g. Holmes et al., 2018). However, recent research has demonstrated that introducing within-speaker variability has detrimental effects for both familiar and unfamiliar listeners (Lavan et al., 2016). Findings like these may arise due to listeners not being “familiar enough” with a speaker’s full vocal repertoire. Here, we ask whether personal familiarity with speakers across a variety of speaking contexts allows listeners to better tolerate challenges to perception. Sixteen couples in romantic relationships (and 32 matched controls) performed two voice identity tasks involving the voice of their partner and other less familiar voices. Challenges to perception were introduced by: (1) modulating voice acoustics; (2) removing linguistic information through presenting only filler sounds. We found large benefits of personal familiarity overall for voice identity perception under these conditions. However, this did not extend to intelligibility advantages for a speech in noise task. We thus conclude that while experience with a familiar voice is associated with a more fine-tuned representation of voice identity, the perceptual benefits do not reliably generalise to other tasks.

Holmes, E., Domingo, Y., & Johnsrude, I. S. (2018). Familiar voices are more intelligible, even if they are not recognized as familiar. *Psychological Science*, 29(10), 1575–1583.

Lavan, N., Scott, S.K., & McGettigan, C. (2016). Impaired generalization of speaker identity in familiar and unfamiliar voices. *Journal of Experimental Psychology: General*, 145(12), 1604-1614.

The role of timbre and fundamental frequency in vocal emotion adaptation.



Christine Wulf¹, Verena Skuk¹, Sascha Fröhholz² and Stefan Schweinberger¹
¹ Friedrich Schiller University Jena, Germany
² University of Zurich, Switzerland
christine.wulf@uni-jena.de

Although previous research has demonstrated perceptual aftereffects in emotional voice adaptation, the contribution of different vocal cues to this effect is unclear. We used parameter-specific morphing of adaptor voices to investigate the relative roles of fundamental frequency (F0) and timbre in vocal emotion adaptation, using angry and fearful utterances. Thirty participants (15

females) adapted to voices containing emotion-specific information in either F0 or timbre, with all other parameters kept at an intermediate 50% morph level. As reference conditions, full emotional adaptors and ambiguous adaptors were used. Consistent aftereffects were found in all three emotion conditions ($d_{Full} = 1.83$, $d_{Timbre} = 1.31$, $d_{F0} = 0.51$). Crucially, aftereffects following timbre adaptation were much larger than in the F0 condition ($t(29) = -3.36$, $p = .002$, $d = 0.56$) and not significantly smaller than those elicited by full adaptors ($t(29) = -1.95$, $p = .060$, $d = 0.35$). These results suggest a prominent role of timbre information, and a smaller role of F0, in vocal emotion adaptation. Although findings are limited to angry and fearful voices, they add to the growing body of evidence suggesting a major role of timbre in auditory adaptation.

Performance for identity sorting tasks is correlated across modalities.



Justine Johnson, Carolyn McGettigan and Nadine Lavan
University College London
justine.johnson.18@ucl.ac.uk

Many parallels have been described for faces and voice processing (Yovel & Belin, 2013). Recent identity sorting tasks investigating the effects of familiarity on identity processing have highlighted further similarities (Lavan et al., 2019; Jenkins et al., 2011). In identity sorting tasks, participants sort naturally-varying voice or face stimuli from two identities into perceived identities. Participants who are unfamiliar with the faces/voices perceive more identities than the veridical 2, perceiving variable stimuli of the same person as examples of different people. Here, we explored whether participants who perform well on face sorting tasks are also good at voice sorting tasks. We furthermore tested whether discrimination / matching strategies may underpin unfamiliar identity sorting. 46 participants completed both a voice and a face identity sorting task alongside two matching tasks (Bangor Voice Matching Test, Glasgow Face Matching Test). We found a significant correlation between the number of identities perceived in face and voice sorting tasks, suggesting that modality-general processes drive performance on these identity sorting tasks. Intriguingly, no correlation was found between performance on the sorting tasks and mean accuracy on the corresponding within-modality matching tasks. We conclude that discrimination, as measured by matching tasks, may not underpin performance on sorting tasks.

Investigating the role of speech dynamics in face-voice matching.



Carolyn McGettigan, Li Jiang and Nadine Lavan
University College London
c.mcgettigan@ucl.ac.uk

Previous research has shown that people can match person identity across images/videos and audio recordings of unfamiliar individuals. However, the evidence is mixed, with results depending on both task structure and stimulus properties. In particular, it is unclear whether speech-related mouth movements may contribute to matching accuracy since this information is shared across modalities. We tested how face dynamics influence performance on face-voice identity matching. In a same-different paradigm, participants judged whether the identity of a voice (reading a sentence) matched

the identity of a face. We manipulated the type of face stimulus across 4 versions of the task (N=27 per group). Face stimuli were 1) static images, 2) dynamic videos, 3) dynamic videos with the mouth occluded, or 4) dynamic videos with only the mouth visible. We predicted above-chance performance for all dynamic conditions, and greater accuracy when mouth movements are visible due to the availability of speech cues. We found equivalent above-chance performance in all 4 groups (mean accuracy 52.8%-56.3%), for both raw accuracy and d' sensitivity scores, with response biases being present across conditions. Human observers are thus capable of matching identity cues across modalities, but may use different strategies depending on the information available.

Using transcranial Direct Current Stimulation (tDCS) to enhance or reduce the face inversion effect.



Ciro Civile, Anna Cooke, Xin Liu, Rossy McLaren, Fraser Milton and Ian McLaren
University of Exeter
c.civile@exeter.ac.uk

For this poster presentation we report the results from two experiments that demonstrate how a specific transcranial Direct Current Stimulation (tDCS) methodology can improve performance in circumstances where error-based salience modulation is making face recognition harder. Both experiments used an old/new recognition task involving sets of normal vs Thatcherised faces. The main characteristic of Thatcherised faces is that the eyes and the mouth are upside down hence emphasizing features that tend to be common to other Thatcherised faces and thus leading to stronger generalization, in turn making recognition worse. In Experiment 1, we show that anodal tDCS delivered at Fp3 site for 10 min at 1.5mA (double-blind and between-subjects) can reduce the negative effects induced by error-based modulation of salience on recognition of upright Thatcherised faces. In addition, we showed a significant improvement on recognition performance for upright normal faces. Experiment 2 provides the first direct evidence in a single study that the same tDCS procedure is able to both enhance performance when normal faces are presented with Thatcherised faces, and to reduce performance when normal faces are presented with other normal faces (i.e. male vs female faces). We interpret our results by analyzing how salience modulation influences generalization between similar categories of stimuli.

The perception of body width and circumference of the self.



Lisa P.Y. Lin and Sally Linkenauger
Lancaster University
l.lin1@lancaster.ac.uk

Recent research in body perception has negated the assumption that we could accurately perceived our bodily proportions. However, it is unclear whether these distortions are specific to the perception of body length or whether they generalise to the perception of other bodily dimensions. We assessed in a sample of healthy adults the perception of body width and circumference. Participants were randomly assigned to one of the four groups where they were asked to estimate the width or circumference of their own body parts, using either body parts and non-body objects as measuring unit. To our surprise, the patterns of width and circumference misperception across different body

parts did not resemble those of a somatosensory homunculus. In stark contrast to the drastic misperception of body length found in previous studies, the misperceptions of body width and circumference were of very small magnitude. Perhaps the reason for this is that body length is specified by the bifurcation of optic flow in the visual array, hence it is unnecessary to have an accurate representation because information constantly present optically. However, body width is not optically specified and hence, we need to have a somewhat accurate representation to navigate our environment.

