EPS

Experimental Psychology Society

NEWCASTLE MEETING

30 March - 1 April 2026

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 Bluesky 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 at Newcastle University, Herschel Building, Newcastle upon Tyne, NE1 7RU, between Monday 30th March – Wednesday 1st April 2026.

Talks are in Herschel Building LT2 and Herschel Building LT3.
The poster session and accompanying receptions are in the Herschel Building Concourse.

The local organisers are Tom Smulders, Zachary Petzel, Elizabeth Price, Quoc Vuong, Francesca De Petrillo, Franziska Hartung, Laurence White, Sarah Knight, Barbara-Anne Robertson and Margreet Vogelzang.

2026 EPS/BSA Undergraduate Prize Talk

Monday 30th March, 4.30pm

Quantifying visual habituation through gamma power decay: An EEG study modelling exponential decay to enhance neural biomarker reliability.
Oliver Panther, Keele University

24th EPS Mid-Career Prize Lecture Symposium

Tuesday 31st March, 2.00pm – 5.30pm
Organised by Rebecca Jackson.

24th Mid-Career Prize Lecture

Tuesday 31st March, 5.45pm

Semantic control as a distinct and flexible system for regulating meaning.
Elizabeth Jefferies, University of York

Poster Session

The poster session is to be held on Monday 30th March between 5.30pm and 7.00pm in the Herschel Building Concourse with an accompanying wine reception.

Conference Dinner

The conference dinner for EPS Newcastle will be held on Tuesday 31st March from 7:30pm at the Crowne Plaza Hotel which is just a 15 – 20 minute walk from the meeting. The address is Hawthorn Square, Forth Street, Newcastle Upon Tyne, NE1 3SA.

The booking form was available until 5pm (UK time) on Monday 9th March and is now closed.

For more details on how to book a place at the conference dinner, please see page 92.

12:00 **ECR Workshop run by Gavin Buckingham**
Herschel Building LT2

At this workshop, you will find out what a lecturer does from day to day, allowing you see what this job entails and to 'peek behind the curtain' of how decisions are made in higher education so that you feel more prepared to land your first permanent job. With this knowledge, you will be better prepared to move onto the next step in your career.

14:00 **Tea / Coffee**

START OF PARALLEL SESSIONS

Session A **– Herschel Building LT2**

14:45 **Yanyu Li*, Ghada Khattab* and Laurence White** (Sponsor: Laurence White) (Newcastle University) An incremental cue-weighting approach to extended lexical tone training.

15:00 **Zhichao Zhang*, Manman Zhang*, Junwei Zhao*, Rhiannon Mackie*, Simon Liversedge and Chuanli Zang** (Sponsor: Simon Liversedge) (Tianjin Normal University, China, Northumbria University, Liverpool Hope University, University of Central Lancashire) Processing of multiple words during natural reading of Chinese sentences.

15:15 **Rhiannon Mackie*, Simon Liversedge, Valerie Benson and Chuanli Zang** (Sponsor: Simon Liversedge) (Northumbria University, Liverpool Hope University) Exploring the Multi-Constituent Unit hypothesis in English spaced compounds.

15:30 **Victoria McGowan, Zoya Zaroob* and R. Aloka Fernando*** (University of Leicester) Transposed word effects for the reading of grammatically correct sentences.

15:45 ~~**Jo Taylor, Alison Gwilliams*, Xilai Zang*, Laura Shapiro and Matthew Davis** (University College London, Aston University, University of Tokyo, Japan, University of Cambridge) Hierarchical predictive processing explains neuroimaging contrasts between words and pseudowords: A meta-analysis of spoken and written lexical processing.~~ ***Withdrawn***

16:00 **Tea / Coffee**

16:30 **2026 EPS/BSA Undergraduate Prize Talk – Herschel Building LT2**

Oliver Panther, Keele University
Quantifying visual habituation through gamma power decay: An EEG study modelling exponential decay to enhance neural biomarker reliability.

17:30 **Poster Session with accompanying wine reception.**
Herschel Building Concourse.

19:00 **ECR Event**

12:00 **ECR Workshop run by Gavin Buckingham**
Herschel Building LT2

At this workshop, you will find out what a lecturer does from day to day, allowing you see what this job entails and to 'peek behind the curtain' of how decisions are made in higher education so that you feel more prepared to land your first permanent job. With this knowledge, you will be better prepared to move onto the next step in your career.

14:00 **Tea / Coffee**

START OF PARALLEL SESSIONS

Session B **– Herschel Building LT3**

14:45 **Emily Jones*, Natalie Butcher and Christopher Wilson** (Sponsor: Natalie Butcher) (Teesside University) The influence of stimulus emotionality on the Boundary Extension Effect in faces and scenes.

15:00 **Georgia Wright*, Natalie Butcher, Kimberly Collins* and Christopher Wilson** (Sponsor: Natalie Butcher) (Teesside University) The impact of registered intermediary recommended adaptations to identification procedures on children's identification accuracy.

15:15 **Alexis McGuire*, Sophie Nightingale* and Paul Taylor** (Sponsor: David Sanderson) (Lancaster University) AI Synthesised Faces: Can perceptual training improve human detection?

15:30 **Samuel Forbes*, Giulia D'Avino, Jia Jia*, Taysa-Ja Newman*, Sarah Stansfield*, Marko Nardini and Alice Skelton*** (Sponsor: David Sanderson) (Durham University, University of Sussex) The role of tiredness and sleep in infant visual working memory.

15:45 **Lewis Ball, Yicheng Qiu*, Heather Ferguson and Gareth Gaskell** (University of York, University of Kent) Does sleep influence memory-supported trust over 12 hours?

16:00 **Tea / Coffee**

16:30 **2026 EPS/BSA Undergraduate Prize Talk – Herschel Building LT2**

Oliver Panther, Keele University
Quantifying visual habituation through gamma power decay: An EEG study modelling exponential decay to enhance neural biomarker reliability.

17:30 **Poster Session with accompanying wine reception.**

Herschel Building Concourse.

19:00 **ECR Event**

Session A **- Herschel Building LT2**

09:00 **Anthony McGregor, Alisha Kumari*, Bianca Semczuk*, Jenna Donninger*, Joe Austen and Matt Buckley** (Durham University, Aston University, University of Leicester) Event Segmentation in navigation tasks impairs cognitive mapping.

09:15 **David Sanderson** (Durham University) The rate of learning in the presence and absence of reinforcement.

09:30 **Artie Graham*, Anna Maher*, David Sanderson, Jasmin Strickland*, Liam Norman*, Marco Bocchio* and Anthony McGregor** (Sponsor: Anthony McGregor) (Durham University) Chemogenetic inactivation of the hippocampus impairs egocentric model-based learning.

09:45 **Marina Wimmer, Michael Verde and Nikos Gekas*** (Edinburgh Napier University, University of Plymouth) The effect of between-item-similarity and semantic relations in 5- and 7-year-olds' false memories.

10:00 **Sophie O'Reilly, Arianna Moccia, Elizabeth Jefferies and Aidan Horner** (Sponsor: Rebecca Jackson) (University of York) Schema-related memory effects are differentially modulated by age and memory performance.

10:15 **Layla Unger and Rebecca Jackson** (University of York) Incidental encounters foster category learning in children.

10:30 **Tea / Coffee**

11:00 **Katie Allen*, Brian Francis*, John Towse and Amy Atkinson** (Sponsor: Amy Atkinson) (Lancaster University) Does working memory in childhood predict long-term academic and employment outcomes?

11:15 **Matthew Mak** (University of Warwick) Undergraduates in the post-ChatGPT era: Style Shifts, Perceptions, and Biases.

11:30 **Natalia Stanulewicz-Buckley, Ross Hannon* and Jill Ravalia*** (Aston University) Development and pilot test of two sessions of CBM I Intervention for UK University Students: Affect, Wellbeing, and Interpretation Bias Effects.

11:45 ~~**Joanna Wincenciak, Órla Bracken* and Deborah Sewell***~~ ~~(University of Glasgow) The impact of school art-based programmes on empathy and emotion regulation development in 4-6-year-old children.~~ ***Withdrawn***

12:00 **Mark Gardner and Lisa Thorn*** (University of Westminster) Autistic traits modulate implicit egocentric bias.

12:15 **Break**

12:30 **EPS Business Meeting for Ordinary and Postgraduate Members**
Herschel Building LT2

Session B **- Herschel Building LT3**

09:00 **Soazig Casteau and Stephen Tyson*** (Durham University) Testing the automaticity of oculomotor-working memory integration.

09:15 **Nikos Gekas*** (Sponsor: Marina Wimmer) (Edinburgh Napier University) The role of statistical complexity in learning colour-orientation associations.

09:30 **Gavin Buckingham, Tom Arthur, Dayanita Kannan* and David Harris** (University of Exeter) Does 'virtuality' affect the role of prior expectations in perception and action? Comparing weight illusions and sensorimotor prediction across real and virtual environments.

09:45 **Danai Papadaki* and Sara Spotorno** (Sponsor: Sara Spotorno) (University of Durham) Spatial scene schemas can be flexibly used to guide gaze in visual search.

10:00 **Louisa Butler*, Rachel McCloy and Julia Vogt** (Sponsor: Rachel McCloy) (University of Reading) Prospects Broaden Perspective: High outcome expectations buffer attentional narrowing and goal disruption under resource scarcity.

10:15 **Filip Rybansky*, Sadegh Rahmaniboldaji*, Andrew Gilbert, Frank Guerin*, Anya Hurlbert* and Quoc Vuong** (Sponsor: Quoc Vuong) (Newcastle University, University of Surrey) Primed for Action: Context facilitates accuracy of action recognition but not gaze behaviours.

