EPS

Experimental Psychology Society

NOTTINGHAM TRENT MEETING

10-12 April 2024

Open exchange of new ideas is central to EPS meetings. To foster up-to-date discussion, presenters are mandated to report work that is not yet published. We ask that attendees respect this mandate. Please do not record or publish presented material (e.g., via X or Facebook) without the presenter's permission. To remove any ambiguity regarding permission, this programme now includes a symbol next to every abstract (the hashtag shown on this page), where the presenter has agreed permission for their work to be shared on social media. Where no symbol is shown for a given presentation, there should be absolutely no filming, pictures, or social media of any kind. For explicit guidance on reporting at EPS meetings, please refer to the EPS handbook.

A scientific meeting will be held in the Newton Building, Nottingham Trent University, City Campus, Nottingham, NG1 4BU, between 10th – 12th April 2024.

The local organiser is Duncan Guest.

31st EPS Prize Lecture
Thursday 11th April, 5.45pm

> Person perception from voices: How do we make sense of who we are talking to?
> Nadine Lavan, Queen Mary University of London

31st EPS Prize Lecture Symposium
Thursday 11th April, 2.00pm – 5.30pm
Organised by Kay Ritchie and Harriet Smith.

Local Organiser Symposium
Wednesday 10th April, 2.00pm – 5.30pm
Organised by Kate Roberts and Samuel Jones.

Poster Session

There will be a poster session, to be held on Wednesday 10th April between 5.45pm and 6.45pm on the Level 1 Forum with an accompanying wine reception (with wine served from 6pm).

All posters will also be available virtually on the EPS website from Monday 8th April 2024 at 9am.

EPS Poster Session - Online Posters and Talk Through Videos

Conference Dinner

The conference dinner will be held on Thursday 11th April from 7.15pm in the Old Chemistry Theatre, Nottingham Trent University, City Campus, NG1 4BU.

For more details on how to book a place at the conference dinner, please see page 72.

START OF PARALLEL SESSIONS

Session A **– Adams Room**

12:30 **Bartholomew Quinn*, Mike Burton and Timothy Andrews** (University of York) (Sponsor: Timothy Andrews) A visual field bias for familiar face recognition.

12:45 **Alisa Balabanova*, Eithne Kavanagh*, Tom Kupfer* and Bridget Waller*** (Nottingham Trent University) (Sponsor: Thom Baguley) Facial expressivity and first impressions during online social interactions.

13:00 **Rahmi Saylik* and Robin Murphy** (Mus Alparslan University, Turkey, University of Oxford) (Sponsor: Robin Murphy) Positive facial expressions provide enhanced perception of causal outcomes.

13:15 **Michael Pilling** (Oxford Brookes University) The criterion effect in perceptual comparisons of faces.

13:30 **Break**

START OF PARALLEL SESSIONS

Session B **– Hooley Room**

12:30 **Bahar Tuncgenc*, Lauren Marsh, Trinh Nguyen* and Stefanie Hoehl*** (Nottingham Trent University, University of Oxford, University of Nottingham, Italian Institute of Technology, Italy, University of Vienna, Austria) (Sponsor: Lauren Marsh) Over-imitation enhances social affiliation between strangers even across group divides.

12:45 **Zheng Huang*, Silvia Seghezzi and Patrick Haggard** (University College London, Birkbeck University of London) (Sponsor: Patrick Haggard) Prospective awareness of intention to act in healthy adults: studies using verbal fluency tasks and quasi-random probes.

13:00 **Lauren Marsh and Bahar Tuncgenc*** (University of Nottingham, Nottingham Trent University) Thinking Outside the Box: The role of overimitation in causal learning.

13:15 **Wendy Ross and Margaret Webb*** (London Metropolitan University, University of Melbourne, Australia) Thinking with things: Concrete objects improve divergent thinking in the Alternative Uses Task.

13:30 **Break**

START OF PARALLEL SESSIONS

Session A **- Adams Room**

Local Organiser Symposium
Individual differences in audiovisual perception.
Organised by Kate Roberts and Samuel Jones.

14:00 **Jacqueline von Seth** (University of Cambridge) Perceptual and cognitive predictors of stable individual differences in audiovisual and unimodal speech perception.

14:30 **Alan O' Dowd, Deirdre O' Connor, Rebecca Hirst, Annalisa Setti, Rose Anne Kenny and Fiona Newell** (Trinity College Dublin, Ireland) Nutrition is associated with individual differences in multisensory integration in heathy older adults.

15:00 **Meike Scheller** (Durham University) Robust inter-individual differences in audio-visual integration: The role of sensory experience and social factors.

15:30 **Tea / Coffee**

16:00 **Christian Sumner** (Nottingham Trent University) Searching for individual differences in audiovisual integration of speech in noise.

16:30 **Eimear McKenna, Isabella Devine, Doaa Karam, Rebecca Hirst and Fiona Newell** (Trinity College Dublin, Ireland) Multisensory object category learning and categorisation across development.

17:00 **Samuel Jones** (Nottingham Trent University) Incongruence and task difficulty in multisensory ageing.

17:30 **Break**

17:45 **Poster Session with accompanying wine reception (with wine served from 6pm).**

EPS Poster Session - Online Posters and Talk Through Videos

START OF PARALLEL SESSIONS

Session B **- Hooley Room**

14:00 **Edwin Burns, Katherine Maw* and Geoff Beattie*** (Swansea University, Edge Hill University) Is aphantasia a neurodevelopmental condition? Evidence from face processing.

14:30 **Eithne Kavanagh*, Jamie Whitehouse* and Bridget Waller*** (Nottingham Trent University) (Sponsor: Thom Baguley) Being facially expressive is socially advantageous.

15:00 **R. Thora Bjornsdottir, Laura Hensel*, Jiayu Zhan*, Oliver Garrod*, Philippe Schyns* and Rachael Jack*** (University of Stirling, University of Glasgow, Peking University, China) Stereotype-related facial features drive perceptions of social class.

15:30 **Tea / Coffee**

16:00 **Jens Roeser*, Pablo Aros Muñoz* and Mark Torrance*** (Nottingham Trent University) (Sponsor: Gary Jones) "Spelling matters": The timecourse of sublexical retrieval in written word production.

16:30 **Olivia Afonso*, Alberto Avilés* and Carlos Álvarez*** (Oxford Brookes University, The Open University, Universidad de La Laguna, Spain) (Sponsor: Michael Pilling) Neural correlates of lexical, sublexical and motor processes in writing production.

17:00 **Wendy Ross and Thomas Ormerod** (London Metropolitan University, University of Sussex) It's only easy if you understand the instructions. Tracking problem solution without understanding.

17:30 **Break**

17:45 **Poster Session with accompanying wine reception (with wine served from 6pm).**

EPS Poster Session - Online Posters and Talk Through Videos

Session A **- Adams Room**

09:30 **Christopher Atkin*, Jemaine Stacey*, Harriet Allen*, Helen Henshaw, Katherine Roberts and Stephen Badham*** (Nottingham Trent University, University of Nottingham, National Institute for Health and Care Research (NIHR), Nottingham Biomedical Research Centre) (Sponsor: Duncan Guest) Older adults do not show enhanced benefits from multisensory information on speeded perceptual discrimination tasks.

09:45 **Jemaine Stacey*, Christopher Atkin*, Helen Henshaw, Harriet Allen*, Stephen Badham* and Katherine Roberts** (Nottingham Trent University, School of Medicine, University of Nottingham, National Institute for Health and Care Research (NIHR), Nottingham Biomedical Research Centre, School of Psychology, University of Nottingham) (Sponsor: Kate Roberts) Measuring self-reported audio-visual benefit.

10:00 **Martin Vasilev, Zeynep Gunes Ozkan*, Julie Kirkby*, Antje Nuthmann* and Fabrice Parmentier*** (University College London, University of Valencia, Spain, Bournemouth University, Kiel University, Germany, University of Balearic Islands, Spain, The University of Western Australia, Australia) Unexpected sounds induce a rapid inhibition of eye-movement responses.

10:15 **Peter Goodwin*, Filipe Cristino*, Duncan Guest and Christina Howard** (Nottingham Trent University) (Sponsor: Christina Howard) Spatial structure facilitates systematic search activity in multiple-target search tasks.

10:30 **Tea / Coffee**

11:00 **Matthew Belmonte and Jia-Hoong Ong*** (Nottingham Trent University) Different kinds of Autistic traits differently affect face perception in different genders: Why you should include sex/gender in your model.

11:15 **Helena Hartmann*, Kohinoor Darda*, Vasiliki Meletaki*, Zlatomira Ilchovska*, Nadia Corral-Frias*, Gabriela Hofer*, Flavio Azevedo* and Sarah Sauve*** (University Hospital Essen, Germany, Feminist WonderLab Collective, Advancement and Research in the Sciences and Arts Foundation, India, University of Pennsylvania, USA, University of Birmingham, University of Nottingham, University of Sonora, Mexico, University of Graz, Austria, University of Groningen, The Netherlands, University of Lincoln) (Sponsor: Kay Ritchie) Incorporating feminist practices into (psychological) science - the why, the what and the how.

11:30 **Matthew Warburton, Carlo Campagnoli*, Mark Mon-Williams*, Faisal Mushtaq* and J. Ryan Morehead*** (University of Leeds) Input device influences measures of cursor tracking in online experiments.

11:45 **Sahana Shankar*, Tim Rakow, Wijnand van Tilburg* and Nicola Byrom** (King's College London, University of Royal Holloway, University of Essex) (Sponsor: Tim Rakow) Choice of rating scale systematically affects contingency judgments.

12:00 **EPS Business Meeting for Ordinary and Postgraduate Members**
Adams Room

13:00 **Lunch**

Session B **- Hooley Room**

09:30 **Gary Jones, Francesco Cabiddu*, Jens Roeser*, Pablo Aros Munoz*, Vivienne Du* and Caroline Rowland*** (Nottingham Trent University, University College London, Max-Planck/Radboud University, The Netherlands) Chunks of phonological knowledge and how they explain children's word learning in English, Spanish, German and Mandarin.

09:45 **Marie-Josee Bisson** (De Montfort University) Learning orthographic word forms in a second language: The Role of domain-specific orthographic learning abilities and domain-general visual statistical learning abilities.

10:00 **Pablo Aros Munoz*, Kathy Conklin* and Dominic Thompson*** (Nottingham Trent University, University of Nottingham) (Sponsor: Gary Jones) An eye-tracking exploration on metaphor comprehension and learning in second language speakers of English.

10:15 **Naomi Kingston*, Nikki Dean Marshall* and Emma Morgan** (University of Sheffield, University of Nottingham) (Sponsor: Emma Morgan) The Impact of bilingualism on executive functioning in autistic adults.

10:30 **Tea / Coffee**

11:15 **Silvia Seghezzi and Patrick Haggard** (Birkbeck, University of London, University College London) Memory for counterfactual actions.

11:30 **Xiangling Chen*, Kaiming Zhang*, Shiyu Lei, Hai Yang*, Yue Zheng*, Xuemei Wu* and Xinuo Ma*** (Chengdu Medical College, China, Nottingham Trent University, Dalian Medical University, China) (Sponsor: Matthew Belmonte) Sleep deprivation alters insula subregional functional connectivities.

11:45 **Break**

12:00 **EPS Business Meeting for Ordinary and Postgraduate Members**
Adams Room

13:00 **Lunch**

Session A **- Adams Room**

EPS Prize Symposium

Symposium accompanying the 31st EPS Prize Lecture.
Organised by Kay Ritchie and Harriet Smith.

14:00 **Emma Holmes** (University College London) How does voice familiarity affect speech intelligibility?

14:30 **Christine Nussbaum** (Friedrich Schiller University Jena, Germany) The interplay of perceived naturalness and emotionality in voices.

15:00 **Nik Pautz** (Nottingham Trent University) Time to reflect on voice parades: Exploring the impact of reflection and retention on voice identification performance

15:30 **Tea / Coffee**

16:00 **Claudia Roswandowitz** (University Zurich, Switzerland) The individual factor of social voice perception: Influence of bottom-up acoustics and top-down personality traits.

16:30 **Harriet Smith** (Nottingham Trent University) Does multimodal identity information improve face and voice identity matching accuracy?

17:00 **Kay Ritchie** (University of Lincoln) Unfamiliar face and voice matching in pairs.

17:30 **Break**

17:45 **31st EPS Prize Lecture - Adams Room**
Nadine Lavan, Queen Mary University of London
Person perception from voices: How do we make sense of who we are talking to?

Conference Dinner

Session B **- Hooley Room**

14:00 **Amy Atkinson, Richard Allen, Amanda Waterman* and Tom Beesley** (Lancaster University, University of Leeds) How is information prioritised in working memory? Evidence from eye-tracking.

14:30 **Andrew Clouter* and Holly Hawkins*** (Nottingham Trent University) (Sponsor: Duncan Guest) The theta-induced memory effect: Further evidence from transcranial alternating current stimulation.

15:00 **Doug Barrett, Milena Rota* and Tahani Alqahtani*** (University of Leicester, King Saud University, Saudi Arabia) Age-related decreases in guidance via VSTM and attentional capture during preview search.

15:30 **Tea / Coffee**

16:00 **Mikhail Spektor*, Sebastian Olschewski* and Gaël Le Mens*** (University of Warwick, University of Basel, Switzerland, Universitat Pompeu Fabra, Spain) (Sponsor: Tim Rakow) Skewness preferences and frequent winners.

16:30 **Elliot Ludvig*, Jeffrey Pisklak*, Nick Simonsen*, Xiaomu Guo*, Alice Mason*, Marcia Spetch* and Christopher Madan** (University of Warwick, University of Alberta, Canada, University of Nottingham, University of Bath) (Sponsor: Christopher Madan) Early exposure to extreme outcomes influences risky choice.

17:00 **Martyn Quigley, Alex Bradley*, Katherine Kiely*, Simon Dymond* and Mark Haselgrove** (Swansea University, University of Portsmouth, Reykjavík University, Iceland, University of Nottingham) Attribute conditioning is insensitive to cue interaction effects and personality traits.

17:30 **Break**

17:45 **31st EPS Prize Lecture - Adams Room**
Nadine Lavan, Queen Mary University of London
Person perception from voices: How do we make sense of who we are talking to?

Conference Dinner

START OF PARALLEL SESSIONS

Session A **- Adams Room**

10:00 **Ahmet Omurtag* and Zohreh Zakeri*** (Nottingham Trent University) (Sponsor: Matthew Belmonte) Functional connectivity and motor skill development.

10:30 **Louise O'Hare*** (Nottingham Trent University, University of Lincoln) (Sponsor: Duncan Guest) Iso-feature suppression in migraine - an ability to exclude noise?

11:00 **Filipe Cristino* and Charles Leek*** (Nottingham Trent University, University of Liverpool) (Sponsor: Christina Howard) Object recognition, the time course of local and global integration.

11:30 **Saima Noreen and Malcolm MacLeod*** (De Montfort University, University of Stirling) Distorting the Truth: The role of forgiveness and perceived seriousness in memory modification.

12:00 **End of Meeting**

START OF PARALLEL SESSIONS

Session B **- Hooley Room**

10:00 **Iro Xenidou-Dervou, Serena Rossi*, Natasha Guy*, Caroline Appleton* and Camilla Gilmore** (Loughborough University) Can adults automatically process and translate between numerical representations?

10:30 **Serena Rossi*, Krzysztof Cipora*, Sara Caviola*, Irene Mammarella* and Iro Xenidou-Dervou** (Loughborough University, University of Padova, Italy) (Sponsor: Iro Xenidou-Dervou) How mathematics anxiety affects children's working memory during mental arithmetic: A dual-task study.

11:00 **Julia Ayache*, Alexander Sumich* and Nadja Heym*** (Nottingham Trent University, Universite de Montpellier, France, Auckland University of Technology, New-Zealand) (Sponsor: Matthew Belmonte) The role of predictability and empathy traits in anthropomorphizing a virtual agent in a second-order Theory of Mind task.

11:30 **Katarzyna Pypno*, Theofilos Gkinopoulos* and Mariola Paruzel-Czachura*** (University of Silesia in Katowice, Poland, Jagiellonian University, Poland, University of Pennsylvania, USA) (Sponsor: Robert Honey) In the rhythm of morality: Listening to the national anthem makes people less willing to harm others. Evidence from China and the USA.

12:00 **End of Meeting**

The poster session will be held in the Level 1 Forum, Newton Building, between 5.45-6.45pm, with an accompanying wine reception (with wine served from 6pm).
EPS Poster Session - Online Posters and Talk Through Videos

1. **Carolyn McGettigan, Amrita Bains, Hannah Jones*, Victor Rosi* and Saloni Krishnan** (University College London, Royal Holloway University of London) Assessing the value of audiobooks using a willingness-to-wait paradigm.