The relationship between perfectionism and body- and food-related attitudes in preadolescents.



Christina Ralph-Nearman^{1,2}, Olivia Shadid³ and Ruth Filik²

¹ Laureate Institute for Brain Research, Tulsa, USA

² University of Nottingham

³ University of New Mexico School of Medicine, Albuquerque, USA

CRalph-Nearman@LaureateInstitute.org

Cognitive factors underlying the development of disordered eating behavior are currently not well understood, but perfectionism may play a role. In the current study, preadolescents' (aged 4-11, N=124) evaluations of body sizes and types of foods were measured, in relationship to their perfectionism, using a "good" or "bad" judgement game. During the task, children decided whether thin/obese body figures or healthy/unhealthy food pictures or words were "good" or "bad", and to what extent. Results showed that positive attitudes toward thin bodies and 'healthy' foods, and negative evaluations of large bodies and 'unhealthy' foods were observed in children as young as 4-6 years old. In contrast, older children expressed negative attitudes towards thin bodies. Positive attitudes toward 'healthy' food dramatically increased in older compared to younger preadolescents, with over 97% of older children agreeing that high perfectionism-related materials (e.g., a gold medal) and healthy food-related materials (e.g., salad) were good, and large body-related materials were bad. Generalized perfectionism in children and body-specific perfectionism in mothers (as determined by questionnaires) were associated with children's body- and food-related attitudes. In conclusion, relationships between perfectionism and body- and food-related attitudes may manifest as young as 4-6 years old, and are related to mothers' perfectionism.

Pulling on the heartstrings: Tightening up the heartbeat counting task.



Lydia Hickman¹, Diar Abdelkarim¹, Jennifer Murphy², Michel-Pierre Coll³ and Jennifer Cook¹

¹ University of Birmingham

² King's College London

³ University of Oxford

LXH856@student.bham.ac.uk

Interoception is described as an awareness of the physical condition of the body including cardiac and respiratory awareness¹. One widely used measure of interoceptive accuracy is the Heartbeat Counting Task² (HCT) in which participants are tested in their accuracy to count their heart beats

during a given time interval. This task, however, has been criticised on the basis that various non-interoceptive factors (e.g. BMI³, blood pressure⁴ and time estimation abilities⁵) influence heartbeat counting accuracy. One important factor that has not yet been controlled for is exteroceptive sensation: participants may score highly on the HCT simply by tuning into the tactile sensation of their pulse⁶. Here we report a novel tactile perception task which addresses this problem. Participants (N=46) completed the HCT, tactile perception tasks (easy-moderate-difficult), and additional control variables. A regression model containing easy-tactile, moderate-tactile, time estimation, heartrate, heartrate variability, knowledge of resting heartrate, BMI, age and anxiety significantly predicted HCT performance ($R^2=.21$, $F(9, 35)=2.20$, $p=.039$). Compared to standard control measures tactile perception accounted for an additional 10% of variance in HCT performance ($R^2 \text{ change}=.10$, $p=.024$). Future studies using the HCT should utilise the tactile perception task and other control measures to obtain a more accurate index of interoceptive accuracy.

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Predicted tactile effects of action are perceptually enhanced, not cancelled.



Emily Thomas¹, Daniel Yon², Floris de Lange³ and Clare Press¹

¹ Birkbeck, University of London

² Goldsmith's, University of London

³ Radboud University, The Netherlands

ethoma09@mail.bbk.ac.uk

Dominant models of action control propose that we ‘cancel’ perceptual processing of expected action outcomes, thought to explain why sensory consequences of action are perceived less intensely than their externally generated counterparts. However, contrasting Bayesian models of sensory cognition developed outside of action propose that expected information should be facilitated within the percept. Due to this conflict we examined more closely which account is more accurately able to explain effects of predictable tactile events based on action. We demonstrate that tactile consequences of action can be perceived as more forceful during movement than similar tactile events presented in the absence of movement, but only when the active effector did not receive cutaneous tactile stimulation (Experiment 1). Moreover, our findings also show – with two different

movement set-ups – that tactile events predicted on the basis of action are perceived to be more forceful than unexpected events (Experiments 2 and 3). These findings suggest that sensorimotor prediction may facilitate, rather than cancel, expected information within the percept, aiding veridical perception of action outcomes in a noisy sensory environment. We consider how the apparently paradoxical facilitatory and cancelling influences of prediction on perception may be unified.

Examining whether semantic cues can affect felt heaviness when lifting novel objects.



Caitlin Naylor and Gavin Buckingham
University of Exeter
c.naylor@exeter.ac.uk

The size-weight illusion is a phenomenon whereby smaller objects feel heavier than equally-weighted larger objects. This illusion is thought to be driven, at least in part, by cognitive expectations of heaviness (Buckingham 2014). Here, we present the results from a registered report (stage 1 acceptance: <https://osf.io/xeh38>) which investigated whether higher-level expectations, specifically semantic cues, can induce a weight illusion by influencing perception of heaviness. Participants repeatedly lifted sets of identically-weighted objects labelled as ‘heavy’ and ‘light’, rating their perceived heaviness on each trial. During each lift, fingertip force measurements were also taken to investigate whether cognitive expectations influence sensorimotor prediction. We observed no significant effect of label on perceived weight ($F(1, 35) = 1.563, p = .219, \eta^2_p = .043$) or grip ($t(34) = 1.828, p = .076, d = .309$) and load ($t(34) = .944, p = .352, d = .160$) force rate. We thus find no evidence for the proposition that higher-level expectations drive perception and sensorimotor prediction, highlighting the segregated nature of different expectation types in perception and sensorimotor prediction.

The Pint Glass Illusion: Large distortions in the perceived form of everyday objects.



Sally Linkenauger, Neil McLatchie, Lara Warmelink and Charlie Lewis Lancaster
University
s.linkenauger@lancaster.ac.uk

From an evolutionary perspective, our perceptual systems only need to derive the dimensions of an object that inform our ability to interact effectively with our environment. Otherwise, we would spend energy on unnecessary information processing. One prime example of an unnecessary dimension is circumference. To grasp a cylindrical object effectively, we only need to pair the visual information specifying the diameter directly to grip aperture which makes circumference perception superfluous. To test this idea, participants made relative and absolute judgments of the heights, diameters, and circumferences of various types of glasses. We found considerable compressions in circumference perception across various forms and sizes. These results suggest that humans do not formulate physically accurate form percepts, because these are not useful for controlling movement.

Electrical brain activity associated with false memory-related increases to subsequent recognition.



Louisa Salhi¹, Arianna Moccia¹, David Vogelsang² and Zara Bergstrom¹

¹ University of Kent

² University of California, USA

l.salhi@kent.ac.uk

Incidental encoding takes place in many situations, including during old/new recognition tasks where new "foil" items are encoded to different extents depending on modulatory processes (1). From our prior findings, one such modulator is false familiarity, since foil words that are falsely recognised as previously seen on a first test are subsequently more likely to be accurately recognised on a final surprise test. This pattern may be due to false familiarity facilitating context encoding during the first test (2), or due to false familiarity "carrying over" across multiple tests (i.e. persistent false memories). In this EEG study, we investigated the neurocognitive mechanisms that underlie spontaneous false memory during an old/new task and how this relates to increased subsequent recognition. Behavioural findings replicate our prior results by showing increased subsequent recognition for items that produced false familiarity on the first test with source judgments indicating persistent false memories rather than familiarity facilitating encoding. The EEG findings provide more information on the neural mechanisms driving this effect, and how they relate to well-established markers of familiarity and recollection (3). The results will also be used to inform the theoretical debate regarding the dissociation of novelty and familiarity processes during recognition (4).