10:30 **Tea / Coffee**

11:00 **Linda Arrighi*, Anna Matejko* and Markus Hausmann** (Sponsor: Markus Hausmann) (Durham University) Exploring causality and sex/gender differences in spatial self-confidence and spatial performance.

11:15 **Chen Chen*, Katya Krieger-Redwood*, Jonathan Smallwood* and Elizabeth Jefferies** (Sponsor: Elizabeth Jefferies) (University of York, Queen's University, Canada) Effects of difficulty on mind wandering during narrative and expositional texts.

11:30 **Krisztina Jedlovszky* and Daniel Yon** (Sponsor: Daniel Yon) (University College London, Birkbeck, University of London, Institut d'Études Avancées de Paris, France) Predictions and outcomes independently shape the subjective experience of regret.

11:45 **Miroslav Sirota, Kavya Guglani* and Marie Juanchich** (University of Essex) A Meta-Reasoning account of Goal-Sensitive Control: Correcting or Rationalising Intuition.

12:00 **Tom Smulders, Jamie Tulip* and Daniel O'Hagan*** (Newcastle University) Alpha desynchronization increases with alertness in the avian brain.

12:15 **Stephen Lea, Lily Blower* and David Gordon*** (University of Exeter, University of Oxford) How pigeons discriminate between paintings by different artists.

12:30 **EPS Business Meeting for Ordinary and Postgraduate Members**
Herschel Building LT2

Session A **- Herschel Building LT2**

24th Mid-Career Prize Symposium

Flexible Semantic Cognition.

Organised by Rebecca Jackson.

14:00 **Matthew Lambon Ralph** (University of Cambridge) Decoding semantic representations in human brains and computational models.

14:30 **Rebecca Jackson** (University of York) Semantic control and semantic representations are functionally separated over space and time.

15:00 **Sandra Martin** (Max Planck Institute of Human and Cognitive and Brain Sciences, Germany) Semantic control across the lifespan: From network organisation to causal relevance.

15:30 **Tea / Coffee**

16:00 **Alex Clarke** (University of Warwick) Contextual modulation of object perception and memory.

16:30 **Hannah Thompson** (City St George's, University of London) When creativity loses control: what semantic aphasia reveals about creative cognition.

17:00 **Rocco Chiou** (Birkbeck, University of London) What can cortical topography reveal about human cognition?

17:30 **Break**

17:45 **24th Mid-Career Prize Lecture - Herschel Building LT2**
Elizabeth Jefferies, University of York
Semantic control as a distinct and flexible system for regulating meaning.

Conference Dinner

Session B **- Herschel Building LT3**

14:00 **Margreet Vogelzang*, Sean Gan* and Jamie Setch*** (Sponsor: Quoc Vuong) (Newcastle University, University of Cambridge) Social and communicative traits in autistic and non-autistic adults from diverse language backgrounds.

14:30 **Wei Li*, Sarah Knight, Sven Mattys, Robert Lennon*, Julie Morris and Laurence White** (Sponsor: Sven Mattys) (Newcastle University, University of York) Temporal prediction in a novel nonword segmentation task.

15:00 **Mahmoud Elsherif, Richard Kirkden* and Jonathan Catling** (University of Leicester, University of Birmingham) Age-of-acquisition affects object recognition and compound word identification: Evidence from visual duration thresholds and progressive demasking.

15:30 **Tea / Coffee**

16:00 **Daniel Smith, Alexis Cheviet*, Alison Lane*, Anthony Atkinson, Uma Nath*, Claire MacDonald*, Lousie Wiblin* and Richard Walker** (Durham University, South Tyneside & Sunderland NHS Trust, Gateshead Health NHS Trust, South Tees NHS Trust, Northumbria Healthcare NHS Trust) Reduced visual search efficiency can discriminate between Progressive Supranuclear Palsy and Parkinson's Disease.

16:30 **Paul Skarratt and Geoff Cole** (University of Hull, University of Essex) Is looming motion the 'impossible' stimulus? Evidence for asynchronous diffusion in visual search.

17:00 **Anthony Atkinson and Quoc Vuong** (Durham University, Newcastle University) Visual search for communicative interactions: Greater search efficiency and distinct scanpaths.

17:30 **Break**

17:45 **24th Mid-Career Prize Lecture - Herschel Building LT2**
Elizabeth Jefferies, University of York
Semantic control as a distinct and flexible system for regulating meaning.

Conference Dinner

START OF PARALLEL SESSIONS

Session A **- Herschel Building LT2**

09:00 **Jamie Cockcroft*, Aida Rincón Chong*, Akshata Seth*, Matthew Logie and Aidan Horner** (Sponsor: Elizabeth Jefferies) (University of York, Université Paris-Saclay, France) Recall Me Maybe: The impact of temporal segmentation on free recall.

09:30 **Sutong Duan*, Matthew Mak and Chiara Gambi** (Sponsor: Matthew Mak) (University of Warwick) What do we remember when we're wrong: Memory for unexpected words and their surrounding context.

10:00 **Aaron Cousins*, Silvia Gennari and Karla Evans** (Sponsor: Silvia Gennari) (University of York) When words leave a trace: Language improves episodic memory for scenes.

10:30 **Barbara-Anne Robertson*, Mary Podmore*, Marike Rüther*, Beth Harcourt*, Phoebe Burn*, Oliver Underhill*, Shija Wang* and Tom Smulders** (Sponsor: Tom Smulders) (Newcastle University) How emotional valence impacts episodic memory is altered by stimuli presentation order using a real-world what-where-when memory task.

11:00 **Tea / Coffee**

11:30 **Emily Bellerby*, Sara Milledge, Kristofor McCarty* and Hazel Blythe** (Sponsor: Hazel Blythe) (Northumbria University, University of Central Lancashire) The role of decomposition in the learning of (pseudo)compound words, from stanbish to durehime: An eye-movement investigation.

12:00 **Eva Belke, Jessica Ernst* and Sonia Kandel*** (Ruhr-University Bochum, Germany, University Grenoble Alpes, France) Morphologically motivated phonographic inconsistencies delay the encoding of handwritten words in beginning and advanced German writers.

12:30 **Katerina Stoumpou*, Ghada Khattab* and Faye Smith*** (Sponsor: Laurence White) (Newcastle University) Compensation mechanisms in adult developmental dyslexia in English and Greek.

13:00 **Philippa Howard, Nicholas Martin, Valerie Benson and Simon Liversedge** (University of Bristol, Northumbria University) The Reading Between the Lines Project: Co-reference processing in autistic and non-autistic readers.

13:30 **End of Meeting**

START OF PARALLEL SESSIONS

Session B **- Herschel Building LT3**

09:00 **Yesesvi Somayaji Konakanchi*, Max Lovell* and John Maule*** (Sponsor: Quoc Vuong) (University of Sussex) Is our perception of white influenced by our phone screens?

09:30 **Xueqing Li*, Alison Lane*, Daniel Eaves* and Daniel Smith** (Sponsor: Daniel Smith) (Durham University, Newcastle University) Perceptual judgements under temporal visual constraints in table tennis.

10:00 **Tom Peney*, Kevin Riggs and Richard O'Connor** (Sponsor: Richard O'Connor) (University of Hull) Implicit belief tracking in adults.

10:30 **Thomas Chazelle*, Sam Fenwick*, Sophia Hand*, Chris Allen*, Meike Scheller* and Marko Nardini** (Sponsor: Marco Nardini) (Durham University) New sensory cues to location reveal individual differences in multisensory integration.

11:00 **Tea / Coffee**

11:30 **Peter Moseley** (Northumbria University) Expectation-led perception and hallucinations.

12:00 **Alex Smith*, Kevin Riggs, Emmanuele Tidoni and Richard O'Connor** (Sponsor: Richard O'Connor) (University of Hull, University of Leeds) Knowledge and ignorance processing is faster than belief processing.

12:30 **Benjy Barnett* and Daniel Yon** (Sponsor: Daniel Yon) (Birkbeck, University of London) Social interactions influence subjective awareness reports.

13:00 ~~**Andrew Martin, Chloe Bates*, Sofia Dias Salgado*, Mariana Von Mohr* and Ivana Konvalinka*** (University of Kent, Kent Medway Medical School, Royal Holloway, University of London, University College London, Technical University of Denmark, Denmark) Blurred Lines or Clear Boundaries? Synchrony and social dominance shape domain-specific self-other processing.~~ ***Withdrawn***

13:30 **End of Meeting**

The poster session is to be held on Monday 30th March between 5.30pm and 7.00pm in the Herschel Building Concourse with an accompanying wine reception.

1. **Lawrence Taylor* and Dimana Kardzhieva*** (Sponsor: Peter Moseley) (Northumbria University) Lean in: Posture affects judgment and memory of emotional language.

2. **Yi Hao*, Emmanuel Biau*, Ana Bautista*, Clara Martin*, Julian Pine* and Francesca Branzi** (Sponsor: Francesca Branzi) (University of Liverpool, Basque Center on Cognition, Brain & Language, Spain) Semantic and Social Prediction and its Effects on Memory.

3. **Emma Portch*, Alejandro Estudillo, Amy Purcell*, Heidi Kuivaniemi-Smith* and Charlie Frowd*** (Sponsor: Alejandro Estudillo) (Bournemouth University, University of Lancashire) Does inviting face recall during an initial, Achieving Best Evidence interview negatively impact subsequent facial composite effectiveness?

4. **Chloe Brunskill* and Aidan Horner** (Sponsor: Angela De Bruin) (University of York) Using narratives as a tool to boost learning.