2. **Christina Howard, Filipe Cristino* and Katherine Roberts** (Nottingham Trent University) Effects of AI-generated images on perceptions of truthfulness of claims.

3. **Li Zhou*, Fuyi Yang* and Valerie Benson** (Tianjin Normal University, China, East China Normal University, China, University of Central Lancashire) (Sponsor: Valerie Benson) Attentional disengagement differences in young children with Autism: A comparative eye-movement study using static and dynamic stimuli.

4. **Mahmoud Elsherif and Jonathan Catling** (University of Birmingham) Are two words seen and heard as one? How Age of acquisition affects compound word recognition.

5. **Mark Gardner, Irina Mostafa* and Jeremy Corcoran*** (University of Westminster) Heartfelt mentalising: Does interoceptive awareness predict spontaneous perspective-taking?

6. **Mila Mileva, Eve Burgess*, Macey Goodman* and Daniel Viney*** (University of Plymouth) First impressions and evaluations of ability and intent to harm.

7. **Patrick Haggard, Keiji Ota*, Silvia Seghezzi, Ashley Slanina-Davies*, Mateusz Kowaleski* and Daria Hemmerling*** (University College London, SoftServe, Poland) Experimental studies of emotional crying.

8. **Tina Seabrooke, Yeray Mera*, Ariana Modirrousta-Galian*, Gemma Thomas* and Philip Higham** (University of Southampton, University of the Basque Country, Spain) Erring on the side of caution: Two failed replications of the Derring Effect.

9. **Barbora Illithová* and Clare Sutherland** (University of Aberdeen, University of Western Australia, Australia) (Sponsor: Clare Sutherland) The conceptual structure of trait impressions predicts face judgements across observers' cultures, languages, and target face ethnicities.

10. **Daniel Perez-Zapata* and Ian Apperly** (University of Birmingham) (Sponsor: Ian Apperly) International studies of pure co-ordination games: Adaptable solutions when intuitions vary.

11. **Edward Baker*, Sam Smith*, Alexis Mauger*, Markus Bindemann and Maria Gallagher** (University of Kent) (Sponsor: Maria Gallagher) Reducing cyber sickness in virtual reality by minimising visuo-gravitational conflicts.

12. **Emanuela Pizzolla*, Angela Marotta*, Mehran Emadi Andani* and Mirta Fiorio*** (University of Verona, Italy) (Sponsor: Matthew Longo) Sensory attenuation unveils the effect of fatigue on the sense of agency.

13. **Grace Gabriel*, Cristina Simões-Franklin*, Georgia O'Callaghan*, John Stapleton* and Fiona Newell** (Trinity College Dublin, Ireland) (Sponsor: Fiona Newell) Visual categorisation of object authenticity on the basis of crossmodal surface material: An fMRI Study.

14. **Heather Graz*, Alissa Melinger and Annalu Waller*** (University of Dundee) (Sponsor: Emma James) Utility of prosaccadic eye movements as a response modality in people with severe speech and physical impairments.

15. **Josefina Weinerova*, Denis Schluppeck*, Andrew Reid* and Roni Tibon** (University of Nottingham, Tilburg University, The Netherlands) (Sponsor: Roni Tibon) Research Plan - Effect of SARS-CoV-2 on Cognitive and Brain Function: Findings from the UK Biobank Covid-19 case control dataset.

16. **Kit Ling Yeung*, Ian Apperly and Rory Devine*** (University of Birmingham) (Sponsor: Ian Apperly) Rethinking accuracy in theory of mind measures: influence of individual-related and task-related factors in adults.

17. **Leanne Naudusevics*, Dani Ropar*, Nikki Dean Marshall* and Lauren Marsh** (University of Nottingham) (Sponsor: Lauren Marsh) Understanding online interactions between Autistic and Non-Autistic People.

18. **Máté Aller*, Connor Doyle* and Matthew Davis*** (University of Cambridge) (Sponsor: Matthew Davis) Neural dynamics of computations supporting perception and misperception of degraded speech.

19. **Maddie Atkinson*, Kay Ritchie, Peter Hancock and Katie Gray** (University of Reading, University of Lincoln, University of Stirling) (Sponsor: Katie Gray) The impact of resemblance and exposure duration on the learning of unfamiliar faces.

20. **Martina Seveso*, Alan O'Dowd*, Rebecca Hirst*, Kate Nevin* and Fiona Newell** (Trinity College Dublin, Ireland) (Sponsor: Fiona Newell) Motion affects inter-object perceptual similarity of 3D novel objects.

21. **Victor Rosi*, Bryony Payne and Carolyn McGettigan** (University College London, King's College London) (Sponsor: Carolyn McGettigan) Effect of familiarity on the perceptual prioritisation of self-associated voices.

22. **Zlatomira Ilchovska*, Ali Mazaheri* and Andrea Krott** (University of Birmingham, University of Nottingham) (Sponsor: Andrea Krott) Testing the Switching Experience and Environment Questionnaire (SEEQ): A measure of bilingual switching behaviours.

23. **Kelly Marie Nettleton*** (University of Bradford) (Sponsor: Min Yong) Effect of radio listening on loneliness, well-being and cognition in middle and older aged adults.

A visual field bias for familiar face recognition.

Bartholomew Quinn, Mike Burton and Timothy Andrews
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When we observe faces during natural viewing, their left and right halves typically project to visual cortex within the contralateral hemisphere. In a similar way, the upper and lower halves of the face typically project to ventral and dorsal regions of visual cortex. However, it is unclear if our experience of faces in typical locations of the visual field (e.g., right half - left hemisphere, or upper half - ventral cortex) influences face recognition. In this study, participants (n = 32) viewed left, right, upper, and lower face halves, that were presented in either the typical or atypical visual field location. Participants made familiarity judgements on familiar or unfamiliar faces. The results showed improved reaction time and accuracy for face halves that were presented in their typical visual fields. However, when responses to familiar and unfamiliar faces were separated, this effect was clearly driven by familiar faces, with little evidence of any visual field effects for unfamiliar faces. Our findings imply that our experience of familiar faces in their typical locations facilitates recognition, and suggests that matching images of familiar faces to their representations in memory shows some level of image dependency.

Facial expressivity and first impressions during online social interactions.

Alisa Balabanova, Eithne Kavanagh, Tom Kupfer and Bridget Waller
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Facial expressions are an integral part of interpersonal communication. Facial expressions can display our internal states, change in response to the actions of others and influence others' perceptions and behavioural tendencies. Therefore, facial expressivity has the potential to impacts first impressions and friendship formation. The current study explored the influence of facial expressivity and the understanding of display rules of emotions in the formation of first impressions and interpersonal connections in an informal, online group setting. Participants (N = 256) met in groups of three or four to test the hypotheses that a) more expressive individuals form better first impressions (in terms of likability, trust, and other interpersonal characteristics); b) more expressive individuals have bigger and denser social networks; and c) individuals with shared understandings of display rules of emotions are perceived more favourably by others. The results suggest that more expressive individuals are more liked, trusted and overall, perceived more favourably, by their interaction partners (a). We further discuss the outcomes of hypotheses b and c with relation to implications for how individuals engage with personal and professional social interactions in both online and face-to-face settings.

This work has been supported by the European Research Council (Horizon 2020 Consolidator Grant FACEDIFF to Bridget Waller, Grant Number 864694).

Positive facial expressions provide enhanced perception of causal outcomes.

Rahmi Saylik[1,2] and Robin Murphy[2]
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Emotional expressions convey the affective state of the actor facilitating prediction of another's behavior, driving an adaptive response from the receiver. These interactions prompt social relations and constitute contingent, dynamic, statistical evidence that forms the basis for causal perception. We aimed to discover how emotionality modulates sensitivity to the evidence across positive (i.e., happy), negative (sad, angry, fearful) and non-emotional stimuli (e.g., changing shapes) using a rapid streaming procedure. We varied the contingency between pairs of events (negative, zero, positive contingency) and strength based on outcome frequency (low, moderate, high), and participants judged the relatedness of pairs of facial expressions at the end of each stream. Experiment 1-3 demonstrated that participants perceived a stronger sense of positive and negative relatedness when the faces expressed happy compared with sad expressions and that outcome frequency enhances perception. Finally, Experiment 4 showed a similar advantage compared to angry/fearful faces. Overall, the results suggest that happy faces are more effective at supporting causal perception, and we discuss this result in terms of learning, primary responses and saliency.

The criterion effect in perceptual comparisons of faces.

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The criterion effect is a phenomenon associated with 'same'-'different' comparison judgements of stimulus sets (e.g. Farrell, 2022). In the basic effect, observers are found to be notably more efficient when comparing stimuli under a conjunctive criterion (classifying if any item is 'different' [or not] across two sets), than a disjunctive criterion (classifying if any item is 'the same' [or not]). The effect has been shown for comparison of letter strings and colour arrays and occurs with both physical and nominal comparisons. What about for comparisons of face stimuli? In the current work, participants are shown a pair of laterally-adjacent faces, followed, after a mask, by a second pair. The second face-pair images have either both the same face-identities as in the first pair, or one, or both faces are of different people. On some trials viewpoint and/or expression is also varied across the sets. Participants make comparison judgements about the faces under conjunctive or disjunctive rules. Results show -different to letter-strings or colours- a 'reverse' criterion effect: participants being more sensitive to repeating of face identities than their substitution. This was found across the different face manipulation conditions. Possible reasons for the different findings with face stimuli are discussed.

Farell, B. (2022). Hypothesis testing, attention, and 'Same'-'Different' judgments. Cognitive Psychology, 132, 101443.

Over-imitation enhances social affiliation between strangers even across group divides.

Bahar Tuncgenc[1,2], Lauren Marsh[3], Trinh Nguyen[4] and Stefanie Hoehl[5]
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[2] University of Oxford
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Unlike other animals, humans faithfully copy others' perceivably unnecessary behaviours, i.e., over-imitate. Decades of research has established that over-imitation aids cultural information transmission and signals group membership (see reviews: Hoehl et al., 2019; (Legare & Nielsen, 2015). Social group signifiers often also foster affiliation between people (Haun & Over, 2015). However, it is not clear what over-imitation can do for affiliation between individuals. Using a robust pre-post design and replicating findings across two pre-registered experiments with 4- to 9-year-old U.K. children (N=61, 29F and N=70, 35F), we show that children over-imitated interaction partners who were from the same group as themselves (i.e., in-group members) more than those who were out-group members. Strikingly, over-imitation enhanced affiliation towards both in-group and out-group members similarly. Children who over-imitated more preferred to be closer to and shared more with their interaction partner, regardless of shared group membership. Thus, over-imitation effectively boosts social affiliation between strangers even across group divides. We discuss the findings considering evolutionary and developmental theories on the role of over-imitation in human social interactions.

Prospective awareness of intention to act in healthy adults: studies using verbal fluency tasks and quasi-random probes.

Zheng Huang[1], Silvia Seghezzi[2] and Patrick Haggard[1]
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Volition refers to the key mental process of generating voluntary actions. Prospective theories propose that conscious experience of volition is a readout of action preparation processes, while retrospective theories view conscious intention as an inferred construct that is retro-inserted into narratives of one's own behaviour. Comparing these theories experimentally is problematic, because (a) eliciting voluntary actions in laboratory settings is difficult, and (b) existing measures of conscious intention based on post-action reports are open to retrospective biases. We developed verbal fluency typing tasks as a means of eliciting voluntary actions to address (a), and we then interrupted participants quasi-randomly, asking "Were you about to type your next word?", to address (b). The behavioural data allowed us to estimate timing of conscious intention relative to action, and yielded values of -1079 ms (1366 ms SD), and -1247 ms (737 ms SD) from two experiments involving a total of 52 participants. Further, EEG results showed a greater readiness-potential-like deflection prior to probes that elicited reports of awareness of upcoming action, compared to probes that did not. Our results offer novel support for prospective theories of intention awareness, and may help in overcoming some methodological difficulties of previous studies.

Thinking Outside the Box: The role of overimitation in causal learning.

Lauren Marsh[1] and Bahar Tuncgenc[2]
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Children are high fidelity imitators, copying visibly unnecessary actions in many circumstances, although the reason for this 'overimitation' is debated. The Dual-Process Model (Schliehauf & Hoehl, 2020) proposes that children default to 'blanket copy' others when unprompted to consider an alternative strategy. In this study, we test the Dual-Process Model and test an alternative possibility: that children use overimitation in the face of uncertainty to test their causal predictions. 60 5-to-8-year old children completed a classic overimitation paradigm where they watched a demonstrator retrieve a toy from a container using necessary and unnecessary actions. They were then instructed to retrieve the toy themselves and their inclusion of the unnecessary actions was coded. Half of the children completed a causal discrimination task prior to the overimitation task, and half completed it subsequently. Contrary to the predictions of the Dual-Process Model, there was no difference in the amount of imitation displayed by children in the imitation-first and the discrimination-first conditions. Instead, children acted in accordance with their causal understanding. Overimitation was highest when children were uncertain about the causality of unnecessary actions. This study supports the idea that children actively use overimitation as a strategy to learn about objects in the world.

Thinking with things: Concrete objects improve divergent thinking in the Alternative Uses Task.

Wendy Ross[1] and Margaret Webb[2]
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The alternative uses task (AUT) is a popular task used to assess divergent thinking skills. Performance is highly sensitive to contextual variants. Recently, it has been reported that performance is lower in the AUT if participants are presented with a picture of the object, presumably inducing fixation on the properties that can be seen (George et al., 2023). In the experiment reported here, we assessed whether performance was altered by whether the object was presented as a word (internal image), a photographic image (visual) or as a concrete object which the participants could manipulate. Forty participants took part in a repeated measure experiment. We found that the creativity of the uses as scored through both originality and semantic distance was significantly higher in the object condition than both the mental and visual conditions. This suggests that handling the objects may act to break fixation. With the increased attention to the internal dynamics of creative ideation, we suggest that it is important to ensure that context is not ignored.

George, T., Mielicki, M. K., & Wiley, J. (2023). Great expectations: Misleading effects of images in the alternate uses task. Psychology of Aesthetics, Creativity, and the Arts, 17(1), 56-67. https://doi.org/10.1037/aca0000380

Local Organiser Symposium

Social evaluation from another angle: Sources of variability in first impressions.

Organised by Kate Roberts and Samuel Jones.

Perceptual and cognitive predictors of stable individual differences in audiovisual and unimodal speech perception.

EPS

Jacqueline von Seth
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Visual cues encoded in speakers' facial movements can provide a significant benefit to speech perception. However, not everyone benefits equally: substantial individual differences in audiovisual benefit have been found, and enhancement may vary for different speech materials. We recruited 114 normally-hearing participants to complete a three-part experiment investigating the distribution, reliability, and predictors of individual audiovisual benefit for acoustically degraded (noise-vocoded) speech. Rather than comparing changes in intelligibility due to adding visual speech, we measured the relative intelligibility of matched auditory-only and audiovisual speech (Audiovisual Benefit) for materials at three levels of linguistic structure: meaningful sentences, monosyllabic words and consonants in minimal syllables. We found that audiovisual benefit is test-retest reliable across sessions and significantly correlated across levels of linguistic structure. Individual differences in audiovisual benefit were predicted by perceptual, rather than cognitive abilities: greater for individuals with better lipreading abilities and poorer hearing. Conversely, unimodal speech perception was predicted by cognitive measures (matrix reasoning, vocabulary) and demographic variables (age, gender). These results represent the first step towards validating a short-form intelligibility-matched measure of individual audiovisual benefit and provide a foundation for further work, using MEG encoding analysis to identify enhancement-relevant perceptual features in auditory and (audio-)visual speech.

Nutrition is associated with individual differences in multisensory integration in heathy older adults.

EPS

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Diet is a modifiable risk factor for cognitive decline in ageing but it is unknown if a relationship exists between dietary patterns and lower-level processes that underpin cognition, such as multisensory integration. Here, we examined whether the temporal precision of multisensory integration is associated with daily intake of fruit and vegetables (FV) or products high in fat/sugar/salt (FSS). Healthy, community-dwelling older adults (N = 2,693) from The Irish Longitudinal Study on Ageing (TILDA) completed a Food Frequency Questionnaire from which the total number of daily servings of FV and FSS items respectively was calculated. The temporal precision of audio-visual integration was measured as susceptibility to the Sound Induced Flash Illusion (SIFI) across three Stimulus Onset Asynchronies (SOAs): 70, 150 and 230 ms. Mixed model analyses indicated that self-reported higher daily FV consumption and self-reported lower daily FSS consumption were independently associated with increased and reduced temporal precision of multisensory integration respectively. Therefore, the temporal precision of multisensory integration is associated with daily dietary patterns in healthy ageing, consistent with broader evidence that habitual diet influences brain health.