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Assessing the contribution of meaningfulness in study materials to the testing effect.



Sarah Hendry, Michael Verde and Tim Hollins

University of Plymouth

sarah.hendry@plymouth.ac.uk

As a form of revision practice, testing is one of the most effective ways to promote long-term memory retention. Some theories predict that the testing effect may depend on the meaningfulness

and coherence of the studied materials. For example, the elaborative retrieval hypothesis (Carpenter, 2009) suggests that weak semantic links between a retrieval cue and target require more elaboration during retrieval, resulting in greater benefits of testing. We manipulated meaningfulness in several ways: the strength of cue-target associations (Experiment 1), the availability of comprehension aids for unfamiliar cue-target pairs (Experiment 2), and the coherence of text passages (Experiment 3). Although meaningfulness had a strong effect on recall in every case, we found no evidence that meaningfulness influenced the testing effect.

Carpenter, S. K. (2009). Cue strength as a moderator of the testing effect: the benefits of elaborative retrieval. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 35(6), 1563.

Exploring the motivational factors behind stopping learning too early.



Abbie Ball, Peter Jones and Tim Hollins
University of Plymouth
abbie.ball@plymouth.ac.uk

Within previous word-list learning paradigms (e.g. Murayama, Blake, Kerr & Castel, 2016) participants tend to restrict the incoming of new words approximately 60% of the time, by terminating the word list early. What is unusual about this is that the aim is for participants to maximise their performance, but by stopping the incoming of information, they actually harm their recall performance. Murayama et al. (2016) posited that stopping early is due to a perception of information overload, whereby people believe that seeing more is harmful for their recall. In our prior experiments, we have replicated Murayama et al.'s (2016) results but have found evidence suggesting that such a maladaptive decision is due to motivational factors instead. The current experiments aim to apply these findings to text materials, reflecting more realistic study conditions. The results of the current research replicated our earlier studies and also found an important influence of motivational factors when learning novel texts; these factors had a significant impact on the allocation of study time and stopping rate. Overall, our data highlights the importance motivation has on the self-regulated study of text materials and intend that future experiments explore additional factors that could affect such harmful, restrictive behaviour.

Murayama, K., Blake, A. B., Kerr, T., & Castel, A. D. (2016). When enough is not enough: Information overload and metacognitive decisions to stop studying information. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 42(6), 914-924.

A developmental effect on latent inhibition: A replication and extension of Kaniel and Lubow (1986).

Ian McLaren, Rosamund McLaren and Ciro Civile
University of Exeter
i.p.l.mclaren@exeter.ac.uk

In 1986, Kaniel and Lubow reported an analogue of the conventional latent inhibition effect in animals that was specific to young children (aged 5). This is one of the few such demonstrations to

use more or less simple exposure to a neutral stimulus and then demonstrate slower learning to that stimulus that cannot easily be interpreted as habituation or some other artefact. Replications of this effect, however, have been hard to come by. We are now able to report one such replication that does provide support for this earlier demonstration, in that we have evidence of slower learning as a consequence of stimulus pre-exposure in those under 5 years old, and little effect above that age. We follow this up with an analysis of whether the effect can truly be said to be latent inhibition, or whether it is better interpreted as an effect better described as negative priming or response inhibition. Our conclusion is that latent inhibition is the preferred account.

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The influence of genetic variation in monoamine signalling on individual and social learning.



Alicia Rybicki¹, Barbara Franke², Roshan Cools^{2,3} and Jennifer Cook¹

¹ University of Birmingham

² Donders Institute for Brain, Cognition and Behaviour, The Netherlands

³ Radboud University Medical Centre, The Netherlands

axr783@student.bham.ac.uk

It is unclear as to whether individual learning, from personal experience, and social learning share underlying neurochemical mechanisms, or if there are specific domain-general neurochemical signalling mechanisms for social learning (Heyes, 2012; Heyes & Pearce, 2015). The monoamine neurotransmitters dopamine (DA) and serotonin (5-HT) play important roles in reward learning (Diaconescu et al., 2014; Joiner et al., 2017; Schultz et al., 1997). To investigate if they play the same role in social and individual learning, we used naturally occurring genetic variations in monoamine availability to investigate learning from both social and individual information. Subjects (n= 597) were genotyped for the dopamine transporter, DAT, and the serotonin transporter, SERT, and completed a probabilistic learning task (Behrens et al., 2008, Cook et al., under review), requiring them to learn from individual and social sources simultaneously. Differences between social and individual learning as a function of monoamine signalling would suggest specialised mechanisms for social learning (Heyes, 2012). Win-Stay/Lose-Shift (WSLS) scores were used as a measure of learning. Results showed a significant interaction between SERT genotype and learning source, whereby social learning significantly varied as a function of genotype, from social information, whereas individual learning did not. There were no main effects or interactions involving DAT. Results provide preliminary evidence that SERT genotype dissociates social and individual learning.

High lexical selection demands when switching into first language versus switching into second language.



Asma Assanee¹, Linda Wheeldon² and Andrea Krott¹

¹ University of Birmingham

² Universitetet i Agder, Norway

asma_ua@hotmail.com

When bilinguals switch between their languages, they rely on their language control system. It has been found that switching from first (L1) into second language (L2) creates increased demand on different brain areas compared to switching from L2 into L1. This finding predicts that only switching into L1, not into L2, is demanding in terms of lexical selection and should therefore interact with lexical selection demands. We tested whether lexical selection is more demanding when bilinguals switch into their L1 as compared to when they switch into their L2 by manipulating lexical selection difficulties (low versus high lexical selection demand) and the direction of the switch (switching into L1 as compared to switching into L2). We manipulated lexical selection demand by asking participants to repeatedly name small sets of pictures from the same semantic category (homogeneous context) or from different semantic categories (heterogeneous context). A group of 44 Arabic[L1]-English[L2] bilinguals named pictures alternating between their languages. Participants slowed down significantly in the homogeneous blocks compared to the heterogeneous blocks. Importantly, the effect of homogeneity was significantly larger when switching into L1 compared to switching into L2. Our results provide evidence that switching into L1 as compared to L2 is demanding in terms of lexical selection when accompanied with an increased lexical competition in the other language.

Effects of cross-lingual long-term priming on cognates and interlingual homographs. Withdrawn



Eva Poort and Jennifer Rodd

University College London

eva.poort.12@ucl.ac.uk

Poort, Warren and Rodd (2016) showed that an encounter with a cognate in one's native language speeds up subsequent processing in one's second language by 28ms, while it slows down processing of an interlingual homograph by 49ms. Follow-up studies have yielded mixed results, however: Poort and Rodd (2017) did not replicate these findings, while Poort and Rodd (2019) did, though their effects were much smaller (5ms and 10ms, respectively). We conducted a fourth follow-up experiment to determine whether the direction of priming influences the effect. Dutch-English bilinguals ($N = 106$) read English sentences that included either a cognate ($n = 50$), interlingual homograph ($n = 50$) or English control word ($n = 50$) and completed a Dutch semantic relatedness task 15 minutes later. Cross-lingual priming did not affect processing of the cognates, but did slow down processing of the interlingual homographs by 16ms. Statistically, this effect was of a similar size as Poort and Rodd's (2019) effect, meaning the direction of priming appears not to modulate the effect. We conclude that the cross-lingual long-term priming effect is bidirectional, but that it is much smaller than initially believed and possibly restricted to interlingual homographs.