5. **Alejandro Estudillo, Mei Ling Soh*, Neil Mennie*, Mazlyfarina Mohamad*, Ahmad Nazlim Yusoff* and Javier Garcia-Orza*** (Bournemouth University, University of Nottingham Malaysia, Chulalongkorn University, Thailand, Raffles University, Universiti Kebangsaan Malaysia, Universidad de Malaga, Spain) Higher multiplication fluency is associated with greater grey-matter volume in the right opercular-insular cortex.

6. **Lihui Hu*, Wenjie Chen* and Brian Mathias** (Sponsor: Brian Mathias) (University of Aberdeen) Disrupting prefrontal control reduces the memory boost of reading aloud.

7. **Dandan Wu*, Carmel Mevorach, Andrew Surtees and Nicola Gale*** (Sponsor: Carmel Mevorach) (University of Birmingham) Trait expression of Autism and ADHD interact to modulate response inhibition.

8. **Damar Hoogland*, Tine Kolenik*, Jaya Caporusso*, Boshko Koloski*, Ana Zwitter Vitez*, Christina Manouilidou*, Senja Pollak* and Matthew Purver*** (Sponsor: Laurence White) (Jožef Stefan Institute, Slovenia, Jožef Stefan International Postgraduate School, Slovenia, University of Ljubljana, Slovenia, Queen Mary University of London) Research Plan - Constructing a Slovene Corpus of Parkinson Disease Patients' Speech and Writing.

9. **Emma Wisnaskas*, Jacqueline Urbach*, Andrea Greve, Richard Henson and Kshipra Gurunandan*** (Sponsor: Richard Henson) (University of Cambridge, Durham University, Heidelberg University, Germany) Effects of schema and novelty on verbal memory: An eye-tracking study.

10. ~~**Einar Andreassen*, Benjy Barnett*, Chris Frith and Daniel Yon** (Sponsor: Daniel Yon) (Birkbeck, University of London, SOAS, University of London, University College London) Social transmission of moral certainty.~~ ***Withdrawn***

11. **Melissa Schorah*, Cong Zhang* and Laurence White** (Sponsor: Laurence White) (Newcastle University) How do cognitive factors affect speech rate tracking: A pilot study.

12. **Bryony Aspinall*, Jo Greer*, Jason Rajsic* and Colin Hamilton** (Sponsor: Michael Craig) (Northumbria University) Exploring the personality traits associated with hyperfocus in the general population.

13. **Arianna Moccia* and Aidan Horner** (Sponsor: Rebecca Jackson) (University of York) Forgetting of object features depends on encoding strength rather than structure.

14. **Daniel Berry*, MaryAnn Noonan* and Alex Wade*** (Sponsor: Rebecca Jackson) (University of York) Reward-guided decision-making across option features.

15. **Shengtong Liu*, Yuanyi Peng* and Karen Lander** (Sponsor: Karen Lander) (University of Manchester) How facial expressions modulate configural and featural processing across eye and mouth regions.

16. **Neil Kirk** (Abertay University) AI Voices and the illusion of truth.

17. **Aida Rincón Chong*, Jamie Cockcroft and Aidan Horner** (Sponsor: Angela De Bruin) (University of York) Temporal structure at encoding affects subsequent recall.

18. **Lauryn Clucas* and Samuel Forbes*** (Sponsor: Marko Nardini) (Durham University) Investigating the role of deictic cues in infants' novel word learning.

19. **Ruby Lyall*, Chaeyeon Lim*, Michael Banissy, Kevin Brooks*, Tim Murphy and Hélio Clemente Cuve** (Sponsor: Hélio Clemente Cuve) (University of Bristol, Macquarie University, Australia) Emotive cues impair and bias human detection of deepfakes.

20. **Giulia D'Avino*, Sarah Stansfield*, Mark Thompson, Marko Nardini and Samuel Forbes*** (Sponsor: Marko Nardini) (Durham University) Examining the impact of tiredness on infant attention using e-books.

21. **Sandra Gawel*, Michael Craig, Joanna Greer* and Kristophor McCarty*** (Sponsor: Michael Craig) (Northumbria University) Investigating how post-encoding load during the post-learning period affects wakeful memory consolidation in healthy older and younger adults.

22. **Paula Schneider*, Samantha Gregory and Bill Davies*** (Sponsor: Samantha Gregory) (University of Salford) Research Plan - Auditory perceptual capacity and speech in noise perception in Autism.

23. **Jason Rajsic*** (Sponsor: Peter Moseley) (Northumbria University) Priming of spatial attention during virtual aiming: The role of occlusion.

24. **Bobbi Chidley*, Daniel Smith and Soazig Casteau** (Sponsor: Soazig Casteau) (Durham University) Visual search foraging in Parkinson's Disease.

25. **Manal Almugathwi*, Reut Zabag*, Sukhi Shergill* and Andrew Martin** (Sponsor: Andrew Martin) (University of Kent, Kent and Medway Medical School, Yale University, United States of America, King's College London, Kent and Medway NHS and Social Care Partnership Trust) Modulating Social Belief Learning and Updating with Prefrontal focal tDCS.

26. **Raluca Nicoras*, Jennifer Campos*, Jack Holman*, Graham Naylor* and Karolina Smeds*** (Sponsor: Emily Crowe) (Hearing Sciences Scottish Section, University of Nottingham, Toronto Rehabilitation Institute, Canada, WSAudiology, Denmark) Conversations in Dual-Task Situations: Exploring everyday multitasking challenges in older adults with hearing loss.

27. **Yuanyi Peng*, Karen Lander and Shengtong Liu** (Sponsor: Karen Lander) (University of Manchester) The roles of featural and configural information in familiar and unfamiliar face recognition.

28. **Joanna Kubiak*, Joanna Greer*, Kristofor McCarty* and Michael Craig** (Sponsor: Michael Craig) (Northumbria University) Examining the influence of ADHD and autism-related traits on the early consolidation of new declarative memories.

29. **Silke Wortha** (Loughborough University) Research Plan - How does attention to numbers influence older adults' susceptibility to fraud?

30. **Oscar Solis*, Cameron Kyle-Davidson*, Alex Wade* and Karla Evans** (Sponsor: Karla Evans) (University of York) Complex by Design, Memorable by Nature? Complexity and memorability signals in scene-selective cortex.

31. **Georgina Edwards-Lowe*, Utomi Omezie* and Daniel Yon** (Sponsor: Daniel Yon) (Birkbeck, University of London) Adaptive Self-Monitoring: How volatility shapes metacognitive learning.

32. **Arron Brooksbank*, Arianna Curioni*, James Strachan*, Timothy Welsh* and Merryn Constable** (Sponsor: Merryn Constable) (University of Northumbria, University of Vienna, Austria, Université Mohammed VI Polytechnique, Morocco, University of Toronto, Canada) Research Plan - What makes a partner too costly to coordinate with? Motor variability as a coordination cost.

33. **Christine Caldwell*** (Sponsor: Jeremy Tree) (University of Stirling) Higher-order mental state reasoning as a potential tool for assessment of lifespan theory of mind.

34. **Maria Ciocan* and Holger Wiese** (Sponsor: Holger Wiese) (Durham University) Individual differences in neural markers of familiar face processing.

35. **Kavya Guglani*, Marie Juanchich and Miroslav Sirota** (Sponsor: Miroslav Sirota) (University of Essex) Why does cognitive reflection predict biases?

36. **Helin Erden*, Constantijn van der Burght, Yiya Chen* and Antje Meyer** (Sponsor: Antje Meyer) (Max Planck Institute for Psycholinguistics, The Netherlands, Leiden University, The Netherlands) Decoding the time course of intonation planning in speech production.

37. **Beth Topping*, Vicky McGowan and Frank Proudlock*** (Sponsor: Victoria McGowan) (University of Leicester) Eye-movement behaviour during reading at font sizes near the visual limit.

38. **Karen Hoang*, Nicola Binetti*, Jennifer Lau*, Essi Viding and Isabelle Mareschal*** (Sponsor: Nadine Lavan) (Queen Mary University of London, International School for Advanced Studies (SISSA), Italy, University College London) The development of emotion recognition across adolescence reveals a shift in visual priorities within facial expressions.

39. **Eva Lesovskaia*, Rebecca Knight, Caroline Whyatt* and Shazia Akhtar*** (Sponsor: Mike Page) (University of Hertfordshire) A systematic review and a meta-analysis of large-scale spatial navigation studies in autism.

40. **Safiye Sena Dökmeci*, Samantha Gregory, Bill Davies and Rebecca Vos*** (Sponsor: Samantha Gregory) (University of Salford) Listening Across Difference: A voice-based exploration of the Double Empathy Problem in Autistic and non-Autistic communication.

41. **Yue Han*, Ning Qin*, Zhichao Zhang*, Reyhan Hurman*, Chuanli Zang and Simon Liversedge** (Sponsor: Simon Liversedge) (Northumbria University, Max Planck Institute for Psycholinguistics, The Netherlands, Liverpool Hope University) Research Plan - Mathematical Building Blocks: Investigating online attentional and cognitive processes underlying addition and subtraction.

42. **Ning Qin*, Yue Han*, Zhichao Zhang*, Chuanli Zang and Simon Liversedge** (Sponsor: Simon Liversedge) (Northumbria University, Liverpool Hope University) Research Plan - The allocation of attention in selective reading: An eye-movement investigation.

43. **Barbara Piotrowska*** (Sponsor: Marina Wimmer) (Edinburgh Napier University) Research Plan - Stereotype threat in developmental dyslexia.