Robust inter-individual differences in audio-visual integration: The role of sensory experience and social factors.

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Integrating information across different senses increases perceptual precision. However, this benefit only emerges late in childhood and depends on individual, sensory experiences during development. Yet, to what extent integration remains plastic in adulthood remains elusive. Furthermore, as the focus on the social environment increases throughout adolescence and adulthood, integration should consider the social relevance of information to be fully beneficial. In a set of studies, we assessed the role of sensory experience and social relevance on audio-visual integration. Firstly, we assessed whether and how adults learn to integrate novel, auditory cues with native, visual disparity cues to enhance depth perception. Using large- and small-sample training paradigms, we show that robust inter-individual differences exist and persist despite perceptual training. This suggests not only a limited plasticity to late sensory experience, but also pre-existing differences in the propensity to combine specific cues. Secondly, we assessed whether audio-visual integration is malleable to arbitrarily associated self-relevance of information. By measuring perceptual biases, our results show that integration is modulated by social relevance, depending on the individual's self-bias strength. Computational modelling suggests that social modulation functions similarly to perceptual priors, thereby allowing individual differences in self-representation to exert a stronger or weaker influence on perception.

Searching for individual differences in audiovisual integration of speech in noise.

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Speech comprehension is often aided by watching a talker's face. It is clear that there are individual differences in the ability to understand auditory speech in noise, and differences in the ability to understand visual speech ("lip-reading") although most people are poor at this. It remains an open question whether people differ in how they integrate auditory and visual cues. We do not know what the "integration function" is, and whether it is the same for everyone. To address this question, we have applied a new method for quantifying multi-sensory integration, based on signal detection theory (SDT), to a large dataset of online audio-visual speech perception performance. Participants (>200) vary in (self-reported): age, hearing-loss, English language experience, language-specific impairments and neurodiversity. Audiovisual performance was for the most part accurately predicted by unisensory performance. In contrast, for both auditory-only and visual-only speech perception there were striking differences in individual performance. There was also some evidence of some small systematic differences in auditory performance across the demographic groups. This suggests that the "audiovisual integration function" for speech is relatively consistent across a diverse population, with individual differences being attributable to differences in unisensory perception.

Multisensory object category learning and categorisation across development.

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Categories can be formed in memory using multisensory information. The developmental stage at which this ability arises is unclear, although optimal multisensory integration typically emerges in later childhood. We investigated how children use multisensory features from vision, touch and audition to categorise novel objects. We examined visuohaptic categorization in 238 children aged 4-13 years. Children learned to categorise unfamiliar objects in visual-only, haptic-only and visuohaptic conditions to a response criterion and were tested on their ability to categorise these and novel exemplars. The 4–6-year-old children found category learning more difficult than the older children. Children were more efficient at learning to categorise objects using haptics than either visual-only or visuohaptic learning. Visual and visuohaptic learning led to broader multisensory category representations. Haptic learning in contrast led to haptic-only representations. Categorisation task performance to novel category exemplars was significantly less accurate for 4-6-year-olds compared to 10-13-year-olds. I will also discuss findings from a study which investigated how correlated crossmodal cues (visual motion with sounds) influence object categorisation. Our findings suggest that the ability to learn object categories and apply this learning to novel multisensory exemplars improves across childhood, thereby shedding light on the development of multisensory category representations in memory.

Incongruence and task difficulty in multisensory ageing.

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Older adults respond differently from younger people to multisensory stimuli under some, but not all, circumstances. It appears that age differences are especially prominent when stimuli provide conflicting information and/or when task demands are high, but the mechanisms underlying these effects are yet to be thoroughly explored. In this talk I will present a series of investigations into how stimulus (in)congruence and task difficulty modulate the effects of normal, healthy ageing on various measures of multisensory (specifically audiovisual) perception.

End of Symposium

Is aphantasia a neurodevelopmental condition? Evidence from face processing.

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Researchers are uncertain whether aphantasia is a neurodevelopmental condition, or the tail end of the neurotypical distribution. These conditions are highly comorbid with one another, and often associated with problems in facial identity processing. In this study, we assess the prevalence of comorbid developmental prosopagnosia (i.e., lifelong trouble with faces) and the types of face processing problems present in aphantasia (n = 38). We found around 40% of people with aphantasia may have comorbid prosopagnosia, with this increased comorbidity maintained after excluding other neurodevelopmental disorders associated with face processing difficulties. Aphantasia was also associated with impairments in identity perception and unfamiliar face memory, but these effects were small and only significant after pooling data from prior work. By contrast, aphantasia was associated with substantial difficulties in famous face recognition. Given an increased prevalence of prosopagnosia and identity processing impairments are found in other neurodevelopmental conditions, our findings support the hypothesis that aphantasia may itself be a neurodevelopmental condition too.

Being facially expressive is socially advantageous.

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Individuals vary in how they move their faces in everyday social interactions. In a first large-scale study, we measured variation in dynamic facial behaviour during social interaction and examined dyadic outcomes and impression formation. In Study 1, we recorded semi-structured video calls with 52 participants interacting with a confederate across various everyday contexts. Video clips were rated by 176 independent participants. In Study 2, we examined video calls of 1315 participants engaging in unstructured video-call interactions. Facial expressivity indices were extracted using automated Facial Action Coding Scheme analysis and measures of personality and partner impressions were obtained by self-report. Facial expressivity varied considerably across participants, but little across contexts, social partners or time. In Study 1, more facially expressive participants were more well-liked, agreeable, and successful at negotiating (if also more agreeable). Participants who were more facially competent, readable, and perceived as readable were also more well-liked. In Study 2, we replicated the findings that facial expressivity was associated with agreeableness and liking by their social partner, and additionally found it to be associated with extraversion and neuroticism. Findings suggest that facial behaviour is a stable individual difference that proffers social advantages, pointing towards an affiliative, adaptive function.

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Stereotype-related facial features drive perceptions of social class.

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Social class is a powerful hierarchy that determines many privileges and disadvantages. People form impressions of others' social class (like other important social attributes) from facial appearance, and these impressions correlate with stereotype judgments. However, what drives these related judgments remains unknown. That is, what makes someone look like they are of higher or lower social class standing (e.g., rich or poor), and how does this relate to harmful or advantageous stereotypes? We addressed these questions using a perception-based data-driven method to model the specific facial features that drive social class judgments and compared them to those of stereotype-related judgments (competence, warmth, dominance, trustworthiness). Using a complementary data-reduction analysis and machine learning approach, we show that social class judgments are driven by a unique constellation of facial features that reflect multiple embedded stereotypes: poor-looking (vs. rich-looking) faces are wider, shorter, and flatter with downturned mouths and darker, cooler complexions, mirroring features of incompetent, cold, and untrustworthy-looking (vs. competent, warm, and trustworthy-looking) faces. Our results reveal the specific facial features that underlie the connection between impressions of social class and stereotype-related social traits, with implications for social perception theories, including understanding the causal links between stereotype knowledge and social class judgments.

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"Spelling matters": The timecourse of sublexical retrieval in written word production.

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Expressing ideas in language involves the generation of an intended message, retrieving words, their spelling / phonology, and finally outputting words. For written production it is unclear (1) if and (2) when phonology might be activated. This research aims to establish the timecourse of when orthographic and / or phonological representations become available. In four picture-word interference experiments (60-96 participants, 60-64 items), we tested to what extent phonologically plausible word-spellings delay word onsets. Participants were asked to type (experiments 1-3) or say (experiments 4) the name of a picture. In all experiments, the picture was superimposed by a distractor non-word that was either spelling-matched (e.g. "nane" for target "plane"), spelling-mismatched with the same pronunciation (e.g. "nain"), or baseline ("####"). We presented picture and distractor simultaneously (all experiments), and varied SOAs (experiments 2-4). We found that response hesitations - estimated using Bayesian mixture models (Roeser et al., 2021) - were lower when distractor and picture were presented simultaneously. However, at 400 ms SOA spelling-mismatch was likely to delay naming (experiment 2, 3). This effect disappeared in the spoken task

(experiment 4). These results are in line with models that predict cross-modality interactions but contradict modality-independent models of word production.

Roeser, J., De Maeyer, S., Leijten, M., & Van Waes, L. (2021). Modelling typing disfluencies as finite mixture process. Reading and Writing, 1-26.

Work supported by an ESRC New Investigator Grant: ES/W011832/1.

Neural correlates of lexical, sublexical and motor processes in writing production.

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Writing recruits a vast neural network underpinning linguistic and motor processes. Previous studies have tried to identify which brain areas are "writing-specific" and which are shared with other activities such as reading or drawing. In this fMRI study, participants (n = 25) copied or saw/read symbols or words varying in frequency and phonology-to-orthography (P-O) consistency. Increased activation in writing than in reading for words but not for symbols revealed the involvement of left-lateralised fronto-parietal regions and the cerebellum in the production of writing-specific movements. Comparisons between symbols and words when writing but not when reading identified several areas involved in linguistic writing-specific processes. Interestingly, anterior parts of the inferior frontal gyrus were selectively recruited when writing P-O inconsistent words, while the right Heschl's gyrus was recruited when writing consistent words. Non-specific motor and linguistic areas were also identified. These results contribute to identifying the neural substrate of the lexical and sublexical spelling routes and suggest that different brain areas might be involved in the lexical processing of input (reading) and output (writing) orthography.

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It's only easy if you understand the instructions. Tracking problem solution without understanding.

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One of the underlying assumptions of research insight problem solving is that a correct solution is a marker of conceptual understanding of the problem; there is a strong theoretical link between forming a "correct" representation of the problem solution and problem success. However, problem success often does not transfer either to the same problem at a different time or to an analogous problem suggesting that conceptual understanding varies in strength. In this study, 109 participants

took part in an analogical transfer task based on the Cards problem (Cunningham & MacGregor, 2008). We operationalised conceptual understanding by counting the number of times participants re-checked the instructions. We found a strong relationship between problem success and instruction checks for both the source and the target problem. Notably, those participants who failed to transfer problem success at time one to time two checked the instructions significantly more than those who successfully managed to transfer. Those participants who got the problem wrong at time one and then went on to solve at time two also checked the instructions significantly less than those who continued to fail. The findings suggest that understanding of problem structure is key to successful transfer and provides a novel way to measure this.

Cunningham, J. B., & MacGregor, J. N. (2008). Training insightful problem solving: Effects of realistic and puzzle-like contexts. Creativity Research Journal, 20(3), 291-296. https://doi.org/10.1080/10400410802278735

Older adults do not show enhanced benefits from multisensory information on speeded perceptual discrimination tasks.

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Research has shown an age by modality interaction in low-level discrimination tasks, such that older adults benefit more from multisensory information than do young adults. However, more recent evidence has shown that the multisensory age benefit varies considerably across tasks. In the current study, older (65 - 80) and young (18 - 30) adults (N = 191) completed a leading speeded perceptual discrimination task either online or face-to-face to assess task response speed. We examined whether presenting stimuli in multiple sensory modalities (audio-visual) instead of one (audio-only or visual-only) benefits older adults more than young adults. Across all three experiments, a consistent speeding of response was found in the multisensory condition compared to the unisensory conditions for both young and older adults. Furthermore, race model analysis showed a significant multisensory benefit across a broad temporal interval. Critically, there were no significant differences between young and older adults. Taken together, these findings provide strong evidence in favour of a multisensory benefit that does not differ across age groups. The results indicate that the use of multiple sensory channels improves cognitive processing for both young and older adults.

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Measuring self-reported audio-visual benefit.

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Objective. We developed and validated a questionnaire to assess self-reported audiovisual (AV) benefit, based on the Speech, Spatial and Qualities of Hearing scale (SSQ12). Visual information can improve functional hearing in the real world, with variability across individuals in AV benefit. Assessing self-reported AV benefit can provide insights into functional hearing ability, and therefore

optimal care, for individuals with hearing impairment. Design. The original SSQ12, plus 2 additional items from the full SSQ, were adapted to create auditory-only (AO) and AV scales. Questions were refined through PPI interviews. Methods. For online validation (n=280), participants completed the original, AO, and AV versions of the SSQ12+2. Scores were compared across versions including by subscale and individual questions. Construct validity was assessed using confirmatory factor analysis. Results. As expected, participants reported better self-reported listening ability in AV scenarios than in the original SSQ12+2, with the worst listening ability in AO. Internal consistency was high for all three scales. Conclusions. The AV scale provides a reliable means for assessing self-reported AV benefit (AV - AO scores). Comparison between the original, AV and AO versions indicated that visual information improves speech perception and quality of hearing, with insights into how participants interpret the original SSQ12 questions.

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Unexpected sounds induce a rapid inhibition of eye-movement responses.

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Unexpected sounds have been shown to trigger a global and transient inhibition of motor responses. Recent evidence suggests that the movement of the eyes may also be inhibited in a similar way, but it is not clear how quickly unexpected sounds can affect eye-movement responses. Additionally, little is known about whether unexpected sounds affect only voluntarily-generated saccades or also saccades that are more automatically generated. In this study, participants performed a pro-saccade and an anti-saccade task while the timing of sounds relative to stimulus onset was manipulated. Unexpected novel sounds inhibited the execution of both pro- and anti-saccades compared to standard sounds, but the inhibition was stronger for anti-saccades. The timeline of the novelty distraction effect was relatively stable- it was observed from 150 ms before target onset to 25ms after target onset. Interestingly, unexpected sounds also reduced anti-saccade task errors, indicating that they aided inhibitory control. Overall, these results suggest that unexpected sounds yield a global and rapid inhibition of eye-movement responses. This inhibition also helps suppress automatic eye-movement responses in favour of more voluntarily-generated ones.

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Spatial structure facilitates systematic search activity in multiple-target search tasks.

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Humans often search scenes for multiple instances of targets. Such scenes contain spatial structure, which can group items and affect search activities. Across six experiments, we explored how individuals organised their searches around spatial structure in a foraging paradigm. Displays contained eighty items (two target types and two distractor types: twenty of each). Each trial contained multiple instances of two target types. Participants consistently searched segmented displays differently to non-segmented displays. Additionally, differences between multiple-target feature and conjunction searches were consistently replicated. Conjunction search for multiple targets was slower, less efficient, more errorful, and involved longer runs of the same type of target, compared to feature searches. These general effects were replicated in a series of experiments that manipulated structure type, structure visibility, and time limits. When targets vanished after selection, no benefits of segmentation on search were observed. However, when targets remained visible post-selection, participants made fewer erroneous re-clicks of selected targets when searching segmented displays compared to non-segmented displays. Overall, spatial structure appeared to facilitate systematic search activity, potentially by providing a systematic route to limit erroneous target re-selections, or by facilitating memory for previously attended regions.

Different kinds of Autistic traits differently affect face perception in different genders: Why you should include sex/gender in your model.

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Aspects of individual differences in perception, cognition and action throughout the general population can be described in terms of dimensional autistic traits, whose strongly polygenic and multifactorial bases give rise to a continuum of individual variation. Two major domains of autistic traits are superior attention to detail and difficulties in neurotypical social interaction. These non-social and social domains of measured autistic traits interact with each other and with sex to determine how and to what extent social information is gathered from eyes and from other facial regions (https://doi.org/10.3389/fpsyg.2013.00286): in men but not women, attention to detail synergises with social difficulty to impair recognition of eyes-only faces, yet also synergises with social prowess to facilitate eyes-only face recognition. We re-analysed a data set (https://osf.io/xn3g4/) gathered during successive waves of the COVID-19 pandemic on recognition of emotions in masked faces, splitting it by sex and by the separate Autism Spectrum Quotient factors social interaction (AQSocInt) and attention to detail (AQDet). A significant AQSocInt x AQDet x Sex x Emotion x Time interaction replicated our earlier findings, but only for recognition of complex emotions, and only at the beginning of the pandemic when subjects were not yet practised at processing masked faces.

Incorporating feminist practices into (psychological) science - the why, the what and the how.

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Applying a feminist lens to scientific research brings many advantages, such as broadening theoretical perspectives, encouraging collaboration and inclusion of marginalized groups, and widening the scope of research methods. However, findings from an informal survey as part of a SIPS hackathon revealed that both academics and non-academics grapple with a lack of clear conceptual understanding regarding feminist approaches and feminism as a whole. We aim to provide an access point for why researchers should incorporate feminist approaches in psychological science, what feminist approaches look like and how researchers can start incorporating them into their own work. In answering the why, what and how of feminist practices, we aim to make working in a feminist way more legible and accessible and cultivate a more comprehensive understanding of human psychology. Based on the survey and our unique viewpoints as feminist psychological science ECRs, we propose constructive approaches for integrating feminist values and practices into psychological science. We highlight what possible barriers exist to incorporating feminist practices and how future research can embrace them. We also provide a short glossary explaining terminology that can support the communication of feminist research as well as a curated checklist of feminist practices to start out with.