Decoding the real-time neurobiological properties of predictive computations

Hun S. Choi, William Marslen-Wilson, Bingjiang Lyu, Billi Randall and Lorraine K Tyler
University of Cambridge
hun@csl.psychol.cam.ac.uk

Prediction is an essential cognitive operation, enabling listeners to rapidly process each word and interpret it in its context. With recent advances in Artificial Intelligence (AI) research, the degree to which predictive processes overlap between human and AI has become an important research topic. However, the language AI models that generate accurate predictions on upcoming words are highly complicated and their central computations occurring in the hidden layers are not straightforward to interpret. In this study, we illustrate an approach to understanding the nature of representation in each of the “blackbox” LSTM layers and to relate it to the spatiotemporal dynamics of neural activity. To do this, we used a Long Short Term Memory (LSTM) model trained by Google on 1 billion word benchmark using a set of explanatory incremental semantic and syntactic models which were, in turn, tested against the multivariate patterns of neural activity recorded by source-localised electro/magnetoencephalography (EMEG). Our results provide support for the early involvement of semantics in predictive sentential computations in the LSTM hidden layers whereas syntactic information was only captured at the output layer. Computations in each of these layers showed significant fit in widespread bilateral temporal and right frontal language regions.

Task-dependent effects in the lexical boost.



Laura Wakeford¹, Roger Van Gompel¹ and Leila Kantola²

¹ University of Dundee

² Umeå University, Sweden

l.j.z.wakeford@dundee.ac.uk

In structural priming, head verb repetition between prime and target leads to enhanced priming: the lexical boost effect (Pickering & Branigan, 1998). A boost from a non-head noun has, however, been more elusive (Carminati et al, 2019; Scheepers et al. 2017). To determine whether the lexical boost is affected by explicit memory (e.g., Chang et al, 2006), we tested for a lexical boost using ditransitive structures (e.g., the cleaner showed the ladder to the apprentice), when participants could still see the prime while completing a target (Experiments 1 & 3) or not (Experiments 2 & 4); the first two experiments tested for a boost from the head verb, the last two from the subject noun. The verb-related boost occurred regardless of whether or not participants could still see the prime. Critically, the noun boost only arose when participants could see the prime. This suggests that, unlike the verb-related boost, the noun-related boost is a strategic effect that only occurs when the simultaneous visibility of the prime and target makes the noun repetition explicit, boosting activation of the prime structure. We conclude that structures are associated with the head verb but not normally with non-head nouns.

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Chang, F., Dell, G. S. & Bock, J. K. (2006). Becoming Syntactic. *Psychological Review*. 113, 234-272.

Pickering, M. J., & Branigan, H. P. (1998). The representation of verbs: Evidence from syntactic priming in language production. *Journal of Memory and Language*, 39, 633–651.

Scheepers, C, Raffray, C. & Myachykov, A. (2017). The lexical boost effect is not diagnostic of lexically-specific syntactic representations. *Journal of Memory and Language*, 95, 102-115.

An investigation of lexical-syntactic representations using structural priming.



Roger van Gompel¹, Laura Wakeford¹ and Leila Kantola²

¹ University of Dundee

² Umeå University, Sweden

r.p.g.vangompel@dundee.ac.uk

Structural priming, the finding that speakers tend to repeat syntactic structures across utterances, is stronger when the verb is repeated between prime and target (Pickering & Branigan, 1998). This is taken as evidence that syntactic structures are mentally represented with their syntactic head, the verb, which determines whether the structure is grammatically acceptable. However, it is unclear whether structures are represented only with the head verb or also with other verbs. To investigate this, we manipulated the repetition of verbs that were not the head of the primed structure in three experiments. Participants read primes such as the painter hesitated to give {the apprentice the ladder, the ladder to the apprentice} and then completed target fragments such as the farmer {hesitated,

decided} to hand ... Here, the matrix verb (hesitated) is not the head of the primed structure (the apprentice the ladder/the ladder to the apprentice). All experiments showed clear structural priming, but no evidence that it was stronger when the matrix verb (hesitated, decided) was repeated. We conclude that structures are not represented with verbs that are not their head. More generally, our results show that structures are not associated with all content words (cf. Scheepers et al., 2017).

Pickering, M. J., & Branigan, H. P. (1998). The representation of verbs: Evidence from syntactic priming in language production. *Journal of Memory and Language*, 39, 633–651.

Scheepers, C, Raffray, C. & Myachykov, A. (2017). The lexical boost effect is not diagnostic of lexically-specific syntactic representations. *Journal of Memory and Language*, 95, 102-115.

The effect of semantic diversity on serial recall of words.



Yaling Hsiao, Matthew Mak and Kate Nation

University of Oxford

yaling.hsiao@psy.ox.ac.uk

Recent studies have shown that context has an important role in accessing the lexicon. We used the measure of "semantic diversity" to quantify the degree of semantic similarity in the contexts a word appears in and examined its role in immediate serial recall, a paradigm that bears implication on language processing and vocabulary learning. A correlated semantic factor "imageability" was also investigated. Forty college-aged adults took part in an immediate serial recall task involving words that varied in semantic diversity and imaginability. Accuracy data showed opposing effects of semantic diversity in the earlier positions compared to the later positions. While there were no main

effects of imageability or semantic diversity, semantic diversity was modulated by list position. Words of higher semantic diversity were recalled more accurately in the first position. In contrast, words of lower semantic diversity were recalled more correctly in the latter three positions, but only among highly imageable words. The findings indicate that episodic retrieval of item information for high semantic diversity words is easier at the first position but is more difficult as serial memory is subject to more competition at the latter positions.

The effect of imperfective/perfective verb aspect on children's perception of the ongoingness of events within narratives.



Gillian Francey and Kate Cain
Lancaster University
g.francey@lancaster.ac.uk

Adults judge imperfectively expressed events within narratives (Stephanie was packing a suitcase) as ongoing and perfectly expressed events (Stephanie packed a suitcase) as completed. As narratives proceed adults' perception that short duration, imperfectively expressed events are ongoing declines. We investigated whether 7- to 11-year-olds are similarly influenced. One hundred and ninety-eight children were presented with imperfectively/perfectively expressed short duration events, embedded within narratives. An additional sentence, neutral with respect to the passage of time, followed half

the items. Children were asked whether the event was completed or not, immediately after the event or after the additional sentence. Participants recorded their choice in a booklet.

Children were more likely to state that the events were completed than ongoing. However, the probability of stating the event was ongoing was more likely for events expressed with imperfective aspect than perfective aspect. This tendency increased with age when children were asked immediately after the event. Intervening text reduced the probability that imperfectively expressed events were considered ongoing and this tendency increased with age. Children's perception that imperfectively expressed events are ongoing increases within the age range 7-11 years. Like adults, children's perception that imperfectively expressed events are ongoing decreases as a narrative proceeds.

The role of character information in the programming of return-sweep saccades during reading.



Calvin Laursen, Victoria Adedeji, Martin Vasilev, Tim Slattery and Marcin Budka
University of Bournemouth
claursen@bournemouth.ac.uk

We explored the targeting and execution of return-sweeps during reading in an eye movement experiment. We manipulated the length of the lines of text (16 vs 26 degrees of visual angle) and the font size of letters (.29 vs .39 degrees/character). The font size manipulation was blocked and counterbalanced for order. If character information is important for return-sweep targeting, the larger font should produce fewer corrective saccades compared to the smaller font, and this may be especially pronounced in the long line condition. Return-sweep error was greater for long compared to short lines, thus replicating previous results. Crucially, we found a main effect of font size, whereby there were fewer corrective saccades with the larger font. This reduction in corrective

saccades is particularly of interest given that the larger font also resulted in readers landing further into the new line (an effect that usually results in an increase in corrective saccades). These findings are interpreted as showing that return-sweeps rely on typographic properties of the text and that readers learn to modulate their targeting decisions based on this typographic information in order to maintain an optimal number of characters to the left of their first fixation on a new line.