44. **Yuka Spencer*, Cade McCall* and Ana Cavalcanti*** (Sponsor: Rob Jenkins) (University of York) Human-Robot Interaction in the Laboratory: Perceptions, motivations, and future expectations of research chemists.

45. **David Haydock*, Oliver Sherwood*, Raha Razin*, Frederic Dick* and Robert Leech*** (Sponsor: Elizabeth Jefferies) (University College London, King's College London) Research Plan - Neuroadaptive Real-Time fMRI for mapping auditory representations across a large environmental sound space.

46. **Chengjie Jiang* and Ruth Filik** (Sponsor: Ruth Filik) (University of Nottingham) Do redundancy-driven inferences arise automatically during comprehension?

An incremental cue-weighting approach to extended lexical tone training.

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Perceiving categories involves selectively weighting stimulus dimensions in a multidimensional perceptual space. In speech perception, prior adaptation to first language (L1) phonetic cues can compromise L2 processing [1], but training with exaggerated cues to L2 categories can enhance sensitivity to previously less-attended dimensions [2]. We tested the efficacy of tonal slope exaggeration for training perception of lexical tone, a pitch-based feature of languages like Mandarin, but absent in English. L1 English listeners (N=30) were trained on monosyllabic tonal contrasts (e.g., falling vs rising tones) over three sessions (24-48h between sessions). They were trained with either incrementally-reduced exaggeration of tonal slope or with "baseline" unexaggerated tones. Tracking tests (after each session) and pre- and post-training tests used baseline stimuli. All trials used ABX (same-different) tasks, with ("correct" vs "incorrect") feedback only in training. Accuracy was comparable between groups in training, pre-/post-tests, and the final tracking-test. However, a combined accuracy-RT measure showed the incremental group outperforming the fixed group in Training 1, indicating a temporary perceptual boost from cue exaggeration, and in Tracking Test 3, indicating (potentially sustained) enhancement of perceptual sensitivity. We suggest that the modest incremental benefits might be more robust when training designs reflect statistical regularities of speech input.

[1] A. L. Francis and H. C. Nusbaum, 'Selective attention and the acquisition of new phonetic categories', Journal of Experimental Psychology: Human Perception and Performance, vol. 28, no. 2, pp. 349-366, 2002, doi: 10.1037/0096-1523.28.2.349.

[2] M. V. Kondaurova and A. L. Francis, 'The role of selective attention in the acquisition of English tense and lax vowels by native Spanish listeners: Comparison of three training methods', Journal of Phonetics, vol. 38, no. 4, pp. 569-587, Oct. 2010, doi: 10.1016/j.wocn.2010.08.003.

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Processing of multiple words during natural reading of Chinese sentences.

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Investigating the semantic integration of multiple words is crucial for distinguishing between serial and parallel accounts of lexical identification during natural reading. Serial accounts suggest words are processed sequentially, while parallel accounts propose multiple words are processed simultaneously. In a boundary paradigm experiment, we manipulated a parafoveal target preview word (synonym, antonym, identity or unrelated word) and its semantic relationship with the foveal

pre-target word. If words are identified in parallel, processing at the pre-target word might be influenced by the preview, whilst no such effects should occur if words are processed serially. The experiment demonstrated robust semantic parafoveal-on-foveal facilitation effects at the pre-target region for the synonym relative to the unrelated preview in first-pass reading durations. In later measures, delayed parafoveal semantic priming effects induced by synonym and antonym previews also occurred at the pre-target. Interestingly, at the target word region, we also found shorter first fixation and gaze durations for synonym and antonym relative to unrelated previews. These results suggest Chinese readers can extract semantic information from parafoveal words while fixating foveal words and this information is integrated immediately with the meaning of the foveal word, with integration continuing as the reader's fixation shifts to the subsequent word.

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Exploring the Multi-Constituent Unit hypothesis in English spaced compounds.

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The Multi-Constituent Unit (MCU) hypothesis posits that certain frequently occurring multi-word sequences, such as idioms, are processed as single lexical units during reading (Zang, 2019). A multitude of experiments conducted in Chinese reading have provided evidence in support of this hypothesis (Zang et al., 2021; Zang et al., 2023; Zang et al., 2024). However, only one study, Cutter et al. (2014), has shown MCU effects for spaced compound words in English. The current study is a replication of Cutter et al. with greater power. The boundary paradigm (Rayner, 1975) was utilised to orthogonally manipulate parafoveal preview of the first (e.g., teddy) and second (e.g., bear) constituent of English spaced compounds to be either identity or nonword previews. An invisible boundary was located immediately prior to the spaced compound and as the eyes crossed the boundary the preview was replaced by the target. Results provide evidence in support of the MCU hypothesis, showing increased preview benefit for the second constituent only when the first constituent was available in parafoveal preview. This suggests that the preview of the first constituent licenses preprocessing of the entire MCU, evidencing that these MCUs are processed as single lexical units.

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Transposed word effects for the reading of grammatically correct sentences.

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Readers often fail to detect word order violations (e.g., “The white was cat big”), demonstrating that word position information is flexibly encoded. These transposed word effects have reignited the debate about the nature of cognitive processing during reading, with both serial and parallel explanations proposed. However, previous studies used stimuli where a transposition transformed a sentence from ungrammatical to grammatical. It is therefore unclear whether flexible word order encoding also occurs during the reading of grammatical sentences, or whether this reflects an error resolution mechanism to derive meaning from ungrammatical input. Accordingly, participants (N = 150) completed a same-different matching task with sentences that were both grammatical or ungrammatical. In line with standard transposed word effects, participants were slower and less accurate in making “different” judgements when sentences differed due to a transposition (The gymnast regularly exercised between events - The gymnast exercised regularly between events) than due to a replacement (The gymnast regularly exercised between events - The gymnast practiced carefully between events). Critically, this effect was observed regardless of whether sentences were grammatical or ungrammatical. The results indicate that word order is processed flexibly even for the reading of grammatical sentences. Implications for theoretical models will be discussed.

~~Hierarchical predictive processing explains neuroimaging contrasts between words and pseudowords: A meta-analysis of spoken and written lexical processing.~~

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~~We report a meta-analysis of neuroimaging studies of spoken and written word and pseudoword processing. We revisit our framework in which sub-lexical processing is more effortful for pseudowords, whereas words engage lexical-semantic systems more strongly (1), but show how predictive processing also explains these activation differences across modalities. A systematic Scopus search identified 13 auditory and 54 visual studies that tested healthy adults, presented auditory or visual single-items in alphabetic languages, directly contrasted words and pseudowords, and reported whole-brain coordinates. Coordinate-based meta-analyses were conducted using GingerALE (2). For pseudowords relative to words, written stimuli elicited activation in posterior occipito-temporal, inferior parietal, and inferior frontal regions (primarily left-lateralised), while spoken stimuli activated bilateral superior temporal cortices. For words relative to pseudowords, written stimuli activated bilateral middle temporal/angular gyrus, middle/superior frontal gyrus,~~

anterior cingulate, and left insula, while spoken stimuli activated left anterior fusiform gyrus. Predictive processing simulations explain these results (3, 4). Pseudowords elicit larger prediction errors in regions processing letters or sounds because their forms diverge from lexical expectations. Large sub-lexical prediction errors suppress higher-level interpretations, yielding greater prediction errors for words in lexical-semantic regions. This provides a unified account of how familiar words are comprehended and unfamiliar words learned.

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Withdrawn

The influence of stimulus emotionality on the Boundary Extension Effect in faces and scenes.

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Boundary Extension (BE) is a memory phenomenon wherein people tend to recall images as wider angled than reality, remembering extended boundaries and new details not present in the original image. Research into the effects of emotionality on BE is inconclusive and primarily focused on scenic stimuli. The two experiments presented here investigated the effects of emotionality on BE in relation to faces (Experiment 1, N = 70) and scenes (Experiment 2, N = 55) using positive, negative, and neutral conditions. Both experiments used an adjustment task. Participants viewed an image and adjusted a second version of that image (presented at a different level of zoom) to match the first. Unlike previous BE experiments, we also investigated whether the second version's level of zoom influenced responding. Overall, mixed effect models revealed BE effects for faces and scenes, and across the emotion conditions. However, the magnitude of the BE was dependent on level of zoom in the second version, with larger effects when the image was wider angled at the second time point, indicating potential memory interference. For faces, this influence of version two was magnified in positive stimuli. For scenes, in contrast, the influence was comparable across the emotion conditions.

The impact of registered intermediary recommended adaptations to identification procedures on children's identification accuracy.

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Children consistently perform poorer at lineup tasks compared to adults (Fitzgerald & Price, 2015; Sauerland et al., 2025). As such, recent research has investigated adaptations that could improve children's performance (Karageorge & Zajac, 2011; Thompson et al., 2020). However, these often do not align with current policies and guidance (i.e. PACE-D) and thus are not practically implementable. This experiment examined three adaptations used across several police forces, recommended by Registered Intermediaries (RIs) - tasked with facilitating communication for vulnerable witnesses. 264 participants (5-11 years) completed one of four mock police lineups conducted in line with PACE-D to assess the impact of the adaptations on identification accuracy. The adaptations were: accessible formal instructions, a practice teddy bear lineup, and a visual number line to support attention and working memory. Numerically, the number line condition produced more hits, and the teddy and accessible instruction conditions produced fewer false alarms compared to the control condition. However, differences were not statistically significant, with poor performance found across all conditions. This may indicate that the adaptations used across forces do not have the desired effect empirically. The possibility of floor effects has not been disregarded; therefore, future studies will replicate this experiment, controlling for potential confounding variables such as face exposure before any recommendations are produced for RIs and identification officers.

AI Synthesised Faces: Can perceptual training improve human detection?