Input device influences measures of cursor tracking in online experiments.

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Cursor tracking has become a common experimental technique in experimental psychology to study behaviour across perception, cognition, and action. This technique aligns well with a movement in recent years towards remote experiments conducted online, where experimenters trade off full experimental control but gain rapid access to a large population of diverse participants. One variable that experimenters usually cannot control online is the input device used by participants, typically a mouse or a trackpad. The two devices require different input movements to operate, so we may expect measures derived from cursor tracking to differ. Using two different types of movement common in reaching experiments (slicing and point-to-point movements) and a kinematic

decomposition of the recorded trajectories, we identify several measures critically influenced by input device. This applied both to temporal and spatial variables, for example trackpad users making slicing movements showed greater reaction times but lower variability in movement directions when compared to mouse users. Given similar measures are used to gain insights into a wide range of behavioural processes (e.g. properties of decision-making), we urge researchers to carefully consider and account for the effect of input device on their experimental data.

Choice of rating scale systematically affects contingency judgments.

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The outcome density effect, an illusory causation, refers to overestimating the contingency between a cue and outcome when the overall proportion of outcomes is higher. Using high and medium outcome densities, Ng, Lee and Lovibond (2023) found larger illusory causation effects with unidirectional scales compared to bidirectional scales. This suggests that the outcome density effect may have been systematically underestimated in past work: because contingency judgments for low outcome density conditions typically sit closer to this null-correlation limit than those for high outcome density contingency judgments. We further test this bias by experimentally comparing the contingency judgment measurement using both response scales while simultaneously varying the actual contingency (negative vs. zero vs. positive), and the outcome density (low vs high). Large main effects of scale, contingency and outcome density effects were found, there were no qualifying interaction effects. We conclude that the length of scale can influence contingency judgements, such that a unidirectional positive scale may induce positive bias in the participants' judgements (relative to a bidirectional scale). As such the use of unidirectional scales may have led to overestimating outcome density effects in previous experiments. These findings have implications for contingency, associative and probabilistic models of learning.

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Chunks of phonological knowledge and how they explain children's word learning in English, Spanish, German and Mandarin.

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Accounts of children's word learning often ignore the influence of the knowledge that the child possesses at the point of learning. Jones et al. (2021) have already shown how one type of knowledge - the gradual build up of sub-lexical phonological sequences - influences children's word learning. In particular, their CLASSIC model showed that chunks of sub-lexical phonological knowledge,

accrued over time, explained the developmental progression of word learning as measured by word length, frequency of occurrence, phonotactic probability, and neighbourhood density. In this talk, the same model is applied to four languages, showing largely the same effects. Analyses are further extended to include word category, showing that CLASSIC slightly over-estimates children's verb learning and under-estimates children's noun learning. We conclude that chunks of phonological knowledge play a crucial role in children's word learning while the verb/noun discrepancy arises due to many nouns having real-world referents that are not accessible to the model.

Jones, G., Cabiddu, F., Andrews, M., & Rowland, C. F. (2021). Chunks of phonological knowledge play a significant role in children's word learning and explain effects of neighborhood size, phonotactic probability, word frequency and word length. Journal of Memory and Language, 119, 104232.

Learning orthographic word forms in a second language: The Role of domain-specific orthographic learning abilities and domain-general visual statistical learning abilities.

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Learning words in another language involves the acquisition of both phonological and orthographic words forms. Acquiring orthographic word forms may be supported by two types of domain-specific orthographic abilities: 1) at the sub-lexical level: the ability to learn orthographic regularities of the FL, as well as 2) at the lexical level: the ability to learn whole FL word forms. It may also be supported by domain-general visual-statistical learning abilities. This project investigated orthographic abilities, the relationship with visual-statistical learning and how both of these may predict the acquisition of FL words. Study 1, explored emerging lexical and sub-lexical knowledge about the FL. Results showed related but distinct knowledge of orthographic regularities and whole-word forms. In Study 2, participants learnt words in a FL before completing recall and recognition of form-meaning links tasks. We also measured lexical and sub-lexical learning abilities (in a different language) and visual-statistical learning abilities. Results showed a role for both domain-specific orthographic abilities and domain-general visual statistical learning abilities in predicting FL word learning.

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An eye-tracking exploration on metaphor comprehension and learning in second language speakers of English.

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There has been much discussion over potential differences and similarities between metaphors (my lawyer is a shark) and similes (my lawyer is like a shark). Some authors have suggested that they

convey the same message, while others believe that metaphors convey a figurative meaning and similes a literal one. Also, as with other types of non-literal phrases, L2 speakers tend to struggle to understand the meaning of metaphors, as they seem to first activate literal meanings rather than the intended figurative one. These conclusions have been reached largely by obtaining data from off-line experiments, or by focusing mostly on L1 speakers as participants, leaving a gap in terms of on-line experiments, and speakers of more than one language. In this study, we used an eye-tracker to compare reading times of metaphors, similes, and literal sentences for L1 and L2 speakers. The analysis showed that although L1 speakers were naturally faster at reading all types of phrases, the eye-movement patterns showed minimal differences when compared to their L2 counterparts. Additionally, the analysis showed that participants do not read metaphors and similes in the same way, with the latter being read faster than metaphors, but not as fast as literal sentences.

The Impact of bilingualism on executive functioning in autistic adults.

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Bilingualism is argued to afford cognitive advantages across a range of executive functions (EF). However, little is known about the benefits of bilingualism to EF in clinical populations, such as those with a diagnosis of autism. This is despite the suggestion that many of the traits and characteristics associated with an autism diagnosis are due to difficulties in EF. Across two studies monolingual and bilingual participants completed four EF tasks measuring inhibitory control, cognitive flexibility, sustained attention, and working memory. Study 1 recruited neurotypical participants with differing levels of autistic traits (high/low); Study 2 recruited both neurotypical participants and participants with a clinical diagnosis of autism. Study 1 revealed that participants performed comparably regardless of their reported level of autistic traits, and that bilinguals showed an advantage compared to monolinguals on the cognitive flexibility task. Critically, Study 2 replicated these results, demonstrating that not only do neurotypical adults and autistic adults perform comparably on a range of EF tasks, but that they both show a bilingual advantage for cognitive flexibility. These results are critical, as they provide key evidence that bilingualism provides a measurable advantage in cognitive functioning for both neurotypical and autistic adults.

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Memory for counterfactual actions.

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Counterfactual actions are action alternatives that could have been chosen and executed, but were not. We investigated memory for counterfactual actions. Participants performed the Tower of London task, which involves choosing and executing actions that move coloured balls between pegs to achieve a goal configuration. Immediately after solving each problem, participants were shown several configurations, including the goal, other configurations they had just produced en route to the goal, plausible 'counterfactual' configurations drawn from an alternative path to the goal that they could have chosen (but did not), and completely new configurations unrelated to any plausible path. Participants judged if they had seen the shown configuration while solving the immediately-preceding problem. The findings revealed a memory bias: participants erroneously claimed to have seen/executed counterfactual configurations more often than completely new configurations. That is, they made false positive memory areas for counterfactual actions that they might plausibly have planned or executed, but did not in fact execute. One interesting interpretation of this result argues that planning an action is sufficient to encode it in memory, while executing it is not necessary. Our study cannot differentiate between prospective and retrospective influences of counterfactual actions on memory. Future research will target this difference.

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Sleep deprivation alters insula subregional functional connectivities.

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As a key node in the salience network, the insula is known to be susceptible to sleep loss. Previous studies have demonstrated the impact of total sleep deprivation (TSD) on vigilance and its correlation with aberrant insula functional connectivity (FC). While the insula comprises at least three functionally distinct subregions: anterior dorsal (dAI), anterior ventral (vAI), and posterior insula (PI), the anterior insula (AI) has been most investigated. Moreover, it is unclear whether bilateral PI shows different FC patterns in response to sleep loss. Here, we recruited 54 healthy young men to complete 36-hour TSD. Two sessions of Psychomotor Vigilance Tasks (PVT) were followed by rs-fMRI. Seed-based FC was calculated across 3 insular functional subregions bilaterally. Impaired task performance correlated with increased insular subregional FC after TSD. Specifically, three of the four pre-defined seeds within AI exhibited FC with cerebellar lobules (t_dAI_R-Cereb VIII_R = 7.29, t_vAI_R-Cereb VIIb_R = 8.73, t_Cereb_VIIIL-vAI_L = 9.86). PI exhibited similar FC patterns bilaterally as FC was enhanced with regions in the inferior temporal gyrus, inferior parietal gyrus, and middle frontal gyrus, but weakened with middle temporal gyrus, posterior cingulum and angular gyrus. These findings shed light on understanding insula subregional reactions to sleep loss.

31st EPS Prize Symposium
Symposium accompanying the 31st EPS Prize Lecture.
Organised by Kay Ritchie and Harriet Smith.

How does voice familiarity affect speech intelligibility?

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People often face the challenge of understanding speech when other sounds are present ("speech-in-noise perception")—which involves a variety of cognitive processes, such as attention and prior knowledge. We have consistently found that familiarity with a person's voice improves the ability to understand speech-in-noise, using both naturally familiar (e.g., friends and partners) and lab-trained voices. In this talk, I will describe experiments in which we aimed to gain insights into the processes underlying the familiar-voice intelligibility benefit, contrasting explanations based on predictions of voice acoustics with those involving cognitive demands. I will also describe our work examining the neural signatures of the intelligibility benefit, showing that speech spoken by familiar people is associated with more robust functional activity in posterior temporal cortex. I will discuss the implications of our findings for theories of speech perception, and the implications for populations who typically find speech perception particularly challenging (e.g., older adults).

The interplay of perceived naturalness and emotionality in voices.

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Perceived naturalness of a voice is a prominent feature which affects our interaction with both human and artificial agents. In humans, naturalness can be affected by voice distortion or transformation. In artificial agents, its tremendous importance has been acknowledged through multiple efforts to create and constantly improve synthetic voices to resemble human expressions. However, there is a lack of understanding to which degree voice naturalness relates to an effective expression and perception of vocal emotions. On the one hand, previous findings suggest that listeners display a strong tendency to pick up and process emotions even in highly artificial voices. On the other hand, a lack of natural prosody may disrupt emotional processing. In a current voice morphing study, we collected ratings of perceived naturalness and emotionality on manipulated voices with certain acoustic distortions. We found that emotionality was remarkably robust against reductions of voice naturalness. At the same time, voice naturalness seems to moderate emotion recognition performance and emotional processing on the neural level. Due to a lack of systematic research efforts, however, many questions around the interplay of perceived naturalness and emotionality in voices remain unresolved and demand for further research.

Time to reflect on voice parades: Exploring the impact of reflection and retention on voice identification performance.

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Experiment-based voice parades often result in low hit-rates when the target is present and high false-alarm rates when the target is absent. There are many possible reasons why this pattern of results is reliably found. One of these may be that the experimental procedures used in voice identification research omit elements that might naturally occur in the memory formation process. In the present research, we argue that the process of reflection may be one such procedural element. In Experiment 1 (N=180, F=92) we investigated if the inclusion of a post-exposure reflection manipulation in the parade procedure, prior to an experimentally standard five-minute retention interval, would improve identification performance when compared to a control group. In Experiment 2 (N=180, F=93), we explored how the effects of this manipulation might change when the retention interval was extended to a more ecologically valid 24 hours. The results show that the inclusion of a reflection manipulation did not meaningfully improve performance in either experiment. Importantly, we found no meaningful difference in performance when directly comparing the two retention interval durations. In this presentation, the theoretical explanations for these results are considered alongside the implications of the design and validity of earwitness voice parade studies.

The individual factor of social voice perception: Influence of bottom-up acoustics and top-down personality traits.

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Social first impressions of a speaker help us to predict and thus navigate complex social environments with efficiency and ease. The speaker´s voice is an important source for inferring information about our communication partner including identity, personality and social traits. Previous research aiming to understand how we form these social impressions has mainly focused on perceptual voice features of the speaker. However, a large proportion of variance in these acoustic models remain unexplained. Social interaction is a bi-directional process between the speaker and the listener, both influencing each other. In the current study, we try to disentangle the relation between acoustic information of the speaker and the overlap in personality between the speaker and the listener on social voice judgments. I will present data of 118 participants who judged natural and averaged female voices on four social dimensions. The data suggest that not only acoustic parameters but also the individual relationship between the speaker-listener personality modulates how we socially perceive speakers' voices.

Does multimodal identity information improve face and voice identity matching accuracy?

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Identity verification from both faces and voices can be error prone. Previous research shows that faces and voices signal concordant information and that cross-modal unfamiliar face-to-voice matching is possible, albeit often with low accuracy. We asked whether performance on a face or voice identity matching task can be improved by including multimodal stimuli which add a second modality (voice or face). As predicted, the results reveal that overall accuracy is higher for unimodal face matching than for unimodal voice matching. Unexpectedly though, presenting one unimodal and one multimodal stimulus did not improve face or voice matching accuracy compared to presenting two unimodal stimuli. Further, we found that presenting two multimodal stimuli does not improve accuracy compared to presenting two unimodal face stimuli. We conclude that multimodal information does *not* improve face and voice identity matching accuracy. Intriguingly though, we find that cross-modal face-voice matching accuracy predicts voice matching accuracy but not face matching accuracy. Cross-modal information *can* play a role in identity matching; face and voice information interact to inform voice matching decisions, regardless of accuracy. The implications will be discussed for 1) current models of person perception and 2) methods of verifying identity in forensic and security settings.

Unfamiliar face and voice matching in pairs.

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Humans are surprisingly poor at determining whether two unfamiliar face images or voice samples depict the same person. One method that has been shown to improve face matching performance is to have participants complete the task in a pair, which results in subsequent improvements for the poorer performers ('the pairs training effect'). Previous studies have explored the pairs training effect using simultaneous face matching tasks whereby the two face images are presented side by side at the same time. Here we tested the efficacy of the pairs paradigm in unfamiliar voice matching (Experiment 1) which is essentially a sequential task. We also tested sequential face matching (Experiment 2) with the pairs paradigm. In both experiments participants completed a third of the task individually, a third in a pair, and a third individually again. We found that participants who began as the poorer performers during the first individual task improved when completing the task in a pair, and importantly remained more accurate at the task during the last individual task. This was true for both voice and face matching. Therefore, the pairs training effect extends to tasks where the stimuli are presented sequentially, and to a voice matching task.

End of Symposium

How is information prioritised in working memory? Evidence from eye-tracking.

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There is now strong evidence that individuals can direct their attention towards particularly valuable information in working memory. One possibility is that this effect results from participants preferentially encoding high value information. For example, participants may spend a larger proportion of the encoding phase fixating on high value items. We examined this using eye-tracking. Participants were presented with simultaneous arrays of coloured shapes. After a brief delay, the outline of one shape was presented and participants recalled the colour using a colour wheel. Prior to the encoding phase, participants were told that one item was more valuable than the rest or that all items were equally valuable. It was found that participants fixated on the location of the high value item for longer during encoding relative to low value items in the array. Participants also fixated longer on high value items relative to the condition where all items were equally valuable. Taken together, these experiments provide evidence that participants vary their eye movements during encoding as a function of value, preferentially encoding particularly valuable information.

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The theta-induced memory effect: Further evidence from transcranial alternating current stimulation.

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Our everyday conscious experience incorporates seamlessly bound representations from a variety of sensory stimuli. Episodic memory allows us to re-live these multisensory events in our lives. The binding of the sensory stimuli into a coherent multisensory memory is thought to occur in the hippocampus [1], where synapses undergo rapid modifications in response to input. Direct evidence of this mechanism in humans has been lacking. The precise timing of activity in the hippocampus has been shown to be critical for inducing synaptic plasticity (e.g., through spike-timing-dependant plasticity [2,3], theta-phase-dependant plasticity [4,5], or theta-burst induced plasticity [6,7,8]). Our previous behavioural research to causally investigate the role of theta oscillations in the formation of episodic memories in humans was motivated by these findings. In a series of experiments, we found that a manipulation of the phase (i.e., the timing) of sensory inputs to the hippocampus affects memory formation, even at the level of individual associative memory task trials [9,10]. I will present recently collected data that suggests that subthreshold transcranial alternating current stimulation manipulating the phase offset between visual and auditory cortices also directly influences episodic memory formation at the hippocampal level and discuss potential mechanisms.