Distraction by auditory novelty during reading: Evidence for disruption in saccade planning but not saccade execution.

Martin Vasilev¹, Fabrice Parmentier^{2,3,4} and Julie Kirkby¹

¹ Bournemouth University

² University of the Balearic Islands, Spain

³ Balearic Islands Health Research Institute, Spain

⁴ University of Western Australia, Australia

mvasilev@bournemouth.ac.uk

EPS

Novel or unexpected sounds that deviate from an otherwise repetitive sequence of the same sound cause behavioural distraction. Similar distraction occurs during reading as fixation durations were found to increase when readers hear a deviant sound presented at the fixation onset of words (Vasilev, Parmentier, Angele, & Kirkby, 2019). The present study tested the hypothesis that this increase in fixation durations is due to saccadic inhibition by manipulating the timing of the sound relative to word fixations. If novel sounds cause saccadic inhibition, they should be more distracting when played during the second half of fixation (i.e., when saccade programming takes place). Participants heard either novel sounds ($p=.1$) or a standard sound ($p=.9$) for 120 ms when they fixated five target words in a sentence. The sounds were played either during the first half of the fixation (0 ms delay) or during the second half of fixation (120 ms delay). Consistent with the saccadic inhibition hypothesis, novel sounds led to longer fixation durations when played with a 120 ms delay. However, novel sounds did not influence the execution of the subsequent saccade. These results suggest that unexpected sounds have a rapid influence on the planning, but not execution of saccades.

Vasilev, M. R., Parmentier, F. B. R., Angele, B., & Kirkby, J. A. (2019). Distraction by deviant sounds during reading: An eye-movement study. *Quarterly Journal of Experimental Psychology*, 72(7), 1863–1875. doi: 10.1177/1747021818820816

Perspective influences eye movements and language production during real-life conversation: A study on mentalising about self vs. others in autism.

Mahsa Barzy, David Williams and Heather Ferguson

University of Kent

mm951@kent.ac.uk

Socio-communication is profoundly impaired among autistic individuals. Characteristic difficulties representing others' mental states have been linked to modulations of gaze and speech, which have

also been shown to be impaired in ASD (Freeth et al., 2019). Despite these observed impairments in ‘real-world’ communicative settings, research has mostly focused on lab-based experiments, where the language is highly structured. In a pre-registered experiment, we recorded eye movements and verbal responses while participants (N=50) engaged in a real-life conversation. Conversation topic either related to the self, a familiar other, or an unfamiliar other (e.g. “Tell me who is your/your mother’s/Marina’s favourite celebrity and why?”). Results replicated previous work showing reduced attention to socially-relevant information among autistic participants (i.e. less time looking at the experimenter’s eyes and face, and more time looking around the background), compared to controls. Importantly, perspective modulated social attention in both groups. Talking about an unfamiliar other reduced attention to potentially distracting or resource-demanding social information, and increased looks to non-social background. Social attention did not differ between self and familiar other contexts- consistent with the assumption of greater shared knowledge for familiar/similar others.

The broader autism phenotype, mentalizing and camouflaging: An eye-tracking study.



Ruihan Wu and Sarah White
University College London
r.wu.16@ucl.ac.uk

In autism, mentalizing impairment is a promising explanation of the social communication and interaction difficulties. Although some autistic individuals can acquire the capacity to explicitly mentalize, they still struggle to implicitly attribute those states. The Broader Autism Phenotype (BAP) is often found in the relatives of autistic individuals. Considering the BAP from a camouflaging perspective may allow for better insight into missed or late diagnosis, especially in females. Members of the BAP may therefore be camouflaging experts who still experience difficulties due to their autistic characteristics, but can appear neurotypical in more explicit tasks. This is the first study to compare differences in anticipatory looking during matched implicit and explicit mentalizing tasks, using a multi-trial paradigm with matched true and false belief conditions. Autistic traits, camouflaging, implicit and explicit mentalizing are measured in two separate samples. One consists of 68 neurotypical adults; the other of 34 mothers of autistic children and 26 mothers of neurotypical children. Our data shows a larger discrepancy between implicit and explicit tasks in the BAP than in the NT. Those with more autistic traits report higher camouflaging levels. The discrepancy between implicit and explicit mentalizing is likely to indicate camouflaging. Camouflaging experts may circumvent diagnosis.

Probabilistic learning among neurotypicals and autistic individuals: A pilot study.



Jia Hoong Ong and Fang Liu
University of Reading
jiahoong.ong@reading.ac.uk

While there are many theories proposed to explain various characteristics of autism spectrum disorder (ASD), most are able to explain specific ASD characteristics only. Here, we propose a unified account that may explain most ASD characteristics: ASD individuals may have atypical

integration of probabilistic information. To investigate this, we developed a task that measures probabilistic learning: participants were presented with auditory ‘magic spells’ (strings of pseudowords with manipulated acoustic cues) and they had to predict which of four outcomes will happen after each spell. Outcomes were defined deterministically or probabilistically (i.e., cues predicted outcome 100% or 75% of the time, respectively). Importantly, participants were neither told which cues to attend nor how the outcomes were defined. Participants were provided with trial-by-trial feedback during learning phase whereas no feedback was provided during test phase. We measured participants’ (i) learning rate, as indexed by the regression slope across two learning blocks; and (ii) overall performance, as indexed by their test phase score. Our pilot study with neurotypical adults ($n=15$) showed that they are sensitive to the outcome probabilities: deterministic outcomes were learned better than probabilistic outcomes. Preliminary results of ongoing testing with ASD individuals and matched neurotypicals will also be presented.

Tracking social attention across the lifespan.



Martina De Lillo, Matthew Fysh, Victoria Brunsdon, Elisabeth Bradford and Heather Ferguson
University of Kent
md559@kent.ac.uk

Detecting and responding appropriately to social information in one’s environment is a vital part of everyday social interaction. Research has revealed that some basic attentional functions deteriorate with advancing age, in a way that cannot easily be explained by mere generalized cognitive slowing. Much less is known about how social attention changes across the lifespan, but emerging evidence points to a decline in ability to orient to and infer others’ perspectives. We investigated how young (20-40yo, $N=80$) and older (60-80yo, $N=80$) adults attend to and infer mental states in others, and interact in real-life. In Experiment 1, participants watched short videos depicting people in everyday situations and inferred mental states for them. This lab-based task showed that older adults were slower to make social inferences, and engaged the same hierarchy of social inferences as young adults. Experiments 2 and 3 used recorded participants’ gaze during an interview-style conversation, and while they navigated around crowded environments in the real-world. Results revealed that older adults attended less to social information (i.e. the face) during face-to-face conversation, and to people when navigating the real-world. These results show that social attention undergoes age-related change, though these effects are not universal across all types of social interaction.

Age effects in gaze cueing and the role of predictiveness.



Steve Hayward, Louise Phillips, Margaret Jackson
University of Aberdeen
r02sah15@abdn.ac.uk

The ability to effectively orient attention in response to gaze cues is suggested to be impaired with age. The current work addresses a gap in research on age differences in joint attention, investigating the effect of cue predictiveness. A target localisation task, using a dynamic gaze cue, was completed by younger and older adults. Cues were either non-predictive of target location (50% valid/invalid),

predictive (75% valid/25% invalid), or counter-predictive (25% invalid/75% valid). Participants were aware of cue predictiveness to enable direct assessment of strategic attentional control. There was greater cueing for predictive vs. non-predictive vs. counter-predictive cues, and this was not influenced by age, suggesting both age groups can exert control of attentional orienting, supporting or suppressing reflexive responses dependent on known cue predictiveness. However, comparison of valid and invalid cueing to direct gaze baseline showed significant age differences in underlying cueing mechanisms. Younger adults showed a reaction time benefit from valid cues, however older adults showed reaction time costs to invalid cues and an absence of benefit from valid cues, at shorter cue-target intervals. This suggests older adults may experience delayed processing of gaze cue information, negatively affecting their ability to engage effectively and efficiently in joint attention.