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Artificial Intelligence (AI) is becoming highly sophisticated and as a result, new threats emerge. State-of-the-art-models can now synthesise faces that are strikingly realistic and can fool humans into thinking they are real. This work investigates a range of visual attributes associated with GAN-synthesised and diffusion-synthesised faces. With the aim of improving perceptual accuracy, we devised a training intervention, which pinpoints some of the visible differences between AI-synthesised and real faces. In an online study, participants were provided with training or assigned to a control group. All participants were then shown 24 faces and asked to choose for AI-synthesised or real. Participants were asked to rate their confidence in this decision and rate each face across a variety of attributes. Overall mean accuracy was close to chance performance (57.6%) with a significant increase in accuracy for the training group (62.0%), compared to the control group (55.0%), participants who received training also showed better insight into their performance. However, signal detection measures illustrate how the training approach is problematic and does not truly help participants to distinguish between real and AI-synthesised faces. The increase in accuracy for the training group is due to a change in response bias, leading to increased scepticism.

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The role of tiredness and sleep in infant visual working memory.

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Sleep plays an essential role in early cognitive development by consolidating the constant new information infants learn. Conversely, tiredness or a lack of sleep is detrimental to many cognitive skills such as attention, executive functioning and language development. While much research focuses on sleep in infancy, we instead examine how current, in-the-moment, factors such as tiredness affect infant cognition. Visual Working Memory (VWM) is a core skill in infancy which relates to later educational achievement. Here, we examine how tiredness and sleep impact VWM using eye tracking and functional near-infrared spectroscopy (fNIRS). Parents first completed the Durham Infant Tiredness Questionnaire (DITQ) and then infants, aged 4-16 months, took part in a VWM preferential looking task by (Ross-Sheehy et al., 2003). Results show that both high tiredness and poor sleep lead to a lower proportion of looking in trials. At the same time, the neural data shows higher activation in frontal and parietal regions (key areas of attention) when infants are tired and have poor sleep. We argue that tired infants may be having to expend more effort in an attempt to maintain attention. These represent some of the first data examining tiredness in infancy with neuroimaging.

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Does sleep influence memory-supported trust over 12 hours?

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Deciding who to trust serves a vital part of social interaction, to promote cooperation and avoid exploitation. A key mediator of trust is memory: remembering how others have behaved influences our subsequent trust decisions (e.g., trusting previous cooperators). Here, we investigated whether memory-supported trust is influenced by sleep, given the beneficial effect of sleep on episodic memory. At encoding in a Prisoner's dilemma task (PDT), participants encountered faces of 20 cooperators and 20 cheaters, before sleeping overnight (sleep group) or remaining awake throughout the day (wake group). ~12 hours later, a surprise memory test probed item (is this person old/new?) and source memory (did this person cooperate/cheat?), before participants made trust decisions to the same partners in a second PDT. In both groups, item and source memory performance was negatively associated with the likelihood of trusting previous cheaters. Recognition of previous cheaters was enhanced in the sleep group, who also trusted more adaptively than the wake group in the second PDT. The results suggest that, over ~12 hours, memory may be particularly tuned for avoiding exploitation, with sleep helping to support these adaptive decisions. A second experiment ruled out time-of-day effects, while an ongoing experiment aims to replicate these findings.

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2026 EPS/BSA Undergraduate Prize Talk

Quantifying visual habituation through gamma power decay: An EEG study modelling exponential decay to enhance neural biomarker reliability.

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Visual Habituation, the decline in responsiveness to a repeated stimulus, is a foundational measure in developmental psychology, yet it suffers from methodological inconsistencies. Varying approaches to capturing this phenomenon have led to inconsistent results across studies. Previous findings suggest that gamma power decreases over time during a habituation task, indicating greater habituation. The current study aimed to quantify gamma power and the rate at which it decreased over time in 27 infants (10-18 months old) by modelling the data with an exponential decay model I designed in Excel. Participants underwent a visual habituation paradigm with EEG recordings of gamma power while a counterbalanced familiar/novel stimulus was presented. Data was pre-processed in MATLAB using Fieldtrip toolbox for artefact removal, gamma isolation, and baseline correction. Gamma power was then modelled to fit the equation $P(t) = P_{0\,x}\, e^{-kt} + C$, where k quantifies decay speed. Model fitness (R^2) and gamma power reduction (early vs. late trials) were analysed using t-tests. Whilst both analyses weren't significant, an exploratory analysis revealed that infants receiving an auditory attention grabber had significantly improved model fit. No significant difference in mean gamma power was observed between the audio and no-audio conditions, challenging amplitude-centric theories.

Event Segmentation in navigation tasks impairs cognitive mapping.

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Knowledge of the global structure of an arena's shape was tested by training participants on a computer task to locate a WiFi signal inside the arena, then asking them to relocate it from the outside. We hypothesised that doorways partitioning the arena during training would impair memory for the global structure of the environment, consistent with theories of event segmentation in episodic memory. Experiments 1 and 2, in which participants started four training trials from the same position, supported this hypothesis, even though the task during training could be solved by learning the global structure or by repeating the same route on every trial. In Experiment 3, a further group was trained from varying start positions, requiring them to learn the WiFi location relative to the arena's shape. We predicted this would improve memory for global structure and reduce the doorways effect. To ensure sufficient experience of each start location, the number of training trials was increased to nine. Contrary to predictions, the doorways effect did not emerge in the static start condition, contradicting Experiments 1 and 2, but did emerge in the variable start condition. These findings are discussed in terms of prediction error in Event Horizon models.

The rate of learning in the presence and absence of reinforcement.

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An assumption among error-correction theories of learning is that the rate of learning in the presence of reinforcement is greater than its absence. Therefore, acquisition of conditioned responding is predicted to be faster than extinction of conditioned responding. Counterintuitively, because the nature of prediction error (i.e., positive or negative) is independent from the learning rate determined by the presence of reinforcement, it is predicted that reinforcement is more effective at reducing conditioned responding than non-reinforcement. To test this prediction, in Experiment 1, the rate of learning was compared for extinction and overexpectation, two effects that both reflect negative prediction error but depend on non-reinforcement and reinforcement, respectively. Learning was assessed using appetitive Pavlovian conditioning in mice. Contrary to the prediction, extinction learning was greater than overexpectation learning. In Experiment 2, positive prediction error learning was assessed with acquisition of conditioned responding either in the presence of reinforcement or because of non-reinforcement of a conditioned inhibitor. Reinforcement but not non-reinforcement supported conditioned responding. The results demonstrate that non-reinforcement is more effective than reinforcement when learning reflects negative prediction error. The opposite is true for positive prediction error learning. Therefore, reinforcement and prediction error interact to determine the rate of learning.

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Chemogenetic inactivation of the hippocampus impairs egocentric model-based learning.

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Learning to navigate to a goal location is achieved with either a flexible map-like 'place' strategy using landmarks (allocentric cues), or a rigid 'response' strategy using stimulus-response habits (egocentric cues). Traditional theories on the function of the hippocampus and the dorsolateral striatum (DLS) hypothesise different roles based on the cue type being processed. More recently, it has been theorised instead that the hippocampus supports model-based flexible relational representations, and the DLS supports rigid model-free stimulus-response habits, regardless of the cue type being processed. To test these theories, we designed a task that requires a model-based egocentric strategy. In a maze designed to remove allocentric cues and prevent a model-free solution by habit, mice made a series of two turns, then immediately repeated the first turn but alternated the second. This alternation requires holding in memory a model of the task structure to know how (left versus right) and where (first versus second turn) to alternate, without the opportunity to use allocentric cues. We applied neuronal silencing using inhibitory DREADDs to either the dorsal hippocampus or the DLS. The results showed impaired performance in the hippocampal group only, supporting the role of the hippocampus in model-based learning.

The effect of between-item-similarity and semantic relations in 5- and 7-year-olds' false memories.

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We investigated how both between-item-similarity (visual, auditory) and the degree of semantic relations of items contribute to 5- and 7-year-olds' false by adopting the well-established DRM (Deese-Roediger-McDermott) paradigm. In Experiment 1 participants (N = 161) studied 6 DRM lists in image form either as colour photographs, black-white photographs, or mixed format. Findings revealed the typical age effect of 5-year-olds having more false memories, particularly for the strongest semantically non-presented associate (critical lure). However, between-item-similarity had no effect on false memories. In Experiment 2 participants (N = 165) studied the same DRM lists in image form either as single colour (e.g., all items in red) or as mixed colour (red, green, blue) and the same findings as Experiment 1 emerged. In Experiment 3 participants (N = 180) studied the same lists in auditory format either as single voice (all male, all female) or mixed voice. The age effect disappeared and instead, 5-year-olds had more false memories for unrelated non-presented items but did not differ from 7-year-olds in false memories for related distractors and critical lures. Together, findings suggest no evidence for an effect of between-item-similarity on children's false memories and support the notion that false memories are conceptual (semantic) in nature.

Schema-related memory effects are differentially modulated by age and memory performance.

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The effect of schema-congruence on memory has been largely studied in younger adults (YA), where events that are schema-congruent or schema-incongruent are often better remembered than schema-neutral events. How this relationship changes in ageing is less well-studied. Across two experiments, we investigated how schema-related memory effects are modulated by age and delay. Participants encoded 'events' comprising a famous person, object and location. Schema-congruence was manipulated based on the profession of the person (e.g. Adele-Stage-Microphone is congruent). Memory for half of the events was tested immediately and the other half following a delay (E1: 48-hour; E2: 12-hour). Across experiments, we saw congruency effects that differed across age and memory performance. Low performers showed a congruence advantage, with greatest performance in the congruent condition, regardless of age. High-performing YAs showed an incongruence advantage, with greatest performance in the incongruent condition, however no incongruence advantage was seen in high-performing OAs. Our results show that congruence benefits memory when performance is low, regardless of age. Incongruence benefits memory when performance is high, but only in YAs. This supports the proposal that prediction error enhances memory for incongruent events, and suggests prediction error signals are disrupted in OAs, even when episodic memory is relatively preserved.