1. Moscovitch, M. (2008). The hippocampus as a "stupid," domain-specific module: Implications for theories of recent and remote memory, and of imagination. Canadian Journal of Experimental Psychology / Revue canadienne de psychologie experimentale, 62:62-79.
2. Bi, G. & Poo. M (1998). Synaptic Modifications in Cultured Hippocampal Neurons: Dependence on Spike Timing, Synaptic Strength, and Postsynaptic Cell Type. Journal of Neuroscience, 18:10464-10472.
3. Bliss, T.V.P. & Lømo, T. (1973). Long-lasting potentiation of synaptic transmission in the dentate area of the anaesthetized rabbit following stimulation of the perforant path. The Journal of Physiology, 232:331-356.
4. Huerta, P.T. & Lisman, J.E. (1995). Bidirectional synaptic plasticity induced by a single burst during cholinergic theta oscillation in CA1 in vitro. Neuron, 15:1053-1063.
5. Hyman, J.M., Wyble, B.P., Goyal, V., Rossi, C.A. & Hasselmo, M.E. (2003). Stimulation in Hippocampal Region CA1 in Behaving Rats Yields Long-Term Potentiation when Delivered to the Peak of Theta and Long-Term Depression when Delivered to the Trough. Journal of Neuroscience, 23:11725-11731.
6. Larson, J. & Lynch, G. (1986). Induction of Synaptic Potentiation in Hippocampus by Patterned Stimulation Involves Two Events. Science, 232:985-988.
7. Larson, J., Wong, D. & Lynch, G. (1986). Patterned stimulation at the theta frequency is optimal for the induction of hippocampal long-term potentiation. Brain Research, 368:347-350.
8. Larson, J. & MunkÃ¡csy, E. (2015). Theta-burst LTP. Brain Research, 1621:38-50.
9. Clouter, A., Shapiro, K.L., & Hanslmayr, S. (2017). Theta Phase Synchronization Is the Glue that Binds Human Associative Memory. Current Biology, 27:3143-3148.e6.
10. Wang. D., Clouter, A., Chen, Q., Shapiro, K.L., & Hanslmayr, S. (2018). Single-Trial Phase Entrainment of Theta Oscillations in Sensory Regions Predicts Human Associative Memory Performance. Journal of Neuroscience, 38:6299-6309

Age-related decreases in guidance via VSTM and attentional capture during preview search.

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Visual search is typically faster and more accurate when a subset of distractors appears before the display containing the target. This "preview benefit" has been attributed to guidance from VSTM and attentional capture during search. Ageing is associated with declines in the speed and accuracy of search, and the current experiment compared oculometric measures of guidance in young (YA) and older (OA) adults using preview displays. Targets were uniquely oriented Landholt Cs among heterogeneously oriented distractors. Preview and search displays contained 4 or 8 objects, and observers reported the orientation of the target. Analyses revealed significant reductions in scan path ratios and an increase in the time taken to fixate targets in OA compared to YA. Increases in preview set size yielded a larger increase in the time taken to fixate targets in OA than YA. Increases in search set size, yielded larger reductions in the time taken to fixate and evaluate targets in OA than YA. These results support independent sources of guidance via VSTM and capture during preview search. Ageing reduces the accuracy of both types of guidance, decreasing the selectivity of saccadic sampling and increasing the time taken to select and evaluate targets during search.

Skewness preferences and frequent winners.

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Do people's attitudes towards the (a)symmetry of an outcome distribution affect their choices? Financial investors seek return distributions with frequent small returns but few large ones, consistent with leading models of choice that assume right-skewed preferences. In contrast, many experiments in which decision makers learn about choice options through experience find the opposite choice tendency. To reconcile these seemingly contradicting findings, the present work investigates the effect of skewness on choices in experience-based decisions. Across seven studies, we show that apparent preferences for left-skewed outcome distributions are a consequence of those distributions having a higher value in most direct outcome comparisons, a "frequent-winner effect". By manipulating which option is the frequent winner, we show that choice tendencies for frequent winners can be obtained even with identical outcome distributions. Moreover, systematic choice tendencies in favour of right- or left-skewed options can be obtained by manipulating which option is experienced as the frequent winner. We also find evidence for an intrinsic preference for right-skewed outcome distributions. The frequent-winner phenomenon is robust to variations in outcome distributions and experimental paradigms. Our work reconciles conflicting findings of behaviour in financial markets and experiments, and highlights the need for theories sensitive to joint outcome distributions.

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Early exposure to extreme outcomes influences risky choice.

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When making decisions based on past experience, people are often strongly influenced by the extreme outcomes (highest and lowest). These extreme outcomes make people more risk-seeking in higher-valued choices, but more risk averse in lower-valued ones. In a pre-registered online experiment, we evaluated how the timing of exposure to extremes influences risky choice. Participants (N=390 across three groups) learned from experience to choose between high-value

options (70 points vs 50/50 chance of 60 or 80) and low-value options (30 points vs 50/50 chance of 20 or 40). Participants also experienced one additional wildcard option that varied across groups: a more-extreme wildcard (5 or 95) that came either early or late in training and a non-extreme wildcard (45 or 55) as a control. When the more-extreme wildcard came late or not at all, people overweighted the extreme outcomes (80 and 20), choosing the risky option more for the high-value than the low-value choices. In contrast, when the extreme wildcard occurred early in the experiment, people overweighted the extremes less, both in choice and in post-experiment memory tests. These results show how the initial learning or encoding context is crucial in determining how people make risky decisions from experience.

Attribute conditioning is insensitive to cue interaction effects and personality traits.

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When a neutral stimulus is paired with a stimulus denoting an attribute, the neutral stimulus is perceived to inherit the attribute of the stimulus it is paired with (i.e., Attribute Conditioning; AC). The current study examined whether this effect is sensitive to cue interaction effects (i.e., blocking and overshadowing) and whether the big five personality traits can predict this effect. Two online experiments (n = 458) were conducted where participants were shown neutral cartoon images of people (CSs) that were paired with healthy or unhealthy foods (USs). An AC effect was evident - people paired with healthy foods were rated healthier than people paired with unhealthy foods. However, there was no evidence of cue interaction effects or personality traits impacting upon the effect. These findings indicate that attribute conditioning is a robust phenomenon that is insensitive to factors which typically influence others forms of conditioning.

31st EPS Prize Lecture

Person perception from voices: How do we make sense of who we are talking to?

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When listeners hear a voice, they instantly evaluate the person they are hearing: Is the voice familiar? Can the person talking be recognised? Are they an adult or a child? Are they friendly or not? Do we consider them to be competent? In this prize lecture, I will first discuss identity perception, examining how listeners recognise and learn to recognise familiar others from their voices. Here, I will focus on how vocal variability interacts with identity perception and learning. I will then look beyond identity perception and examine the (first) impressions listeners form of people they are not familiar with. I will ask how listeners come to put together these complex first impressions of people based only on hearing a voice.

Functional connectivity and motor skill development.

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BACKGROUND and AIMS. Acquisition of motor skill in professions such as surgery induces changes in the trainees' brain function which can be characterised by functional neuroimaging. Training changes cortical thickness and myelination, leading to shifts in synchronisation patterns. We have sought to analyse these changes in the early phases of motor skill learning. METHODS. Participants (n=31 novices) underwent a laparoscopic surgery training task, concurrent to a secondary task (Zakeri et al., 2020) that required pedal response to randomly timed auditory stimuli. During the task, data were collected on performance, subjective cognitive load, electroencephalography (EEG) and functional near-infrared spectroscopy (fNIRS). Traditional statistics and graph theory approaches were used to i) test the association between brain measures; ii) track change in brain function with performance during training; iii) predict improvement in performance based on baseline and in-task brain function. RESULTS. Cerebral oxygenation (fNIRS) was associated with low beta frequency band (EEG). In-session performance improvement paralleled change in functional connectivity and was accurately predicted by graph theoretic measures from baseline and task-induced EEG. DISCUSSION. Findings support the importance of frontal and frontoparietal beta desynchronization for motor skill acquisition and underscore the potential of non-invasive brain monitoring in tracking surgery skill development.

Iso-feature suppression in migraine: An ability to exclude noise?

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Migraine is a common and debilitating neurological disorder with strong links to visual processing. One suggestion is that migraine is characterised by an imbalance between inhibition and excitation in the early sensory processing areas. This can be tested using measures of visual spatial inhibition, specifically, tasks involving iso-feature suppression. This was tested in three experimental studies using a variety of convergent methods including controlled laboratory studies, large-scale online studies, and electrophysiology, applying the predictions of a biologically grounded theoretical model of excitation and inhibition in early V1. The aim was to replicate the study of Wray et al., (1995), extending this to include task-irrelevant noise, and explore the neural correlates. The original findings from Wray et al., (1995) replicated only with large sample sizes, suggesting these are small effects at best. In addition, with the inclusion of task-irrelevant noise, migraine groups tended to perform better under noisy conditions compared to controls, contrary to expectations based on theoretical work. Based on this evidence, low-level inhibitory processing is likely to be intact in migraine.

Object recognition, the time course of local and global integration.

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Albeit a task taken for granted by most humans, object recognition is inherently complex. Little is still known about the time course of the different perceptual processes in object recognition. In a set of experiments using ERPs and eye tracking, we aimed to study the integration of local and global shape information using complex objects. Impossible objects defy the laws of geometry; they are 2D drawings that represent objects that cannot exist in 3D space. Our impossible stimuli included local and global features that, alone, were possible, but when combined or integrated to form a 3D representation, revealed the impossibility. Using event-related potentials (ERPs) and eye tracking, we compared the processing of possible and impossible objects in a simple classification task. Although participants took on average over two seconds to perform the task, the visual system detected a difference between the two types of objects a lot earlier. ERP revealed differences from 250 ms onwards (N2 and P3) while a higher microsaccadic rate (previously linked with object identification) for possible objects was also detected from 600ms. We propose that these differences encompass a neural signature of global/local integration.

Distorting the Truth: The role of forgiveness and perceived seriousness in memory modification.

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This talk explores the extent to which forgiveness serves to alter what people remember about a transgression and its associated impact. Across three experiments, we explored the impact of forgiveness on one's susceptibility to post-event misinformation. In Studies 1a & b, participants were presented with a hypothetical moral transgression and asked whether they would forgive the offender in the scenario. Participants were then asked for details about the scenario, after which they were presented with inconsistent post-event information (PEI) about the transgression, plus a final test of recall. Participants who had forgiven the transgressor were found to be more susceptible to misleading PEI than were participants who had not forgiven the transgressor. Furthermore, we found that this effect persisted even when perceived severity of the offence was controlled for. In Study 2, we directly manipulated perceived severity and found that there was clear evidence of systematic memory distortions; that is, participants were more likely to misremember information that was deemed congruent with their decision to forgive the transgressor. This study also indicated that the process of thinking about whether to forgive someone rather than the decision to forgive per se may be sufficient to produce systematic memory distortions.

Can adults automatically process and translate between numerical representations?

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Arithmetic, and the ability to use numbers, is an important skill in adult life. Numbers can be represented in three ways: through number words, in a visual Arabic number form and non-symbolically. Much research attention has focused on how associations form between these three numerical representations. However, it is not yet clear whether processing and translating between these representations is automatic or if it requires Working Memory (WM) resources. In this registered report, we conducted a dual-task study with 81 adults, who were administered dot, digit, and cross-modal comparison tasks in standalone and dual-task conditions (phonological and visuospatial WM interference). Our results demonstrated that all three types of comparison necessitated WM, albeit different components of WM and to a different extent. In the symbolic task, participants were slower under both verbal and VSSP interference, however, their accuracy improved. This result indicates that introducing executive function challenges in familiar cognitive tasks can improve performance. In the nonsymbolic task, performance was again slower under both interference conditions, albeit to a lesser extent. In the cross-modal task, performance dropped only under VSSP interference. These findings demonstrate that WM is required for both simply processing numerical representations as well as for translating between them.

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How mathematics anxiety affects children's working memory during mental arithmetic: A dual-task study.

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Anxiety may influence mathematics performance by affecting cognitive processes such as Working Memory (WM) and attentional control (Eysenck & Calvo, 1992; Eysenck et al., 2007). Specifically, mathematics anxiety (MA) may activate intrusive thoughts and attentional bias on threat-related stimuli that could reduce WM resources necessary for solving the task at hand, resulting in poorer performance. This study investigated the interplay between MA and WM by implementing a dual-task paradigm. A total of 428 9-10-year-old children were tested in their school settings. First, we assessed the children's MA. Subsequently, we administered: an arithmetic (primary task) and a word recall (secondary task) task presented in stand-alone and a dual-task condition, where the primary and secondary tasks were presented concurrently. To test whether children with elevated MA have a specific attentional bias toward threat-related stimuli, we manipulated the type of words presented in the secondary task. Neutral, Mathematics-related, or Emotional words were presented. We observed that WM load impacted children's performance, and this was further amplified in high MA children. However, we only found a limited effect of MA based on the type of words presented. These findings introduce methodological and theoretical considerations on the interplay of MA, WM, and arithmetic performance.

Eysenck, M. W., & Calvo, M. G. (1992). Anxiety and Performance: The Processing Efficiency Theory. Cognition and Emotion, 6(6), 409-434.
Eysenck, M. W., Derakshan, N., Santos, R., & Calvo, M. G. (2007). Anxiety and cognitive performance: Attentional control theory. Emotion, 7(2), 336-353.

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The role of predictability and empathy traits in anthropomorphizing a virtual agent in a second-order Theory of Mind task.

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Modern societies are increasingly relying on automation, leading to detrimental outcomes such as the Out-Of-The-Loop (OOTL) problem, arising due to a "misunderstanding" between humans and computers, echoing empathy conceptualizations. Whilst the OOTL is of crucial importance, its resolution highlights a paradox where the predictability of the system can enhance its readability but hamper anthropomorphism. This paradox was explored in a study (N = 34), combining self-reports of empathy traits with an adapted version of the Matching Pennies Game, where participants guessed the decision of a virtual agent, manipulated randomly from random to biased decisions. Electrophysiological recordings (EEG) were performed to explore the role of perceived predictability and humanness on arousal (alpha and beta bands) and conflict monitoring (FRN and P300 ERPs). Results from this study showed that participants adjusted their strategies according to the agent's predictability and judged the most predictable agent less human. In line with these patterns, the EEG beta band was modulated by the perceived predictability and humanness of the agent. In contrast, the ERPs were modulated by the agent's predictability and participants' errors. Finally, these associations were moderated by empathy traits, paving the way for investigating the role of empathy traits in addressing the OOTL problem.

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In the rhythm of morality: Listening to the national anthem makes people less willing to harm others. Evidence from China and the USA.

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Can people change their moral decisions after listening to the national anthem? For example, would they sacrifice a person in a coma to save five victims of a car accident by using his internal organs? This possibility has been explored in past research, demonstrating that music significantly alters people's moods and emotional experiences (see the review: Eerola & Vuoskoski, 2012). Additionally, it is known that emotions can influence utilitarian moral decisions (e.g. Carmona-Perera et al., 2013). To investigate how listening to the national anthem influences utilitarian decisions, we conducted a study with American (n = 264) and Chinese participants (n = 264). We used three scales: the traditional trolley dilemma (Foot, 1967), the footbridge dilemma (Thomson, 1976), and modern measures that go beyond the typical understanding of utilitarianism, including the Oxford Utilitarianism Scale (Kahane et al., 2018) and the CNI Model of Decision Making (Gawronski et al., 2017). We selected two countries based on Hofstede's cultural dimensions (2019) to explore potential cultural differences: the USA and China. Our findings revealed that Chinese participants, but not Americans, were less likely to harm others after listening to their national anthem. Furthermore, this effect was more pronounced among conservative participants, those with higher levels of national narcissism, and individuals who felt more prideful after listening to the national anthem.

Assessing the value of audiobooks using a willingness-to-wait paradigm.

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Using a willingness-to-wait paradigm informed by the decision science literature, Bains et al. (2023) measured fluctuations in readers' enjoyment across a set of book synopses. They found that when readers reported greater enjoyment of a synopsis, they were more likely to understand its content, and more likely to take on a temporal cost (a 3-6 second wait) to find out more about the book. We modified Bains et al.'s paradigm to investigate whether the observed findings might generalise to audiobook listening. Adult speakers of UK English (N=86) heard 20 short audiobook excerpts (each 30-40s long) produced by a highly-naturalistic synthesised voice. After each excerpt, participants rated their enjoyment of it on a 1-9 scale, answered a multiple-choice comprehension question about its content, and finally chose whether to hear more of the story (incurring a wait of 3-6 seconds) or skip to the next one. We fully replicate Bains et al.'s (2023) findings, providing evidence that the effects of moment-to-moment fluctuations in book enjoyment do generalise to spoken input. Having established the validity of this audiobook paradigm, further experiments will investigate how aspects of the reading voice (e.g. pleasantness) might modulate the enjoyment and outcomes of audiobook listening.