Predictors of performance in Heider-Simmel style animations.



Bianca Schuster, Dagmar Fraser, Jasper van den Bosch, Sophie Sowden and Jennifer Cook
University of Birmingham
BAS813@student.bham.ac.uk

Humans readily infer mental states from animations of 2D geometric shapes (Heider & Simmel, 1944). However, there is considerable variation in both this inference (Abell, Happé & Frith, 2000) and a person's ability to communicate mental states via animations (Edey et al. 2018). Edey et al. found that highly accelerated and jerkier animations were less accurately labelled, indicating that kinematics play a role in mental state attributions. However, spatial cues, including the shape of the trajectory of the geometric shapes or the amount of contingent motion, may also be important. We first asked 52 participants to animate two triangles on a touch-screen device in order to depict the mental states mocking, seducing, surprising. 47 naïve observers were subsequently asked to rate the extent to which each animation depicted the three words. We analysed velocity, acceleration and jerk of the videos and calculated indices of contact and contingent motion. We further employed spatial fourier transform to decompose shape trajectories into their constituent 'angular frequencies' (Huh & Sejnowski, 2015). Multiple regression analysis revealed that a combination of kinematic and spatial factors is important in the communication of mental states in animations, and that the particular combination differs depending on the mental state.

Abell, F., Happé, F., & Frith, U. (2000). Do triangles play tricks? Attribution of mental states to animated shapes in normal and abnormal development. *Cognitive Development*, 15, 1–16.

[https://doi.org/10.1016/S0885-2014\(00\)00014-9](https://doi.org/10.1016/S0885-2014(00)00014-9)

Edey, R., Cook, J., Brewer, R., Johnson, M. H., Bird, G., & Press, C. (2016). Interaction takes two: Typical adults exhibit mind-blindness towards those with autism spectrum disorder. *Journal of Abnormal Psychology*, 125(7), 879-885. <https://doi.org/10.1037/abn0000199>

Heider, F., & Simmel, M. (1944). An experimental study of apparent behaviour. *The American Journal of Psychology*, 57(2), 243-259.

Huh, D., & Sejnowski, T. J. (2015). Spectrum of power laws for curved hand movements. *Proceedings of the National Academy of Sciences*, 112(29), E3950 LP-E3958.
<https://doi.org/10.1073/pnas.1510208112>

The nature of self-other control processes in social cognition: Domain general vs specialised mechanisms.



Divyush Khemka¹, Caroline Catmur¹ and Geoff Bird²

¹ King's College London

² University of Oxford

divyush.khemka@kcl.ac.uk

Self-other control is the process involved in controlling neural representations of the self versus those relating to other people. Previous research has suggested that self-other control may be a common neurocognitive mechanism explaining performance across social domains. The current study aims to understand whether self-other control is specialised for social cognition as opposed to a domain-general cognitive mechanism. Participants were randomly allocated to one of three behavioural training conditions. Participants in the self-other control group were trained to increase self-other control in the motor domain by inhibiting imitative responses, requiring them to control self- versus other-relevant representations. These participants were compared to those in a) an imitation training group, who saw and performed the same actions and thus did not need to exert self-other control; and b) a spatial inhibition training group, who were trained to inhibit spatially compatible responses, involving domain-general inhibition. The ability to inhibit imitation (i.e. to exert self-other control) was measured in all groups before and 24 hours after training. The self-other control group showed an improvement in the ability to inhibit imitation, compared to the other two groups, suggesting that self-other control is a social-specific, rather than domain-general, cognitive mechanism.

Eye gaze, social value and attentional bias.



Vilma Pullinen and Margaret Jackson

University of Aberdeen

v.pullinen.19@abdn.ac.uk

Previous studies have shown that objects are liked more when a cue face is observed to look them at versus away from them, indicating that observed gaze can influence the perceived value of things. However, several experiments that examine person evaluation have not found observed gaze cues to influence explicit ratings of liking and trustworthiness of other faces. The current study examined whether seeing others being ignored versus attended modifies their social value status in subtler ways, indexed by implicit attentional biases. Target faces were first presented in a social value learning phase, where a cue face would either look towards (attend) or away (ignore) from the target. Target faces were then presented as paired attentional cues in the dot-probe task, where participants' reaction times to respond to the orientation of a pair of dots shown in a location previously inhabited by one of attended or ignored the faces was measured. We found that attention was not preferentially oriented towards previously attended versus ignored faces. Therefore, similar to previous

experiments employing explicit social evaluation measures, we failed to find evidence that observed gaze has an influence on implicit person evaluation as indexed by attention orientating.

The factor structure and classes of British politics, and their psychological characteristics.



Sam Lloyd and Lee de-Wit
University of Cambridge
s1849@cam.ac.uk

There is increasing recognition that political ideology correlates with a range of psychological traits, including personality, moral values and world views. A large body of this research has been conducted using a unidimensional left-right (liberal-conservative) continuum. Recent findings have questioned the validity of this unidimensional continuum, finding evidence that social and economic alignment is better represented by two distinct dimensions. Indeed, research has highlighted that psychological traits are differentially associated with these two dimensions. This research has largely focused on the US. The current research uses a large open access data-base (the British Election Study) which investigates the politics of UK voters. Using data taken before and after Brexit from over 15,000 respondents, we find that a Confirmatory Factor Analysis with 2 factors provides a better fit ($CFI = 0.951$, $RMSEA = 0.087$) than a 1 factor model ($CFI = 0.74$, $RMSEA = 0.194$). Critically for political psychology, we find that certain psychological traits are associated more with social or economic ideology. For example, Right-Wing Authoritarianism is more highly correlated with social ($\rho=0.57$) than economic ($\rho=0.25$) policy positions. This research reinforces the idea that a unidimensional description of ideology is insufficient for understanding the psychology of political decision making.

Political polarization and depolarization across the UK Brexit divide.



Alexandrina Vasilichi¹, Joseph Marks¹ and Lee de-Wit²
¹ University College London
² University of Cambridge
alexandrina.vasilichi.18@ucl.ac.uk

Accounts of political belief formation claim that citizens' cognition is biased by their political identity. The 2016 UK EU referendum has created novel strong political identities, dividing British people in "Remainer" or "Leaver" camps. The current study employed an information search paradigm and found that individuals ($N = 76$) are biased against discordant sources and prefer to sample information more from neutral sources who are similarly accurate. This bias was not depolarized when highlighting subjects' superordinate identity (being British) and several social norms (at least 90% of the UK as a whole agree with). Individual differences in cognitive sophistication, Brexit identity and Brexit extremity did not influence biased information sampling. However, Leavers sample information from accurate sources more than Remainers. Thus, biased information sampling has the potential to be a mechanism through which polarization is maintained across the Brexit divide, manifesting more strongly for Remainers. Nonetheless, using neutral sources to communicate information in the UK Brexit context has the potential to attenuate the effect

of polarization, facilitating learning and information sampling from accurate information sources to improve problem-solving.

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London Accommodation

Below is a selection of London hotels, some of which are close to the venue. However, these are not recommendations, and you should check the website and prices before making your booking, especially if you are booking accommodation and plan to apply for a Grindley Grant.