Incidental encounters foster category learning in children.

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For a child to navigate and think about the world around them, they must learn to see it not as a jumbled parade of objects and beings, but as composed of categories, such as “dog”, “cup”, and “chair”. Yet, many of a child's everyday experiences with categories involve incidental encounters that contain no obvious guidance for category learning, as when a child passes a dog on the street or a chair in a room. Nevertheless, such incidental encounters might foster category learning by providing opportunities to observe the way features tend to cluster together in categories. For example, children might pick up on the way flat noses, pointed ears, and other characteristic features cluster together in cats. The present experiments investigated whether incidental encounters foster category learning in children. In these experiments, 4-9-year-old children were explicitly taught two new categories of creatures. Critically, explicit teaching only took place after initial incidental exposure either to the same categories children were subsequently taught, or to similar-looking creatures that had no category structure. Initial incidental exposure to categories fostered subsequent learning from explicit teaching. These findings suggest that category knowledge in childhood may be built in part from everyday incidental encounters.

Does working memory in childhood predict long-term academic and employment outcomes?

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Existing studies have demonstrated strong relationships between working memory and academic achievement in childhood. However, it is not usually feasible to explore whether working memory in childhood predicts longer-term academic attainment (e.g. at the end of compulsory schooling) or outcomes in adulthood (e.g. unemployment). In this project, we are using existing data from the Avon Longitudinal Study of Parents and Children (ALSPAC) to examine these relationships, having presented adulthood work at previous EPS meetings. ALSPAC is a UK-based large-scale birth cohort study, which has followed the lives of approximately 14,500 individuals for over 30 years. Our pre-registered analyses examine whether working memory in childhood (counting span at 10 years) predicts outcomes such as: (i) academic achievement in childhood (10-11 years); (ii) academic achievement in adolescence (15-16 years); and (iii) Not in Employment, Education, or Training Status (24 years). We demonstrate that childhood working memory is able to predict academic outcomes to the end of compulsory education, degree completion, NEET status, and receipt of means tested benefits. These relationships persist for academic outcomes and receipt of benefits once demographic covariates are included in the model. Implications of the findings will also be discussed.

This work was supported by an ESRC New Investigator Award.

Undergraduates in the post-ChatGPT era: Style Shifts, Perceptions, and Biases.

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This talk presents findings from a multi-study investigation into the use of Generative AI (GenAI) among undergraduate students. Study 1 analysed a decade of authentic student writing (Mak & Walasek, 2025) and found a marked shift in writing style and sentiment following the launch of ChatGPT in 2022, with patterns increasingly resembling ChatGPT's linguistic tendencies. Study 2 revealed that while students are progressively integrating GenAI into their work, they generally perceive its output as lower in quality and credibility compared to non-AI generated texts. Study 3 examined the potential of current GPT models for evaluating student work and found significant biases against human-written texts, raising significant equity concerns. Together, these studies offer insights into how GenAI is reshaping academic writing and its implications for teaching, learning, and evaluation.

This work was supported by the British Academy Talent Development Award (TDA24240012).

Development and pilot test of two sessions of CBM I Intervention for UK University Students: Affect, Wellbeing, and Interpretation Bias Effects.

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Background: The increasing prevalence of mental health difficulties among university students is a growing concern, yet access to NHS treatment and University support remains limited. Cognitive Bias Modification for Interpretation (CBM-I) aims to enhance wellbeing by reducing negative interpretation bias. We tested whether a novel two-session positive CBM-I protocol could impact affect, wellbeing, and negative interpretation bias among UK university students. Methods: Thirty-nine participants were allocated to either positive (n = 19) or neutral (n = 20) CBM-I conditions. Each participant completed two computerised CBM-I sessions. Primary analyses evaluated between-group differences in outcome measures assessed at three time points over 7-14 days. Exploratory analyses examined between-group differences in neutral interpretation bias. Results: Positive CBM-I training did not produce significant improvements for negative affect, positive affect, wellbeing, or negative interpretation bias compared to neutral training. Both conditions exhibited a marginally non-significant reduction in negative affect and demonstrated a significant increase in neutral interpretation bias over time. Conclusions: A two-session CBM-I intervention did not yield significant improvements in outcome measures relative to neutral training. Increased neutral interpretation bias across conditions suggests non-specific effects related to training engagement. This adds to mixed evidence of the efficacy of CBM-I.

~~The impact of school art-based programmes on empathy and emotion regulation development in 4-6-year-old children.~~

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~~While there is evidence indicating an impact of the Covid-19 pandemic on children's social-emotional wellbeing and emotion regulation (e.g. Linnavalli & Kalland, 2021), less is known about its potential impact on the development of complex socio-cognitive abilities, such as emotion regulation or empathy. Here, we measured the developmental changes in social-emotional skills including empathy, emotion regulation, and emotion perception, in 4-6-year-old children, following participation in a school-based social-emotional learning (SEL) programme. In a mixed-methods research, we collected data from teachers (n=11), parents and children (n=125) at two time points; before the participation on the SEL programme, and 8-12 weeks later. We obtained: 1) teachers' assessment of children's behaviours, emotions and relationships with peers and adults (SDQ); 2) parents' assessment of children's affective and cognitive empathy (GEM); 3) children's emotion recognition. Analysis of within-individual changes, showed an increase in empathy, emotion regulation, prosocial-behaviour and emotion recognition. The result will be discussed in relation to theories of emotion regulation development and potential applications as therapeutic tools in the school context for children who are at a higher risk of developing emotional dysregulation and behavioural problems.~~

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Autistic traits modulate implicit egocentric bias.

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Adults with autism spectrum conditions differ from typically developing adults in aspects of social cognition, with dissociations reported between implicit and explicit mentalising. However, it is unknown whether similar differences occur for autistic traits in neurotypicals. Here, we assessed how autistic traits relate to mentalising measured by the dot perspective task. Across two online experiments, participants completed a self-report autism-spectrum quotient (AQ) scale followed by a dot perspective task that required judgements both from their own perspective and that of a human avatar. Errors were greater when the avatar's perspective was inconsistent with that of the participant, providing evidence of automatic intrusions from task-irrelevant mental states. These intrusions were found to be modulated by AQ via an exploratory analysis (N = 203) and then confirmed in a pre-registered replication (N = 260). Specifically, more intrusions occurred from the egocentric perspective for individuals with high AQ. By contrast, AQ was not found to modulate a measure of explicit mentalising (self vs other perspective judgments). These results reveal that in neurotypicals possession of autistic traits is selectively related to an implicit egocentric bias. We interpret this finding in relation to individual differences in attentional control or self-other distinction.

Testing the automaticity of oculomotor-working memory integration.

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It is often claimed that holding an item in visual working memory (WM) leads to a mandatory bias in the oculomotor system (Van der Stigchel & Hollingworth, 2018). While some evidence suggests this coupling modulates saccades even toward single, unambiguous targets (Hollingworth et al., 2013), the robustness of this effect remains debated. We tested this "mandatory coupling" hypothesis across spatial and feature-based domains in two experiments. In Experiment 1, participants held a location in WM while saccading to a peripheral target (1°–15° eccentricity) that was either spatially congruent or incongruent with the remembered location. Results showed robust effects of eccentricity on latency and accuracy (undershoot), but no modulation by WM congruency. In Experiment 2, we tested if this null effect extended to features. Participants held a colour in WM while saccading to a single-onset target that was either the same or a different colour. Again, no differences in latency or landing position were observed between congruent and incongruent conditions. Together, these findings suggest that while WM content may bias selection during stimulus competition, it does not inevitably influence motor programming for unambiguous targets. We suggest that oculomotor-WM coupling is not strictly mandatory but is recruited specifically to resolve competition.

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The role of statistical complexity in learning colour-orientation associations.

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A fundamental aspect of any intelligent system is its ability to learn from experience. However, the mechanisms by which the brain seamlessly and automatically develops statistical models of the world remain an open question in cognitive psychology. Observers tend to favour simple models that align with their observations rather than more complex but veridical ones. Yet, under the right conditions, they can still learn complex patterns. In this study, we used psychophysical and computational methods to investigate how statistical complexity influences learning. Participants viewed a coloured grating and compared either its orientation or colour to a reference. The frequencies of these features followed bimodal distributions, creating patterns in which certain colour-orientation combinations appeared more frequently. Some, but not all, participants learned these associations, exhibiting biases in their responses to an ambiguous stimulus in one feature based on the properties of the other. We used a probabilistic model to quantify the learned associations for each participant and examine how they were influenced by stimulus statistics of varying complexity. Our findings provide insight into how the brain balances simplicity and complexity when forming statistical models of the world.

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Does 'virtuality' affect the role of prior expectations in perception and action? Comparing weight illusions and sensorimotor prediction across real and virtual environments.