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Effects of AI-generated images on perceptions of truthfulness of claims.

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The rapid rise in AI image generation software makes it timely that we understand how such images may affect processing of the contexts in which they appear. Images of this kind possessing variable degrees of perceived realism are often presented along with text and together are used to convey a message e.g. in online sources. 'Truthiness' illusions (Newman et al., 2012, 2015), wherein the presence of a topic-relevant image increases the believability of statements even when the image is non-probative have previously been reported for non-AI stimuli. We sought to understand how artificial images may affect beliefs in true and false written claims. Further, we examined the effect of knowledge of the AI-origins of such images through explicit labelling of AI-generated images. In an online experiment, participants rated one-sentence claims for likelihood of being true and these were accompanied either by no image, a real photograph, or AI images either with or without a label indicating they were AI generated. The presence of images affected truth ratings and statements were rated as most truthful when accompanied by AI images that were labelled as such. Although labelling images as AI-generated decreases their apparent realism, surprisingly this appears to exacerbate truthiness effects.

Attentional disengagement differences in young children with Autism: A comparative eye-movement study using static and dynamic stimuli.

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Weak attentional disengagement represents a crucial concern in children with Autism Spectrum Condition (ASC). Failure to disengage from attended stimuli has obvious consequences for development of everyday communication skills, and in the real world, stimuli are dynamic as well as static. In this study, we recorded eye movements and investigated attentional disengagement in young Chinese children for static and dynamic stimuli. Our approach employed the gap-overlap paradigm (GOP) with stimuli consisting of static (Experiment 1: 44 ASC, 47 TD) or dynamic (Experiment 2: 26 ASC, 26 TD) geometric figures. Basic oculomotor function was intact in both groups but children with ASC consistently exhibited prolonged voluntary disengagement (longer saccade latencies) in a modified-overlap task across both stimulus types. Furthermore, ASC children demonstrated more delayed disengagement when presented with dynamic foveal stimuli consisting of repetitive motion compared to random motion, and this effect was absent in TD children. We suggest that this effect may relate to the diagnostic criteria of increased repetitive behaviours in ASC. Overall, the findings show how behaviours characteristic of one of the core diagnostic criteria (repetitive interests and behaviours) could potentially impact the development of abilities characteristic of the other core (social communication) diagnostic criteria.

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Are two words seen and heard as one? How Age of acquisition affects compound word recognition.

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Purpose: Adults recognise words that are acquired during childhood more quickly than words acquired during adulthood, known as the Age of Acquisition (AoA) effect. The AoA effects, according to the integrated account, is present in tasks necessitating greater semantic processing and tasks with arbitrary input-output mapping. However, the AoA effect has been rarely investigated in word recognition that differs depending on spoken lexical representation, the interplay between visual and spoken lexical and lexemic representations. Method: Forty-eight participants in each experiment completed unspaced (Experiment 1a) and spaced (Experiment 1b) auditory (Experiment 2) and crossmodal (Experiment 3) lexical decision task (LDT) using a regression design on 226 compound words. Results: We observed that the AoA of the compound words affected recognition latencies across auditory, visual unspaced and spaced LDT. However, in Experiment 3, there was no significant AoA effect for recognition latencies, but AoA affected accuracy. Discussion: The results suggest that the influence of semantic processing is larger in unspaced LDT than spaced, auditory and cross-modal LDT, with the AoA effect being largest in unspaced LDT. This indicates that the AoA effect in word recognition is in line with the integrated account.

Heartfelt mentalising: Does interoceptive awareness predict spontaneous perspective-taking?

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Interoception may contribute to social cognition by grounding the self in the body, thus facilitating selection between self and other perspectives. While individual differences in interoceptive awareness are known to predict body ownership illusions, similar associations have yet to be found for mentalising. However, a limitation of prior research is that it has focused exclusively on explicit rather than implicit mentalising. Here, for the first time, we assessed how interoceptive awareness relates to implicit mentalising. 60 adult participants completed the widely used heartbeat counting task followed by the dot perspective task in which they made judgements both from their own perspective and that of a human avatar. Response times for own perspective judgements were longer when the avatar's perspective was inconsistent with that of the participant, providing evidence of implicit mentalising. However, the magnitude of this effect was not found to be related to interoceptive awareness. These results suggest that, in common with explicit mentalising, implicit mentalising is not modulated by interoceptive awareness. They lend support to the view that perspective selection measured by the dot perspective-task is mediated by domain general executive functions, rather than by specialised self-other control processes.

First impressions and evaluations of ability and intent to harm.

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There are thousands of words we use to describe the first impressions we form of unfamiliar others. These words and traits usually reflect evaluations along two or three underlying dimensions - trustworthiness, dominance, and attractiveness. The first two dimensions are thought to capture our evaluation of threat - while trustworthiness reflects someone's intent to help or harm us, dominance reflects their ability to act on these intentions. This distinction, however, has not been systematically investigated. Here, in three studies, we explore the relationships between these traits in first impressions based on face and voice cues (Study 1), audiovisual cues (Study 2), as well as based on in-person interactions (Study 3). Data from these studies do not show the expected relationships between trustworthiness and intent to harm and between dominance and ability to harm. With stimuli presented on screen, there are comparable correlations between all four traits, with a particularly strong correlation between intent and ability to harm. When impressions were formed after meeting someone in person, only trustworthiness (but not dominance) judgements were significantly related to intent and ability evaluations. Such results question the independent nature of intent and ability judgements which could have important implications in more applied settings.

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Experimental studies of emotional crying.

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Emotional crying is a uniquely human behaviour. It has hardly been studied experimentally. Some professional actors can cry at will (or "on cue"), providing a convenient experimental model of crying. We report a multi-method study investigating the control and communicative value of emotional crying. Fourteen actors were video-recorded while trying to make themselves cry. Multi-rater judgements confirmed that most successfully produced tears. Machine vision analyses identified specific facial expressions associated with crying, but found substantial individual differences between actors. We developed a questionnaire investigating how actors control emotional crying. Analysis of 110 actors' responses identified distinct factors corresponding to cognitive, emotional, somatic and cultural aspects of crying. Interestingly, the results do not strongly support James-Lange theory predictions that crying behaviours should precede feelings of sadness. Next, paired 5s segments from these videos were shown to a sample of naïve observers. Participants indicated which video of the pair had greater emotional intensity. By analysing perceivers' judgements, we have been able to identify the production factors reported by actors that most strongly influence perception of emotional crying. We use the results to investigate the possibilities of crying as a socio-communicative behaviour.

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Erring on the side of caution: Two failed replications of the Derring Effect.

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Deliberately making errors when studying, even when the correct answers are provided, has been suggested to enhance memory for the correct answers, a phenomenon termed the Derring effect. Such deliberate erring has been shown to outperform other learning techniques, including copying and underlining, elaborative studying with concept mapping, and synonym generation. This paper presents two preregistered attempts to replicate the Derring effect. Participants studied scientific term-definition concepts or trivia facts. On error-correction trials, participants were presented with a concept or fact and were asked to generate an incorrect answer before correcting it. Error-correction trials were compared to copy trials, where participants simply copied the concepts or facts. Contrary to prior research, the Derring effect was not replicated in either experiment. We discuss potential explanations for this finding and highlight potential future directions.

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The conceptual structure of trait impressions predicts face judgements across observers' cultures, languages, and target face ethnicities.

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The underlying processes of face judgements are traditionally examined as a function of specific facial cues (e.g., smiling induces high trustworthiness; Sutherland et al., 2013). However, more recent work has shown that 'bottom-up' facial cues are not the only factor influencing how we perceive others: conceptual impressions (pre-existing beliefs about what people are like) can predict peoples' judgements of White male faces (Stolier et al., 2018). This work has been influential as it demonstrates the importance of the 'top-down' impact of conceptual impressions in judgements of others. As face judgements can vary across cultures (Sutherland et al., 2018) it is crucial to consider whether conceptual impressions predict face judgements outside of Western cultures, the English language, and White faces. Here we examined the overlap between Chinese participants' conceptual impressions in Mandarin and their judgements of East-Asian faces, finding that Chinese conceptual impressions indeed predicted own-culture face judgements. We furthermore compared the extent to which conceptual impressions predicted own vs other-ethnicity face judgements across British (White) and Chinese (East-Asian) samples, finding comparable cross-cultural similarity. These findings extend previous work in the West and suggest that despite cross-cultural differences in face judgements, 'top-down' mechanisms continue to shape social face perception.

Stolier, R. M., Hehman, E., Keller, M. D., Walker, M., & Freeman, J. B. (2018). The conceptual structure of face impressions. Proceedings of the National Academy of Sciences, 115(37), 9210-9215. https://doi.org/10.1073/pnas.1807222115
Sutherland, C. A., Oldmeadow, J. A., Santos, I. M., Towler, J., Michael Burt, D., & Young, A. W. (2013). Social inferences from faces: Ambient images generate a three-dimensional model. Cognition, 127(1), 105-118. https://doi.org/10.1016/j.cognition.2012.12.001
Sutherland, C. A. M., Liu, X., Zhang, L., Chu, Y., Oldmeadow, J. A., & Young, A. W. (2018). Facial first impressions across culture: Data-driven modeling of Chinese and British perceivers' unconstrained facial impressions. Personality and Social Psychology Bulletin, 44(4), 521-537. https://doi.org/10.1177/0146167217744194

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International studies of pure co-ordination games: Adaptable solutions when intuitions vary.

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In pure coordination games, players must make identical decisions without communication to succeed. Although no logically correct answer exists, people exhibit consistently shared intuitions about the best strategy. Players aim to achieve a 'meeting of minds' by using their cognitive abilities to select a response considered mutually evident. In this research project, two studies were conducted

to investigate people's intuitive flexibility and accuracy in coordinating with each other, where participants played 30 new open-ended pure coordination items. In the first study, 120 British and Global participants took part in two conditions: British and Global. Participants' responses coordinated with each other above chance in both conditions, and their intuitive models not only varied accordingly but also adjusted in the right direction to converge with others. In a second preregistered study, with two homogeneous samples (i.e., British and South African participants, n = 200), we replicated the same patterns of results observed in study 1. Here, we present a method for assessing "intuitive alignment" and illustrate effective coordination among participants from various nations, who adjust their intuitive judgments. This precision in flexible coordination advances the study of alignment in diverse domains like social interaction, communication, and coordination.

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Reducing cyber sickness in virtual reality by minimising visuo-gravitational conflicts.

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With improved accessibility and an expanding number of applications within professional fields, virtual reality (VR) may lie at the forefront of a technological revolution. If the technology is truly to bridge the gap from curiosity to necessity, however, it is essential to address enduring barriers to its use. One of the most common barriers, occurring in up to 80% of users, is cyber sickness. Though visuo-vestibular self-motion conflicts are believed to play a significant role in cyber sickness, it is possible that other sensory conflicts may also cause symptoms. Here, we explore the role of visuo-gravitational conflicts in the VR experience. Participants played a VR game in which they moved through a zero-gravity environment, creating a conflict between visual cues, which signalled microgravity, and proprioceptive/somatosensory cues, which signalled normal gravity. To minimise this visuo-gravitational conflict, participants in the experimental condition were suspended in an anti-gravity treadmill, which reduced the perceived bodyweight such that proprioceptive / somatosensory cues also signalled microgravity. In comparison to the control group, the anti-gravity group displayed significantly lower motion sickness, assessed through subjective report and heart rate. This study highlights a new cause of cyber sickness, creating avenues both for future theoretical work and interventions to improve the VR user experience.

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Sensory attenuation unveils the effect of fatigue on the sense of agency.

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Sense of agency, i.e., the perception of control over self-actions [1], can interact with fatigue, the sensation of exhaustion linked to voluntary actions [2]. According to a recent model [3], fatigue might be conceptualized as an agency-related anomaly, arising from compromised Sensory Attenuation (SA), a perceptual phenomenon by which self-generated stimuli are perceived as less intense than external ones. However, this model lacks empirical support, prompting our study to explore the interaction between different dimensions of fatigue and SA. To measure SA, we employ the force matching task (FMT), in which participants must match target forces exerted on their finger either pressing directly on their finger (direct condition) or using an external device (indirect condition). Typically, participants overestimate target force in the direct condition due to SA [4]. To induce state fatigue, participants performed a fatiguing task before the FMT, while the Fatigue Severity Scale (FSS) gauged trait fatigue. Results showed a significant overestimation of target forces in the direct condition, unaffected by state fatigue. However, participants with higher FSS scores exhibited reduced SA in the direct condition, suggesting an interplay between trait fatigue and SA. This study offers novel insights into the relationship between fatigue and Sense of Agency.

Visual categorisation of object authenticity on the basis of crossmodal surface material: An fMRI Study.

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Our brains process large amounts of rich, sensory information when exploring our environments. Crucially, visual information is not often used nor learned in isolation. Instead, perception in other senses can learn and make predictions based on how information is categorised in vision. For example, seeing small crack features versus smoothness on a loaf of bread predicts that it will feel "crisp", or seeing a mug of coffee versus tea predicts a rich aromatic smell. Here, we investigated the neural and behavioural underpinnings of visual feature categorisation (texture, colour), on object processing. Specifically, using fMRI, participants categorised the authenticity of images containing natural or manufactured objects (e.g., crocheted fruit). The photos of these "real" / "fake" objects were presented in either colour or greyscale. Broadly, we found that while colour (vs. greyscale) helped participants identify images of real objects, it was not particularly useful for fake objects. Neurally, medial regions of the collateral sulcus (CoS) coded chromatic information about the objects, whereas posterior CoS (pCOS) coded information regarding the complexity of the texture material. Our results support prior evidence that CoS (particularly pCOS) is involved in visual texture perception and highlight the role of colour and texture in the categorisation of objects."

Utility of prosaccadic eye movements as a response modality in people with severe speech and physical impairments.

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Traditionally used cognitive-linguistic assessment measures frequently rely on verbal responses, pointing to or manipulation of objects to indicate responses. These response modalities are not feasible for people who have severe speech and physical impairments (SSPI). Reports that eyegaze is a robust alternative response modality are often anecdotal in nature. This experiment aimed to provide evidence that eye gaze tracking is a robust and appropriate alternative response modality for cognitive-linguistic assessment by people with SSPI. A cued attention prosaccade task was carried out as per Posner (1980) using a between groups experimental design with an experimental SSPI group and a neurotypical control group. All participants looked towards visual changes on the screen when they appeared but reaction times differed across groups. Mean time to first fixation (TTF) was significantly slower for the experimental group ($p=0.03$) overall. This difference was due to the significantly slower mean TTF ($p<001$) in the second half of the experiment as the mean TTF for the first half was not significantly different across groups ($p=0.59$). Tracking of eye gaze may therefore be an appropriate alternative response modality for cognitive-linguistic assessment by people with SSPI, but effects of fatigue should be considered when interpreting results.

Posner, M. I. (1980). Orienting of Attention. Quarterly Journal of Experimental Psychology, 32(1), 3-25. https://doi.org/10.1080/00335558008248231

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Research Plan - Effect of SARS-CoV-2 on Cognitive and Brain Function: Findings from the UK Biobank Covid-19 case control dataset.

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SARS-CoV-2, the virus responsible for the Covid-19 pandemic, has been shown to have an impact on cognition and brain function but evidence from longitudinal settings is currently lacking. In this planned project we aim to further extend our understanding of the effects of SARS-CoV-2 on cognitive function and brain connectivity. We will use the data from the UK Biobank case control re-imaging dataset (N=2092), a case control matched sample of Britain dwelling adults (51-83 years). We will analyse the impact of SARS-CoV-2 on cognition and functional brain connectivity by comparing the cognitive scores and rs-fMRI connectivity between participants who have recovered from Covid-19 to their own results collected pre-pandemic, as well as to matched controls who have also been tested pre- and post-pandemic. Additionally, we will compare both of these groups with a second control group of participants (N= 2360, 49-82 years) who underwent both testing sessions before the pandemic to see if the effect of lockdown may play a role. We predict a deterioration of cognitive function for the Covid-19 group compared to their pre-pandemic scores and compared with both control groups. Effects on resting state connectivity are explorative. Comparisons to second control group are explorative.

Rethinking accuracy in theory of mind measures: influence of individual-related and task-related factors in adults.