Hotel Name	Website	Contact Number
Albany Hotel 34 Tavistock Place	http://albanyhotelwc1.co.uk/	0207 837 9139
Alhambra Hotel 17-19 Argyle Street	http://www.alhambrahotel.com/	0207 837 9575
Arosfa Hotel 83 Gower Street	http://www.arosfalondon.com/	0207 636 2115
Avonmore Hotel 57 Cartwright Gardens	http://www.avonmorehotel.net/	0207 387 1939
Chester Hotel Victoria 27-29 Longmoore Street	http://www.chesterhotelvictoria.com/	0207 834 3791
Double Tree by Hilton 92 Southampton Row	https://tinyurl.com/y7cbyrwy	0207 242 2828
Fitzroy Hotel 41 Fitzroy Street	https://tinyurl.com/yyfgq94u	0207 387 7919
Grange Hotels Various locations	https://www.grangehotels.com/hotels-london/	0207 233 7888
Harlingford Hotel 61-63 Cartwright Gardens	http://www.harlingfordhotel.com/	0207 387 1551
Kimpton Fitzroy 1-8 Russell Square	https://tinyurl.com/yxl5sfvh	0207 837 6470
Ibis London Euston 3 Cardington Street	https://tinyurl.com/y3a5aa69	0207 304 7712
Mentone Hotel 54-56 Cartwright Gardens	http://www.mentonehotel.com/	0207 387 3927
Mercure London 130-134 Southampton Row	https://tinyurl.com/yxnyw88d	0207 833 3691
St Athans Hotel 20 Tavistock Place	https://www.stathanshotel.com/	0207 837 9140

The Academy Hotel 21 Gower	http://www.theacademyhotel.co.uk/	0207 631 4115
The George Hotel 58-60 Cartwright Gardens	http://www.georgehotels.co.uk/	0207 387 8777
The Wesley Euston Hotel 81-103 Euston	http://www.thewesley.co.uk/	0207 380 0001
Thistle Bloomsbury Park Hotel 126 Southampton Row	https://www.thistle.com/en/hotels/london/bloomsbury-park.html	0800 330 8551
Travelodge Various	https://www.travelodge.co.uk/	08719 848484

See also dedicated hotel booking websites, e.g.

<http://www.trivago.co.uk/>

<http://www.booking.com/hotels>

<https://www.expedia.co.uk/Hotels>

Travel

London is well served by transport links, both for travelling to and from London from the UK, Europe and the wider world, and for getting round the city.

Full details of travel to UCL can be found at:

<http://www.ucl.ac.uk/maps/public-transport/>

UCL campus map: <http://www.ucl.ac.uk/maps/26-bedford-way-fountains>

Conference Dinner

The conference dinner will be held on Thursday 9th January at 8:15pm at Tas restaurant, which is just a 10-15 minute walk from the meeting rooms. The restaurant address is 22 Bloomsbury Street, London, WC1B 3QJ.

This year, dinner bookings and payment will be exclusively online. Payments must be made electronically using a credit or debit card (PayPal is not currently supported). Please complete all required information to ensure your place and menu choices at the dinner. Once booked, the system will generate an automatic receipt to your email address.

The standard dinner cost for EPS members is £34.00 this year. Please note that postgraduates can book at a reduced fee of £17.00, but must provide evidence of their postgraduate status by emailing a letter from their supervisor (or a direct email from the supervisor) to the London organiser, James Bisby.

- Please note that the starters are all brought out together and shared, so there is no need to choose.
- ** can be served as Gluten Free / Vegan option if requested

STARTER SELECTION (Vegetarian mezes served with Anatolian bread)

Humus - Chickpeas, tahini, garlic, olive oil & lemon juice (Vegan/Gluten Free)

Aubergine cooked in olive oil with tomatoes, garlic, peppers & chickpeas (Vegan/Gluten Free)

Tabbouleh - Tomatoes, onions, bulgur wheat, olive oil, lemon juice, parsley & mint (Vegan)

Falafel - Mediterranean style chickpea and broad bean patties, deep fried (Vegan)

Crispy hand folded filo pastry triangles stuffed with feta cheese and spinach (Vegetarian)

Sautéed mushrooms with garlic, onions & tomatoes with kasar cheese (Vegetarian / Gluten Free)

MAIN (Choose one)

Skewers of marinated chicken cubes, served with couscous**

Lamb meatballs with fresh tomatoes, potatoes, parsley, leeks, onions and peppers (Gluten Free)

Mixed vegetable stew of potatoes, aubergines, courgettes, peppers, carrots and tomatoes, served with couscous and yogurt on the side (Vegetarian)**

Prawn casserole with tomatoes, mushrooms, garlic and double cream (Gluten Free)

Dessert (Choose one)

Baklava - Filo pastry, nuts & honey syrup

Kayisi - Sun-dried apricots with home-made cream, almond & pistachio (Gluten Free)

Homemade chocolate cake

Upside down milk pudding

Please book your place before 16 December: <https://tinyurl.com/y2w3ejvu>

The portal will close after this date and we cannot accommodate late admissions.

No cash or cheque payments are possible.

- Please note that we will have a maximal number of 60 spaces and these will be reserved on a first come/first served basis.
- Please indicate if you have any dietary requirements in the text box on the form and the restaurant will be informed.

Please contact James Bisby (j.bisby@ucl.ac.uk) with any questions or suggestions, but email UCL online store if anything is unclear about the booking process (uclonlinestore@ucl.ac.uk).

EPS

Experimental
Psychology
Society

The EPS President's Address

will be delivered by

Professor John Duncan

MRC Cognition and Brain Sciences Unit
University of Cambridge

Integrated intelligence from distributed brain activity.

6.00pm, Thursday 9th January 2020

Lower Ground Floor Lecture Theatre
University College London
26 Bedford Way
London
WC1H 0AP

The lecture will be open to the public

**APPLYING TO JOIN THE
EXPERIMENTAL PSYCHOLOGY SOCIETY**

To apply for membership to the Experimental Psychology Society please go to the EPS website: <https://eps.ac.uk/applying-for-membership/> and fill in the form, ensuring all boxes are completed (Entries should be made in clear black type) before signing and returning to the EPS Administrator: expyschsoc@kent.ac.uk or sending to:

Sam Hurn
EPS Administrator
School of Psychology
Keynes College
University of Kent
Canterbury
CT2 7NP

All information should be included on the form, not on additional sheets.

Under "Publications", only articles that have appeared in print by the time of nomination, in peer-reviewed psychological or cognate journals, should be listed. Because of space limitations, a complete publication list is not required; *two* recent examples, where the nominee is single or first author, are sufficient.

Applicants must be nominated by two EPS members.

These forms should be returned by 1st September.

See Criteria and Procedures on following page.

CRITERIA AND PROCEDURES TO JOIN

Soon after the closing date of 1st September, brief details of all candidates will be circulated to members of the Society, who may request further information if they wish. The nomination forms will be considered by the Committee at their Autumn meeting. The Committee will decide whether each candidate is eligible for admission to Ordinary Membership, i.e. those candidates who have:

- a) secured a PhD
- b) published at least two independent accounts of their work in a reputable, peer-reviewed psychological journals
- c) personally delivered an oral paper to the Society at one of the three EPS meetings held each year

Candidates who do not meet all these criteria can be considered only in exceptional circumstances. Those who are resident outside Europe will be asked for assurance that they can attend meetings reasonably often.

Any candidate not selected as eligible by the Committee will be informed of this and will be advised whether he/she may again be proposed for membership in a future year and if so subject to what conditions. The list of those selected as eligible will be put to the Annual General Meeting in January for approval.