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Recent theories in cognitive science propose that prior expectations influence how individuals perceive the world and plan their actions. It is, however, unclear how prior expectations influence these factors in novel sensory environments such as virtual reality (VR). This study examines the impact of VR on prediction-related sensory perception and motor control during object lifting. We tested two competing hypotheses; the Low-Precision Priors (LPP) hypothesis suggests reduced influence of prior expectations in VR due to the novelty and uncertainty of the context, while the High-Precision Priors (HPP) hypothesis posits increased reliance on predictions relative to current sensory information. We employed a pair of weight illusion tasks (the size-weight and material-weight illusions) to isolate the effects of prior expectations on perception and action and to test whether VR alters their influence on weight perception and fingertip forces. Results revealed a dissociation: perceptual illusions were significantly attenuated in VR (supporting LPP), whereas predictive grip force scaling showed no difference between environments (supporting neither hypothesis). These findings suggest perceptual inference is highly susceptible to 'virtuality' whereas motor predictions remain robust, challenging the use of VR as a neutral research medium and highlighting potential complications for applications in training and rehabilitation.

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Spatial scene schemas can be flexibly used to guide gaze in visual search.

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Research on real-world scene processing demonstrates that people strongly rely on knowledge from life experience (schemas) about what to find where. This visual search study examined to what extent such reliance is flexible. We examined spatial knowledge by comparing target objects in schema consistent (expected) or inconsistent (unexpected) locations. Crucially, between participants, we manipulated the percentage of scenes (trials) with an inconsistent target to compare when schemas are beneficial (20%), neutral (50%) or detrimental (80% inconsistency) for performance. We recorded eye movements to examine moment-to-moment attention allocation for search initiation to target verification. A search advantage for consistent targets, with more initial saccades directed towards them and shorter scene scanning times, emerged similarly in the 20% and 50% conditions, but was absent in the 80% condition. This was driven by an improvement for inconsistent targets in the 80% condition, while performance for consistent targets remained stable. Consistency did not influence fixation duration on the target (verification). These findings suggest that scene schemas can be dismissed when detrimental for performance, with great flexibility subserving ongoing prediction error minimisation and dynamic reliance on updated knowledge about the task context. This contradicts previous accounts of an obligatory usage of schemas in scene processing.

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Prospects Broaden Perspective: High outcome expectations buffer attentional narrowing and goal disruption under resource scarcity.

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Resource scarcity narrows attention, a cognitive effect known as attentional tunnelling. This effect can perpetuate scarcity by diverting focus from important goals. The mechanisms driving this shift remain unclear. We propose that scarcity reduces outcome expectations, which in turn drive attentional narrowing and lower goal-directed behaviour. Across three preregistered experiments using a gamified flanker paradigm, we tested this causal chain. Studies 1a and 1b showed that scarcity lowered participants' expectations of success. These lower expectations were associated with more narrowly focused attention on stimuli representing scarce resources within the task. Study 2 manipulated outcome expectations using a within-subject's design to test causal effects. First it replicated that scarcity lowered participants' expectations of success at baseline. Then it showed that lower expectations caused attentional narrowing and reduced engagement with higher-order goal-directed stimuli within the game. Higher expectations promoted broader attention and preserved goal engagement. Together, these findings indicate that motivational shifts, rather than scarcity alone, drive attentional tunnelling under scarcity. They identify outcome expectations as a novel mechanism linking scarcity to attentional narrowing and disrupted goal pursuit. These findings open avenues for exploring ways to increase outcome expectations to buffer against attentional narrowing and goal neglect. Overall, the results advance our understanding of how motivational factors shape attention and goal-directed behaviour under scarcity.

Primed for Action: Context facilitates accuracy of action recognition but not gaze behaviours.

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Humans can reliably recognise actions from minimal visual input, yet the perceptual strategies supporting this ability remain unclear. We investigated how contextual cues influence visual attention and action recognition under minimal visual conditions. We previously identified Minimal Recognisable Configurations (MIRCs), videos sufficient for accurate recognition of egocentric kitchen-related actions. Here, participants (N=36) viewed MIRC or original videos and identified the action while eye movements were recorded. The stimuli were preceded by a static prime (400ms) taken from the middle frame of the original video. To manipulate the amount of context, the prime was unedited (full context), had significant objects in the scene removed, or phase scrambled to produce visual noise. We found high- and low-level features that predicted eye-fixations during action recognition. Furthermore, full-context primes increased recognition accuracy and reduced first fixation durations relative to visual-noise primes when viewing MIRCs, indicating facilitation from top-down contextual information. Lastly, categorical time-series analyses revealed no effects of priming on scanning extent and predictability, or transition frequencies between objects related to the actions (e.g. hand, cup). The results suggest that successful action recognition of minimal videos relies on selective fixation of critical features, while contextual priming affects performance rather than gaze behaviour dynamics.

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Exploring causality and sex/gender differences in spatial self-confidence and spatial performance.

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Sex/gender differences in specific spatial tasks, such as the Mental Rotations Test (MRT), are well documented. Numerous contributing factors have been examined, with recent studies highlighting the importance of individuals' beliefs in their spatial abilities. However, no study has directly manipulated these self-perceptions to assess their causal impact on cognitive performance. The present study investigated whether feedback could alter participants' spatial self-efficacy and spatial self-confidence, and, in turn, MRT performance. Participants (n = 462; 98 cisgender men, 364 cisgender women) completed the MRT and were randomly allocated to receive positive, negative, or no feedback halfway through. Self-perceptions of spatial ability and performance were measured before and after feedback. Results revealed that feedback influenced cognitive performance similarly regardless of sex/gender, but cisgender women were more likely to lower their spatial self-perceptions after feedback and in its absence. All feedback types affected self-perceptions, but only false positive and true negative feedback altered cognitive performance. Notably, while both types of feedback benefitted performance, the effect of false positive feedback was mediated by increased self-confidence, whereas that of true negative feedback was unrelated to self-perception. The findings suggest that feedback influences self-perception and cognitive performance through distinct mechanisms depending on its valence and accuracy.

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Effects of difficulty on mind wandering during narrative and expositional texts.

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Mind-wandering is assumed to be suppressed in demanding tasks, but some evidence indicates a different effect of difficulty for reading. Since semantic representations are engaged both during reading and in thought, easier texts that allow more automatic access to semantic information may reduce mind-wandering. This suggests that the nature of the semantic information accessed during reading can shape the patterns of thought and that differences in text difficulty may modulate mind-wandering frequency. In the present study, participants completed two reading experiments involving factual texts and short stories, with text difficulty manipulated. Results showed that, for both experiments, hard texts elicited more mind-wandering. Using multi-dimensional experience sampling, we identified four types of thoughts during text reading: future problem solving, intrusive social thought, knowledge retrieval, and deliberate detail. These thought experiences varied across text difficulty and text type. Notably, task-unrelated "future problem solving" was associated with poorer comprehension, whereas "deliberate detail" was linked to better comprehension, particularly for factual texts. These results provide a potential explanation for the common observation that it is relatively easy to maintain focus while reading novels, whereas reading factual materials, such as textbooks, is often accompanied by more frequent off-task thoughts that impair comprehension.

Predictions and outcomes independently shape the subjective experience of regret.

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Humans have the capacity to feel a subjective sense of regret – a rather sophisticated emotion that involves counterfactual simulation of paths not taken. Pathological levels of regret, as in states like rumination, are a hallmark of multiple psychiatric conditions. However, little is understood about how subjective feelings of regret connect to the learning and inference processes we use to make decisions – and how alterations in these processes may explain atypical experiences of regret. Here, we developed a reward learning two-arm bandit task with sporadic probes for post-choice regret and administered it online to healthy participants. Rescorla-Wagner reinforcement learning modelling revealed that subjective feelings of regret were closely and independently tied to evolving beliefs about action values and trial outcomes and this result was also subjected to a pre-registered replication. Additional factor analyses revealed how the processes studied in these tasks connected to rumination symptoms. Our findings provide a mechanistic perspective on how the subjective

experience of regret arises through internal monitoring of basic learning and inference processes. This project was undertaken as part of the UCL-Birkbeck MRC-DTP PhD program, generously funded by the Medical Research Council, under the grant reference MR/W006774/1.

A Meta-Reasoning account of Goal-Sensitive Control: Correcting or Rationalising Intuition.

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The role of intuitions in normative reasoning is central to current theoretical debates, yet the subsequent deliberative processes remain theoretically underspecified and poorly understood. Many dual-process theories reduce deliberation over reasoning problems to its error-corrective function: detecting, suppressing, and correcting incorrect intuitions. However, some research suggests that correct responses often emerge intuitively, whereas deliberation often constructs rational justifications for intuitions rather than corrects them. Here, we proposed and tested a meta-reasoning account based on the expected value of control, which predicts when and how different deliberative functions are activated. Specifically, deliberation corrects or rationalises intuitions depending on reasoning goals and the cost-benefit analysis of cognitive control signals. Using a two-response paradigm, we investigated the corrective and rationalising decisions following intuitive responses in subsequent deliberation when reasoning over problems that prompt appealing but incorrect intuitions (i.e., cognitive reflection problems) while manipulating rewards for different cognitive control. We found supportive evidence for the account. Our framework reconciles conflicting findings and provides a more nuanced account of deliberation by unpacking its motivational mechanisms. We discuss how understanding when deliberation impairs or improves accuracy has implications not only for theories of reasoning but also for addressing societal challenges.

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Alpha desynchronization increases with alertness in the avian brain.

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When humans (and other mammals) become alert, EEG power in the alpha frequency band (8-12 Hz) drops; a phenomenon called Alpha Desynchronization. This is ascribed to a decrease in local cortical inhibition and cortical-thalamic interactions. Birds show similar cognitive abilities to mammals, but their brains are organized very differently: while they have a thalamus, their forebrain does not have a cortical organization. We recorded local field potentials in the amygdala, hippocampus, and prefrontal-cortex-like area of 7-week old broiler chickens. When the experimenter entered the housing room, power in the 4-12 Hz band (around human alpha) would significantly drop. The magnitude of the drop was correlated with the magnitude of heart rate increase at the same time. Alpha power was also lower when birds showed behavioural evidence of spontaneous alertness. When we provided a favoured food, alpha power would be higher while eating, but then drop while the birds were anticipating the next food items. We conclude that in birds, like in

mammals, alpha desynchronization is associated with alertness and attention. This implies that similar circuitry exists in avian and mammalian brains to control alpha oscillation. Whether this similarity is due to evolutionary conservation or convergent evolution remains to be determined.