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Measurements of adult theory of mind or mindreading abilities typically assess the accuracy of mental state inferences, implying the assumption of an objective ground truth. We questioned this assumption, particularly in interpreting ambiguous social stimuli, where model answers are often based on experimenters' decisions or a small panel's consensus, lacking a definitive ground truth. We hypothesised that individual- and task-related factors influence interpretations of mental states in such scenarios. Specifically, we examined the effect of age (Study 1 comparing younger adults aged 18-25 (N=85) with older adults aged 53-60 (N=84)) and task format (Study 2 comparing open-ended (N=85 from Study 1) vs. forced-choice (N=44) in adults aged 18-25). Our findings revealed some consensus in participants' interpretations, but multiple interpretations deemed highly plausible were common. Notable differences between age groups were observed, and task format influenced interpretations. The findings show that “decoding” of mental states from observable features of social stimuli is not a sufficient explanation for mindreading success, and suggests that the ability to interpret stimuli in a contextually sensitive manner may be at least as important. Therefore, mindreading assessments should be contextualised, and researchers should be cautious about the applicability of tasks with various formats and across different populations.

Understanding online interactions between Autistic and Non-Autistic People.

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The Double Empathy Problem (DEP) proposes a bidirectional disconnection between autistic and non-autistic people (Milton et al., 2018). However, preliminary evidence suggests that online interactions may mitigate this disconnection (Marsh et al., in prep). Here, we investigated whether differences in facial expressivity dynamics can predict the rapport that interaction partners experience. 65 videos of autistic and non-autistic individuals interacting online were analysed with Openface. We measured the frequency, intensity, and synchrony of smiles and frowns that were displayed during dyadic conversations between mixed neurotype and matched neurotype pairs. Analyses were conducted at three levels of explanation; 1) diagnostic comparison: do autistic and non-autistic people have different facial expressivity? 2) dyadic comparison: do partners change their facial expressivity with different partners? and 3) Do individual differences in facial expressivity predict rapport? There were no diagnostic differences in facial expressivity between autistic and non-autistic participants. There were dyadic-level differences in the synchrony of both smiles and frowns, although these differences did not predict rapport. Individual differences in the frequency and intensity of frowns but not smiles predicted rapport. These results are not consistent with the DEP and suggest that non-verbal communication may be appraised differently when communicating online.

Neural dynamics of computations supporting perception and misperception of degraded speech.

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Listeners perform Bayesian Inference during speech perception: using prior expectations to comprehend speech. However, overreliance on priors induces misperception when expectations mismatch with degraded sensory information. Misperception may be explained by two different neural computations (Aitchison & Lengyel, 2017): sharpening in which neural representations of speech that matches prior knowledge are too strongly enhanced, or prediction error in which neural representations fail to compute mismatch between priors and sensory signals. A previous fMRI study provided evidence for prediction error representations during speech (mis)perception (Blank et al, 2018). This study aims to understand the time course of these computations using MEG/EEG. Written words were used to manipulate prior knowledge while behavioural and neural (MEG/EEG) responses to noise-vocoded spoken words were recorded from 29 listeners. WRITTEN-"spoken" word pairs were combined into four conditions: match (KIP-"kip"), total mismatch (KIP-"bath"), onset partial mismatch (KIP-"pip") and offset partial mismatch (KIP-"kick"). We replicated previous findings that partial mismatch trials elicit frequent misperceptions, and that matching (compared to mismatching) text reduces evoked MEG responses (Sohoglu et al, 2012). Accurate perception was most consistently related to the identity of the mismatching segments. Multivariate representational similarity analyses are ongoing; testing the timing of sharpening and prediction error computations.

Aitchison, L., & Lengyel, M. (2017). With or without you: Predictive coding and Bayesian inference in the brain. Current Opinion in Neurobiology, 46, 219-227. https://doi.org/10.1016/j.conb.2017.08.010
Blank, H., Spangenberg, M., & Davis, M. H. (2018). Neural Prediction Errors Distinguish Perception and Misperception of Speech. Journal of Neuroscience, 38(27), 6076-6089. https://doi.org/10.1523/JNEUROSCI.3258-17.2018
Sohoglu, E., Peelle, J. E., Carlyon, R. P., & Davis, M. H. (2012). Predictive Top-Down Integration of Prior Knowledge during Speech Perception. Journal of Neuroscience, 32(25), 8443-8453. https://doi.org/10.1523/JNEUROSCI.5069-11.2012

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The impact of resemblance and exposure duration on the learning of unfamiliar faces.

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How unfamiliar faces become familiar is poorly understood. While most research has examined how faces are learned in isolation, recent evidence suggests that unfamiliar faces are processed in relation to pre-existing representations. It is proposed that, when a novel face resembles someone whom we already know, the familiar representation activates during encoding (Hancock, 2021). To further

investigate how the learning of unfamiliar and 'similar-to-familiar' faces differ, 91 participants completed a training-test procedure. Participants were exposed to multiple training arrays containing ambient images of novel 'similar-to-familiar' and unfamiliar identities, for either 60s or 120s. Following each array, participants provided an estimate of the number of identities present. At test, participants made 'familiar'/'novel' judgements to previously unseen target and distractor single face images; d' scores were calculated. Results revealed identity estimates followed a decreasing linear trend across trials, irrespective of familiarity or duration. At test, d' was significantly higher for 'similar-to-familiar' compared to unfamiliar faces. As expected, longer durations also resulted in significantly better learning. These main effects were qualified by an interaction; d' was higher for 'similar-to-familiar' relative to unfamiliar faces for long durations but were comparable for short durations. These findings suggest that 'similar-to-familiar' faces are learned more readily than unfamiliar faces.

Hancock, P. J. B. (2021). Familiar faces as islands of expertise. Cognition, 214, 104765. https://doi.org/10.1016/j.cognition.2021.104765

Motion affects inter-object perceptual similarity of 3D novel objects.

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Previous studies of categorisation have focused on the role of inter-object similarity on object categorisation typically using static objects. However, the processes underlying category formation based on moving novel object representations are still unclear. Here we designed a set of novel, 3D objects based on a circular shape space such that pairs of adjacent object shapes were more similar to each other than any other pairs of objects. We then applied movement to these object shapes to investigate whether motion would affect the perceived similarity of the object shapes. Using a within-subjects design, 36 participants rated online the similarity of the shapes of pairs of objects which varied in their distance on the circular shape space. These object pairs were presented across three motion conditions; static-only, same, or different. Similarity ratings were analysed using metric multidimensional scaling (MDS) and results suggested that the perceived the shape similarity of moving objects differed relative to static counterparts. Moreover, ratings to object pairs presented with the same motion suggested greater inter-shape similarity than object pairs shown with different motions. Finally, MDS reconstructions indicated alterations to shape space with motion, with implications for the role of object motion on the categorisation of objects.

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Effect of familiarity on the perceptual prioritisation of self-associated voices.

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The Self-Prioritisation Effect (SPE) reflects the tendency to process self-owned information more efficiently. We have previously demonstrated an SPE for self-associated unfamiliar voices. In this study, we investigated the impact of voice familiarity and self-resemblance on this effect. In three experiments, participants performed a perceptual matching task in which three voices were paired with three identities - self, friend, and other. In this paradigm, participants had to determine as quickly as possible whether voice-identity pairs were correctly matched or not. For participants of the experimental group, one of the voices was a familiar voice - their own recorded voice (Experiment 1& 2) or a synthesised version of it (Experiment 3). In all experiments, control participants heard only unfamiliar voices. Results revealed enhanced SPE when the participant's recorded or synthesised voice was associated to the self, while the effect was disrupted - but not eradicated - when the participant's voice was associated with another identity. Our findings highlight that the SPE is malleable in the presence of familiar information. Moreover, the observed enhanced SPE with a resembling synthesised voices underscores the necessity for ethical considerations in the use of voice cloning tools.

This work was supported by a Research Leadership Award from the Leverhulme Trust (RL-2016-013) awarded to Carolyn McGettigan.

Testing the Switching Experience and Environment Questionnaire (SEEQ): A measure of bilingual switching behaviours.

Zlatomira Ilchovska[1,2], Ali Mazaheri[1] and Andrea Krott[1]
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Language switching is a crucial aspect of bilingualism important for neural and behavioural adaptations (e.g. UBET; DeLuca et al., 2020). However, no current questionnaire captures all important aspects. Hartanto & Yang's (2016; 2020) Code-Switching and Interactional Contexts Questionnaire captures language switching tendencies, but not the interactional context (see Adaptive Control Hypothesis ACH; Green & Abutalebi, 2013) or whether switches were intentional (i.e. controlled). Rodriguez-Fornells et al.'s (2012) Bilingual Switching Questionnaire captures the reason for language switching (e.g., lack of language control). Finally, Anderson et al.'s (2017) Language and Social Background Questionnaire is an excellent measure of language usage and proficiency, but does not capture language switching very well. We adapted and combined these measures into a new questionnaire, the Switching Experience and Environment Questionnaire (SEEQ). We tested whether the SEEQ captures theoretically important factors of the ACH (Green & Abutalebi, 2013) and the Unified Bilingual Experience Trajectory Model (UBET; DeLuca et al., 2020), collecting responses from a diverse sample of 231 healthy young bilingual adults. A confirmatory factor analysis demonstrated good model convergence (CFI = 0.870, TLI = 0.853, RMSEA = 0.082. SRMR = 0.125), showing that the SEEQ is an excellent measure of language switching.

Anderson, J. A. E., Mak, L., Chahi, A. K., & Bialystok, E. (2018). The language and social background questionnaire: Assessing degree of bilingualism in a diverse population. Behavior Research Methods, 50, 250-263. https://doi.org/10.3758/s13428-017-0867-9
DeLuca, V., Segaert, K., Mazaheri, A., & Krott, A. (2020). Understanding bilingual brain function and structure changes? U bet! A unified bilingual experience trajectory model. Journal of Neurolinguistics, 56. https://doi.org/10.1016/j.jneuroling.2020.100930
Green, D. W. & Abutalebi, J. (2013). Language control in bilinguals: The adaptive control hypothesis. Journal of Cognitive Psychology, 25, 5, 515-530. https://doi.org/10.1080/20445911.2013.796377
Hartanto, A. & Yang, H. (2016). Disparate bilingual experiences modulate task-switching advantages: A diffusion-model analysis of the effects of the interactional context on switch costs. Cognition, 150, 10-19. https://doi.org/10.1016/j.cognition.2016.01.016
Hartanto, A. & Yang, H. (2020). The role of bilingual interactional contexts in predicting interindividual variability in executive functions: A latent variable analysis. Journal of Experimental Psychology: General, 149(4), 609-633. https://doi.org/10.1037/xge0000672
Rodriguez-Fornells, A., Kramer, U. M., Lorenzo-Seva, U., Festman, J., & Mante, T. F. (2012). Self-assessment of individual differences in language switching. Frontiers in Psychology, 2. https://doi.org/10.3389/fpsyg.2011.00388

Effect of radio listening on loneliness, well-being and cognition in middle and older aged adults.

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Findings from preliminary research suggest that listening to radio has the potential to positively influence self-reported outcomes of loneliness, well-being, and cognition in UK middle-aged adults (Nettleton, 2023). The present study aims to extend this notion by examining how engagement with radio listening may improve well-being, reduce loneliness, and improve cognition across two different age groups (30-65, 65+), in two separate phases. The first phase will be an examination of secondary data obtained from UK Household Longitudinal Study, waves 2002-2006, on how much they use entertainment and the arts in general to their levels of loneliness, well-being, and cognition (University of Essex, 2023). The second phase is an intervention study, in which three groups of participants will be (1), listening to radio from active radio listeners, (2), listening to the radio from novice listeners, (3), reading a pamphlet on the benefits of radio listening – for a duration of 3 months. They will answer a series of questions and tasks on loneliness, well-being, and cognition before and after the intervention, as well as one-month post intervention. We anticipate that our findings will provide innovative and relevant insight into the habits and norms of the radio listener, and its general benefits.

Nettleton, K. M. (2023). *An Age of Radio Listening: Its Impact upon Loneliness, Well-Being, and Cognitive Frailty Outcomes in Middle-Aged Adults* [UG Dissertation – University of Bradford]
University of Essex Institute for Social and Economic Research. (2023). Understanding Society. UK Data Service. SN: 2000053. UKHLS. http://doi.org/10.5255/UKDA-Series-2000053

EPS
Experimental Psychology Society

31st EPS Prize Lecture

will be delivered by

Dr Nadine Lavan

Queen Mary University of London

Person perception from voices: How do we make sense of who we are talking to?

5.45pm, Thursday 11th April 2024

Adams Room, Newton Building

No registration is required to attend in person.

EPS
Experimental Psychology Society

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 and returning to the EPS Administrator as a PDF file to expsychsoc@kent.ac.uk.

Application forms should be sent to the EPS Administrator by one of the application deadlines, 1st March or 1st September.

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 in a prominent authorship position (e.g. sole, first or last), are sufficient.

Applicants must be nominated by one EPS Ordinary Member.

EPS
Experimental
Psychology
Society

CRITERIA AND PROCEDURES TO JOIN

Soon after the closing date of the relevant deadline, 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 Spring and Autumn meetings. The EPS Administrator will check 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 or research study poster to the Society at one of the three EPS scientific 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 EPS Administrator will be informed of this and will be advised whether they 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 or the Summer Business meeting for approval.

Meeting Accommodation

Below is a selection of hotels in Nottingham, which are close to the venue.

PLEASE NOTE these are not recommendations, and you should check the website and prices before making your booking:

Crowne Plaza Nottingham - www.crowneplaza.com/cpnottingham
Roomzzz - www.roomzzz.com/nottingham-city
Best Western Plus Nottingham City Centre - www.bwnottinghamcitycentre.co.uk
Hilton Nottingham - www.hilton.co.uk/nottingham
Premier Inn Nottingham City Centre - www.premierinn.com
The Strathdon Hotel - www.strathdon-hotel-nottingham.com
Park Plaza Nottingham - www.parkplaza.com/nottingham
Hart's Hotel Nottingham - www.hartsnottingham.co.uk
SACO Serviced Apartments - www.sacoapartments.com
St James Hotel - www.stjames-hotel.com
Mercure Nottingham - www.mercurenottingham.com
Lace Market Hotel - www.lacemarket.co.uk
Premier Suites - www.premiersuitesnottingham.eu
Jurys Inn Nottingham - www.jurysinns.com
Park Inn Hotel - www.nottingham.parkinn.co.uk
The Nottingham Belfry - www.thenottinghambelfry.co.uk

For more information, please see this helpful guide.

Other alternatives and prices are available on booking sites such as booking.com etc.

Travel

By Car

Nottingham is at the heart of the country and is well served by the motorway network. The M1 passes close to the west of the city, the A42 / M42 link to the south-west of the city, and the A1(M) to the east of the city. When using the M1 from the north, exit at Junction 26 and take the A610 Nuthall Road / Alfreton Road into the city. When using the M1 from the south, use Junction 24 and follow the A453 into the city centre.

Car Parking

University car parks on our City Campus are not open to visitors, but there are a number of public car parks nearby. The website below gives details on car parking within Nottingham. The Forest Park and Ride tram service is particularly convenient and is always popular with visitors. Parking for people with disabilities will be accommodated on the campus if possible.

www.nottinghamcity.gov.uk/carparks

By Tram

The Nottingham Express Transit (NET) tram stops on our University's City Campus, providing a convenient link from the railway station and the area around Broadmarsh Bus Station redevelopment. There are also several park and ride stops along the route, which provide convenient places to park when visiting the University. The Phoenix Park Park and Ride site is close to Junction 26 of the M1, and the Forest Park and Ride site is near to the city centre.

www.thetram.net

By Coach

National Express coach services operate from Station Street, beside the railway station. The City Campus can then be accessed on foot, by tram or by bus from the Intu Broadmarsh Shopping Centre area.

www.nationalexpress.com

By Rail

Nottingham station is located approximately one mile from the City Campus, which can then be accessed on foot, by tram or by bus.

www.nationalrail.co.uk

NTU Online Campus Map

Conference Dinner

The conference dinner for EPS NTU 2024 will be held on Thursday 11th April from 7.00pm in the Old Chemistry Theatre, Arkwright building, Nottingham Trent University, City Campus, Nottingham, NG1 4BU, which is just a 5 minute walk from the meeting.

To reserve your place, please complete the form through the link below. This form will be available until 5pm on Monday 1st April, or until all spaces have been filled (if this is earlier than 1st April). When the form has closed, we will send instructions on how to pay and confirm your place at the conference dinner.

The standard dinner cost for EPS members is £36.00 this year. Please note that postgraduates can book at a reduced fee of £18.00, but must provide evidence of their postgraduate status by emailing a letter from their supervisor (or a direct email from the supervisor) to expsychsoc@kent.ac.uk.

There is one starter/dessert (no choice required) and a choice of two mains (one meat, one vegetarian).

If there are any special dietary requirements these will be accommodated.

Starter:

Roasted sweet pepper and tomato soup with basil pesto and parmesan cheese straw.