Annual General Meeting

The 72nd Annual General Meeting will be held on Thursday 9th January 2020 at 5:00pm in the Lower Ground Floor Lecture Theatre, Department of Cognitive, Perceptual & Brain Sciences, University College London, 26 Bedford Way.

AGENDA

20/01 Minutes of the Business Meeting, held at Bournemouth University, on Thursday 11th July 2019

20/02 Matters Arising

20/03 Secretary's Report

 20/03.1 Annual Report of the Society

20/04 Treasurer's Report

 20/04.1 Treasurer's Report

20/05 QJEP Editor's Report

 20/05.1 Editor's Report

20/06 President's Commendations for outstanding student presentation at an EPS meeting

20/07 Confirmation of the Forty Ninth Bartlett Lecturer

20/08 Confirmation of the Nineteenth EPS Mid-Career Award

20/09 Confirmation of the Twenty Eighth EPS Prize Lecturer

20/10 Confirmation of the Ninth Frith Prize

20/11 Election of QJEP Editor in Chief

20/12 Election of Officers and Committee Members

20/13 Admission of Ordinary Members

20/14 Arrangements for future meetings

20/15 Any other business

20/16 Date, time and place of next meeting

Confirmation of Forty Ninth Bartlett Lecturer

The Committee seeks approval for the following nomination:

Professor Chris Frith

Confirmation of Nineteenth EPS Mid-Career Award Lecturer

The Committee seeks approval for the following nomination:

Professor Mike Anderson

Confirmation of Twenty Eighth EPS Prize Lecturer

The Committee seeks approval for the following nomination:

Dr Sarah Lloyd-Fox

Confirmation of Ninth Frith Prize Award Lecturer

The Committee seeks approval for the following nomination:

Dr Emma James

Election of *QJEP* Editor in Chief

The Committee seeks approval for the following nomination:

Professor Antonia Hamilton

Election of Officers and Committee Members 2020

The Committee submits the following nominations:

Early Career Representative Dr Daniel Yon (Goldsmiths)

London Organiser Dr Jo Taylor (University College London)

Conference Secretary Elect Dr Andrew Johnson (Bournemouth University)

Ordinary Committee Member Dr Elisabeth Bradford (University of Dundee)

Admission of Ordinary Members

Under Rule 7 the list of applicants for Ordinary Membership was earlier circulated electronically. These applications were provisionally approved at the October Committee meeting.

A handwritten signature in black ink, appearing to read "H. Ferguson".

Professor Heather Ferguson
Hon. Secretary

Minutes of July 2019 Business Meeting

A Business Meeting was held in Lecture Theatre KG01, ground floor of Kimmeridge House at Bournemouth University on Thursday 11th July 2019, at 5:00pm.

There were approximately 25 members in attendance.

- 16/22 Minutes of the Business Meeting held at Manchester University on 11th April 2019, were agreed and approved. These had been included as part of the Bournemouth programme.

16/23 **Matters Arising**

The President updated members on developments of Plan S, and its potential implications for QJEP and the Society's main revenue. She reported that cOAlition's revised implementation guidelines suggest that concessions will be made, so the situation appears to be less immediately threatening than it did a year ago. However, there is still a great deal of uncertainty. Given this uncertainty, the agreed action at present is to continue to monitor the situation (through SAGE and the EPS Plan S working group), and to take action to build up the Society's financial reserves. We keep open the contingency plans to establish a new journal, when UKRI has published its open access policy, and SAGE knows the outcome of their current negotiations with consortia.

Members discussed how EPS financial reserves could be built up if Plan S disrupted current revenue stream from QJEP. Suggestions included: increasing subscription rate, increasing size of membership, attracting endowments, charge non-members to attend meetings, reconfigure funding schemes. The committee will consider these suggestions at its next meeting.

16/24 **Secretary's Report**

A brief report was presented. The Hon Sec expressed her thanks to the local organisers of the Bournemouth meeting for a full and exciting meeting.

16/25 **Treasurer's Report**

The Treasurer discussed the current financial position of the Society, and this remains healthy. The Treasurer outlined the breakdown of balances across Society accounts. The income from the journal continues to be key for the society, and will be an important indicator for the future. The Treasurer noted the range of grant / support schemes available, and highlighted in particular the flexibility within student visit schemes to support early career researchers, and the continued use of Grindley Grants to support travel to meetings.

16/26

QJEP Editor's Report

The Editor continues to strike an optimistic tone in reporting to the meeting. Whilst we try not to obsess over impact factors, it is reassuring that the QJEP IF has increased this year (now 2.488). The journal position is strong and the Editor praised SAGE for their continued efficiency and support in developing the journal. Submissions were strong in number and quality, and he continued to encourage members to look to the Quarterly as the premier outlet for their best work – the strength of the Society is only enhanced by the strength of the Quarterly contents.

The editor reminded members of the different ways QJEP, and the Society supports Open Science. For example, QJEP was one of the first psychology journals to offer optional open access publishing, and has implemented Open Research Badges to review and visibly reward articles that use transparent research practices (i.e. include the data, materials, or registration on a public, open access repository). QJEP also offers a registered report submission route for pre-registered work.

16/27

Arrangements for future meetings

The Conference Secretary again noted our thanks to the local organiser and the team for an excellent meeting.

She announced that the submission portal for the London meeting would open on Monday 9th September, and detailed the upcoming meetings for 2020.

16/28

Any Other Business

A member raised a valuable point about the carbon footprint of EPS meetings, particularly looking ahead to joint meetings overseas, and questioned what the Society could do to reduce travel. Members discussed the possibilities including making live streamed/recorded presentation available to members through the EPS You Tube channel, and holding dual site meetings. The committee agreed to discuss these issues at the next committee meeting, and consider new proposals to make research presented at EPS meetings more accessible.

Date, time and place of next meeting.

The next business meeting is to be held on Thursday 9th January 2020 at 5:00pm in the Lower Ground Floor Lecture Theatre, Department of Cognitive, Perceptual & Brain Sciences, University College London, 26 Bedford Way.

Next Meeting: Peking University, Beijing, China. 3-5 April 2020

This meeting will include the 18th EPS Mid-Career Lecture by Matthew Rushworth with an associated symposium organised by Xiaohong Wan.

This meeting also includes eight EPS-funded symposia:

Perception in virtual worlds.	Markus Bindemann
How do children learn new words when they are reading?	Hazel Blythe
Social cognition across the lifespan.	Elisabeth Bradford
New advances in language alignment during interaction.	Holly Branigan
Beyond the language given: How people decode indirect messages in communication.	Mingyuan Chu
Sensorimotor cognition.	Patrick Haggard
Face recognition in real world tasks.	Kay Ritchie
Interrogating the nature of spoken and written language representations in typical and atypical populations using neuroimaging.	Jo Taylor

For enquiries about this meeting please contact Simon Liversedge at spliversedge@uclan.ac.uk.

The portals for this meeting opened on Monday 4th November and will remain open until the programme is full.

To help members plan their visit to Beijing for the April EPS meeting, we have launched an information page on the EPS website. This page provides information on applying for a visa, accommodation, travel, and food, and will be updated with new information as it becomes available.

Please see: <https://eps.ac.uk/important-information-for-eps-beijing-april-3-5-2020/>.

The EPS is pleased to offer enhanced Grindley Grants to support postgraduate research degree students and postdoctoral researchers (within 2 years of completing their PhD) attending this meeting. The maximum value of these grants is £1,000, to cover travel and accommodation. Applicants should use the standard form, and submit to the EPS Administrator. It is a requirement that applicants for these enhanced Grindley Grants have been accepted to present a research talk or poster at the Beijing meeting.