****

Main:

Poached breast of chicken nestled on fine beans and chestnut mushrooms, served with potato gratin, braised green cabbage and a chicken jus.

or

Vegetable and chickpea tagine with giant tomato and herb couscous and grilled flatbread. (Veg)

****

Dessert:

Baked vanilla cheesecake with raspberry compote and whipped cream.

Conference Dinner Booking Form

Cafes on Campus

The conference centre is in the Newton Building which houses a few places that serve food.

Café Newton

In a hurry? Grab a hot drink or lunch on the go at our Café Newton. Serving sandwiches, breakfast rolls, pastries and snacks.

Refectory

Tuck into hot food and drinks including jacket potatoes, pasta dishes, soup of the day and our chef's specials

World Kitchen

Choose from a range of exciting street food dishes, including burritos and Asian-inspired cuisine.

Deli Newton

Freshly baked paninis freshly filled in house and made to order grain bowl salads, as well as hot and cold drinks.

Below is a link to the Cafes on Campus, what they specialise in and their opening times:

https://www.ntu.ac.uk/about-us/campuses/city-campus/eat-drink-city-campus

Please note that opening times / closure may be different during the Easter Holidays.

Note that the conference centre is in the heart of the city centre, and so there are also a variety of places nearby that serve food and that are within 2-3 minutes' walk.

Restaurants

The conference centre is close to a large range of cafes, restaurants and pubs. There are a few hubs of restaurauntes, with a selection on Kings Street/Queens Street (including various Pizza chains) which is a 2-3 minute walk from the conference centre. More variety can be found in the Hockley area, which is about a 10 minute walk from the confernce centre (walk down to the Market Square and then up Victoria St to Carlton St).

https://www.mesahockley.com/

https://kushi-ya.co.uk/

https://www.taquero.co.uk/

https://www.baribericotapas.com/

https://www.cocotang.co.uk/

Pubs

Nottingham hosts a decent set of pubs, many of which also offer good food (check if serving food in advance). In particular, out of the score of pubs that claim to be the oldest in the country, Nottingham boasts three - Ye Olde trip, The Bell Inn, and Ye Olde Salutation Inn. Below pubs are categorised by theme/area.

Olde pubs and pubs with caves in (or possibly caves with pubs in)

Ye Olde Trip to Jerusalem
This is probably the most famous of England's oldest pubs, probably because of its location, built into the sandstone rock beneath Nottingham Castle. A bit Disneyfied in places, it is still impressive and has a good selection of ales. Go for the triptet. Distance to conference 15 mins but well worth a look.

The Bell Inn
Conveniently located at the corner of the Market Square this is a decent pub. The smaller rooms tend to have a nicer vibe. For the enthusiasts, the large room at the back has a handy ex-landlord/landlady timeline. A 5 min walk from the conference.

The Malt Cross
Favourite of one of the conference organisers. An interesting history (it is an old Victorian Music Hall and lies on top of a cave system that was once used by monks to store meat and beer), impressive layout, nice atmosphere, and decent beer and food. It's on St James' Street, just off the Market Square, 5 mins walk.

The Hand and Heart
A good selection of ales and good food. Like the Trip, it is also built into sandstone rock and becomes a cave toward the back (it can smell a bit damp). It's on Derby Road, halfway up the hill from the roundabout at the top of Maid Marion Way. 12 mins walk but a bit out of the way really.

Both the Bell Inn and the Malt Cross are just off the Market Square – which is Nottingham's main square. If you do go there, then take a wonder through the Exchange (Nottingham's first shopping centre) and try to find the statue of Brian Clough which is just off Market Square. Clough was quite a big deal in these parts as he managed Nottingham Forest Football Club for 18 years between 1975 and 1993 and presided over the club's most successful spell in their history, winning two European Cups amongst other trophies.

Close pubs – within 5 mins from the conference centre.

The Playwright (formerly the Orange Tree)

This is the departmental pub. It changed its name but we still call it the Orange Tree. I don't know why it is the dept pub, probably because a) it is close b) it normally has a decent selection of beer and c) you can get a crowd in there easily. It's decent enough and the food is alright too. It's on Shakespeare Street, about 2 mins walk from the Conference Centre.

The Barrel Drop

City centre micro pub, specialising in craft beer and cask ale. An oasis of calm in a busy city. Down an alley way just off Upper Parliament St. A 3 min walk from the conference centre.

The Playhouse

Not a pub but a theatre, and it has a bar, and if you get there in daylight you can see the **Sky Mirror sculpture** created by renowned sculptor Anish Kapoor. It's on Wellington Circus.

Castle Area - 10 mins from the conference centre.

According to Wikipedia "**Nottingham Castle** is a Stuart Restoration-era ducal mansion in Nottingham, England, built on the site of a Norman castle built starting in 1068, and added to extensively through the medieval period, when it was an important royal fortress and occasional royal residence. In decline by the 16th century, the original castle, except for its walls and gates, was demolished after the English Civil War in 1651. The site occupies a commanding position on a natural promontory known as "Castle Rock" which dominates the city skyline, with cliffs 130 feet (40 m) high to the south and west."

The Roundhouse

A lovely pub and pleasingly round. It also sits on Standard Hill, so named because this is where King Charles raised his standard to start the **English Civil War**. There is a plaque nearby to mark the spot.

The Castle

Decent enough, and opposite the statue of **Robin Hood** who took his inspiration from Kevin Costner.

The Crafty Crow

Nice enough.

Hockley Area – 10 mins from the conference centre (the trendy area).

Hockley Arts Club

Where the cool kids hang out. Large and with various different floors with different themes.

Six Barrel Draft House

Small but nice.

The Lace Market Area (a bit further afield – near the contemporary art gallery) – 15 min walk from the conference centre.

Nottingham used to be famous for its lace, hence a Lace Market, although you will not find Lace there, nor a Market. It's quite a nice part of town and hosts the **Contemporary Arts Centre and the National Justice Museum.**

Pitcher and Piano

Although a chain pub, this one is included here simply because it was one of the first churches to be turned into pubs and is quite impressive. It's on High Pavement, a 15 min walk.

Places to Visit

Nottingham Castle – Inside the castle walls the castle is more of a mansion which hosts a museum and an art gallery. It holds quite an impressive collection.

City of Caves - Nottingham has the UK's largest network of caves - over 800 and this can be explored in The City of Caves.

Nottingham Contemporary – a free contemporary art gallery.

Ye Olde Trip to Jerusalem - This is probably the most famous of England's oldest pubs, probably because of its location, built into the sandstone rock beneath Nottingham Castle.

If you are a sports fan then in Nottingham Trent Bridge cricket ground, and the home grounds of Nottingham Forest FC (The City Ground) and Notts County FC (Meadow Lane) are all within a very short distance from each other (albeit somewhat out of the centre).

Business Meeting

A Business Meeting will be held on Thursday 11th April 2024 between 12:00pm and 1:00pm in the Adams Room in the Newton Building, Nottingham Trent University, City Campus, Nottingham, NG1 4BU.

AGENDA

23/15 Minutes of the Annual General Meeting, held at University College London on Friday 6th January 2024

See Attachment 1.

23/16 Matters Arising

23/17 Secretary's Report

23/03.1 Hon. Secretary's Report

23/18 Treasurer's Report

23/04.1 Treasurer's Report

23/19 QJEP Editor's Report

23/05.1 Editor's Report

23/20 Arrangements for Future Meetings

23/21 Any Other Business

23/22 Date, Time and Place of Next Meeting

Attachment 1.

Annual General Meeting

The 76th Annual General Meeting will be held on Thursday 4th January 2024 from 12:00pm in the Lower Ground Lecture Theatre at the Department of Cognitive, Perceptual & Brain Sciences, University College London, 26 Bedford Way, London, WC1H 0AP.

MINUTES

Approximately 40 members were in attendance.

23/01 Minutes of the Annual General Meeting, held on Friday 6th January 2023

Approved without change.

23/02 Matters Arising

N/A

23/03 Secretary's Report

23/03.1 Annual Report of the Society

The Society continues to hold scientific meetings and has now returned to fully in-person meetings again. Achievements of the Society include the awarding of numerous research grants (small grants=11, study visits=5), student bursaries (URB=6, NGRB=3) and workshops (N=4), and recognized scientific excellence through prizes, more accurate recording of EDI among members, applications, awards etc and continued social media engagement @ExpPsychSoc.

The committee would like to thank the outgoing officers and committee members for all their hard work during their term on the committee.

23/04 Treasurer's Report

23/04.1 Treasurer's Report

Income is dropping due to the changes in the publication landscape, so a slight deficit for the year. A question was asked as to what can be done about declining royalties? As the landscape will continue to change in the coming years, it would be prudent to wait and see what develops and respond when the landscape stabilizes.

Otherwise finances are steady and the Society will have to scrutinize meeting and funding costs to ensure that the Society meets its aims but does not overstretch its capabilities.

23/05 QJEP Editor's Report

23/05.1 Editor's Report

Due to the change in how Impact Factors are calculated, QJEPs has fallen but this was expected and is in line with how the journal was placed previously. There are several special issues in various

stages of production which aim to increase the visibility of QJEP and the impact factor.

The contract with SAGE is due to expire, so the Society Officer's underwent a process to determine the best way forward and it has resulted in the opinion to remain with SAGE and to sign a new contract, which SAGE has agreed to all of the EPS's requests.

23/06 Confirmation of the Fifty-Third Bartlett Lecturer

Confirmed

23/07 Confirmation of the Joint Twenty-Third EPS Mid–Career Award Lecturers

Confirmed

23/08 Confirmation of the Thirty-Second EPS Prize Lecturer

Confirmed

23/09 Confirmation of the Thirteenth Frith Prize

Confirmed

23/10 Election of Officers and Committee Members

Confirmed

Election of the Fifty-Third Bartlett Lecturer
Prof Mike Burton (University of York)

Election of the Joint Twenty-Third EPS Mid-Career Award Lecturers
Prof Mike Le Pelley (University of New South Wales, Australia)
Prof Jennifer Rodd (University College London)

Election of the Thirty-Second EPS Prize Lecturer
Dr Daniel Yon (Birkbeck, University of London)

Election of the Thirteenth Frith Prize Lecturer
Dr Sara De Felice (University College London)

The Committee submits the following nominations for Ordinary Committee Members:
Angela De Bruin (University of York) – Data Protection Representative
Clare Sutherland (University of Aberdeen) – EDI Representative
Katie Gray (University of Reading)
Nadine Lavan (Queen Mary, University of London)
Gonzalo Urcelay (University of Nottingham)

23/11 Admission of Ordinary Members

Confirmed

Attachment 1.

Admission of Ordinary Members

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

23/12 Arrangements for Future Meetings

All meetings until the end of 2026 now have confirmed hosts after a successful call in summer 2023. These are:

University College London. January 2025.
Local Organiser: Adam Parker

EPS Meeting: Lancaster University. April 2025.
Local Organiser: Padraic Monaghan

EPS Meeting: University of Dundee. July 2025.
This will be a joint meeting with the Canadian Society for Brain, Behaviour and Cognitive Science (CSBBCS).
Local Organiser: Elisabeth Bradford

EPS Meeting: University College London. January 2026.
Local Organiser: Adam Parker

EPS Meeting: Newcastle University. April 2026.
Local Organiser: Tom Smulders

EPS Meeting: University of Essex. July 2026.
Local Organiser: Maria Laura Filippetti

23/13 Any Other Business

The EPS Mentoring Scheme is to be re-launched later in 2024 due to the success of the initial two-year cycle.

A question was asked to introduce name tags at future meetings to allow people to know who else is attending. This would be difficult to introduce for everyone due to the lack of registration process at EPS meetings, but stickers etc can be made available at future meetings to be available as an option for attendees.

23/14 Date, Time and Place of Next Meeting

The next AGM will be in London in January 2025, whilst the next business meeting will be held in April at EPS Nottingham Trent.

EPS
Experimental Psychology Society

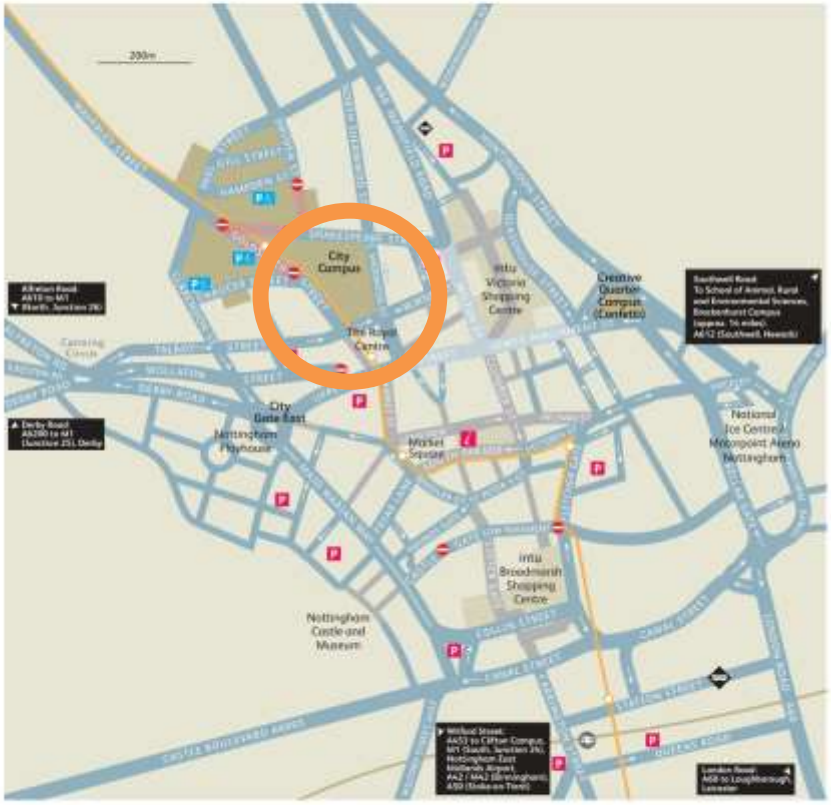
Next Meeting: University of York. 3rd – 5th July 2024.

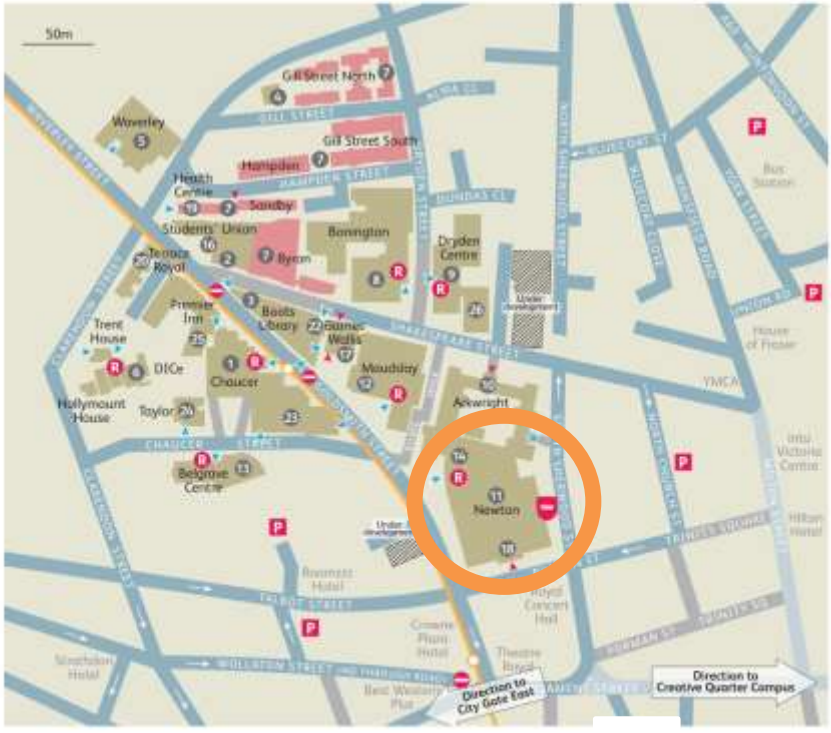
This meeting will include the 52nd Bartlett Lecture by Marlene Behrmann (with an accompanying symposium organised by Karalyn Patterson). It will also include the 2024 EPS / BSA Undergraduate Prize Talk by Didem Yurdakul and the 13th Frith Prize Lecture by Sarah De Felice.

Local organiser: Aidan Horner

NOTTINGHAM TRENT UNIVERSITY

City Campus





Security 3
Tel: 0115 848 2468

Schools

One way street
Pedestrian street
Buses, taxis, cycles and blue badge only
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Entrance
Entrance with wheelchair access
Main reception
Student residences
University buildings
Tram route and stops
No entry
Odd / Uni bus stop