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How pigeons discriminate between paintings by different artists.

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We revisited a classic (Ignobel prize-winning) experiment by Watanabe et al. (1995), using more recent techniques of behaviour and image analysis. Using multiple-stimulus presentation on touchscreens, pigeons were trained in a categorical discrimination between pictures painted by different artists. For 4 pigeons, the artists were Monet and Van Gogh; for 4 others, they were Monet and Manet. All pigeons learned the task to high accuracy, though the Monet/Manet discrimination was more difficult. In training, 20 pictures by each artist were used. The bases for the discrimination were explored by analysis of peck locations during acquisition, and by transfer tests after performance was asymptotic. During acquisition, the pigeons tended to peck pixel regions with higher than average intensity of the colours that distinguished the artists. In the case of some images and some pigeons, pecks were concentrated on distinctive details of the pictures. Transfer tests involving new instances, rotated, monochrome and spatial-frequency filtered stimuli suggested that in the Monet/Van Gogh task, pigeons relied almost wholly on colour differences, whereas in the in the Monet/Manet task they were making some use of memory for the shape of local details. An online simulation of the experiment will be available for colleagues to try.

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24th EPS Mid-Career Prize Symposium.
Flexible Semantic Cognition.
Organised by Rebecca Jackson.

Decoding semantic representations in human brains and computational models.

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Multiple sources of convergent evidence have implicated the anterior temporal lobes as playing a central role in the representation of coherent, generalisable concepts. The structured degeneration of concepts, as observed in patients with semantic dementia, provides strong clues about the likely nature of anterior temporal lobe (ATL) representation. For more direct probing of this same ATL system, evidence from contemporary decoding methods is needed. In a series of studies, we have undertaken decoding analyses of ATL data collected from cortical grid electrode recordings collected from neurosurgical patients. Successive innovations in the analytical methods have allowed us to gradually reveal increasing detail about the information coding in the ventral ATL (Chen et al., 2006; Rogers et al., 2021; Cox et al., 2024). Importantly, by directly pairing these analyses of the human data with decoding of the hub-and-spoke computational model of semantic representation, we have been able to align "open science" theoretical accounts with the form of decoding adopted (see Frisby et al., 2023).

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Semantic control and semantic representations are functionally separated over space and time.

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Successful semantic cognition depends upon the performance of two difficult goals with opposing demands. We must simultaneously extract coherent concepts across contexts in a noisy environment, and use these concepts in flexible, context-appropriate ways. How does the brain balance these conflicting demands? A series of neuropsychological investigations led by Jefferies & Lambon Ralph, identified two contrasting impairments of semantic cognition differentially affecting these aims. Semantic dementia results from damaged conceptual representations, while semantic aphasia affects the ability to use these concepts in a flexible and task-appropriate manner. Convergent evidence from neuroimaging studies confirmed a functional separation between semantic control and representation within the cortex. I will present computational modelling demonstrating why this (relative) functional separation is necessary for the semantic system. Moreover, these modelling efforts demonstrate distinct benefits of these processes separating over time as well as space. Despite the need to act in a task-appropriate manner in the mature system, developing semantic control abilities later than semantic representation dramatically reduced the overall time needed to learn flexible semantic behaviours. Initial meta-analytic evidence suggests that context-sensitivity does indeed develop later than conceptual knowledge in human children, with large increases between 3 and 6 years. Together, the structural connectivity of the semantic system and the late maturation of semantic control conspire to promote the contrasting goals of conceptual learning.

Semantic control across the adult lifespan: From network organisation to causal relevance.

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Semantic memory, the knowledge of objects and concepts we acquire across the lifespan, is central to communication and our understanding of the world. It typically remains stable and continues to develop into advanced age. However, the age-related decline in semantic control processes, which guide the retrieval and use of semantic knowledge, raises intriguing questions about the interplay between semantic cognition and executive functions.
In this talk, I will explore how control processes shape the efficient and goal-directed access of semantic memory throughout the adult lifespan. Through a multimodal approach, combining neuroimaging, neurostimulation, and behavioral experiments, I will uncover the neural mechanisms underlying semantic cognition and its interplay with executive networks. Advanced analytical methods such as functional connectivity, graph theory, and time series analyses are used to capture age-related changes in the neural network architecture and their behavioral implications. TMS findings provide causal evidence for shared and dissociable roles of inferior and medial frontal cortices in verbal versus non-verbal semantic control. In parallel, ageing results indicate substantial neural reorganization within these control networks, even when semantic performance is maintained, consistent with adaptive reweighting of semantic–executive network interactions. This integrative account specifies when reconfiguration may support compensation and why preserved semantic knowledge can scaffold cognitive resilience in older adulthood.

Contextual modulation of object perception and memory.

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How do we understand what we see? Recognising objects depends on dynamic transformations of neural states, from those reflecting visual inputs to semantic representations. Models of meaningful object recognition have tended to focus on the perception of specific objects without considering how the preexisting environment might shape those neural processes. In the real world, however, we don't see objects in isolation. When we see an object, we are already in a complex and rich environment, which leads to expectations about the kind of things we may see. Based on our recent MEG and EEG studies, I will show that the visual context creates expectations that influence how the brain processes an object's meaning. I will also present behavioural evidence that recognition memory for objects depends on their semantic properties - such as how distinctive the concept is - and these effects vary depending on the congruency with the scene context. These studies demonstrate that the environment we experience objects within both impacts how we recognize objects, and whether we later remember those items with the semantic properties of objects playing a vital role in both aspects.

When creativity loses control: what semantic aphasia reveals about creative cognition.

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Creativity depends on the interplay between spontaneous associative activation and top-down semantic control. Semantic aphasia (SA) patients retain conceptual knowledge which can be accessed automatically, but show marked impairments in guiding, constraining, and evaluating semantic retrieval. We examined these deficits in the context of creative potential and creative performance. In our first study, SA patients completed generative category fluency tasks under minimal control demands. Despite executive–semantic deficits, patients showed preserved creative potential, were more likely to produce unique responses, and were judged comparably creative to controls. These findings indicate that spreading activation alone can support creative potential when task goals are unconstrained. Our follow-up investigation extended this work to intentional creativity, evaluative judgements, and flexibility. When explicitly instructed to "be creative", SA patients showed clear impairments: reduced uniqueness and reduced rated creativity. They also showed poor insight into what was a creative response, and showed an inflated acceptance of implausible ideas. Finally, they showed a markedly decreased ability to flexibly switch between ideas. These results reveal impairment in creative performance where tasks depend on control mechanisms. These studies show that creativity in SA is task-sensitive: spontaneous associative processes remain intact and can lead to creative potential, but controlled creative cognition is substantially disrupted.

What can cortical topography reveal about human cognition?

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I will show that large-scale cortical organisation provides a principled framework for understanding higher-order cognition by focusing on four core topographical features. First, regions positioned between functionally distinct cortical zones often exhibit a "betweenness" property: topographically intermediate areas tend to express functional hybrids, integrating features of adjacent systems (for example, regions between visual- and auditory-specific cortex supporting multisensory representations that blend visual and auditory features). Second, transmodal territories (e.g., the middle section of the inferior parietal gyrus) are physically more distant from primary unimodal anchors (e.g., V1, A1, S1), and this increased geodesic distance provides the anatomical space that enables cross-modal convergence, such that greater distance from unimodal cortex predicts greater transmodality. Third, this hierarchical arrangement maps onto representational abstractness: unimodal cortex encodes concrete, stimulus-bound information, whereas progressively more transmodal regions encode increasingly abstract, context-level features of tasks, with gradient peaks supporting the most abstract aspects of cognition. Fourth, transmodal regions exhibit contextual flexibility, dynamically shifting their connectivity profiles according to task demands and integrating distributed information across networks. Drawing on evidence from studies of cognitive control, semantic knowledge, and multisensory mental imagery, I will present evidence about how these four principles – betweenness, distance, abstractness, and flexibility – jointly explain why association cortices, including the angular gyrus, anterior temporal cortex, and dorsomedial prefrontal cortex, play a central role in memory-guided cognition and stimulus-independent thought. Together, a topographical perspective offers a unifying account linking macroscale cortical geometry to the neural basis of high-order cognition.

End of Symposium

Social and communicative traits in autistic and non-autistic adults from diverse language backgrounds.

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Autism spectrum disorder is a neurodevelopmental condition characterised by, amongst others, social and communicative challenges. Emerging evidence suggests that bi/multilingualism may enhance social interaction skills in autism[1,2], yet prior research has largely focused on children, used small samples and oversimplified monolingual–bilingual groupings. In contrast, Wang et al.[3] found minimal influence on social communication, leaving the impact on autistic traits, especially in adults, unclear. 459 participants (18-68 years; mean = 30.46, including 132 with autism diagnoses and 200 bi/multilinguals) completed the Comprehensive Autistic Trait Inventory (CATI[4]), which measures social interaction, communication, and other traits. Multilingualism was operationalised as current language entropy[5]. We predicted higher entropy would relate to lower CATI social interaction and overall scores, but not communication scores. Higher language entropy predicted reduced social interaction traits (ß=-0.22, p<.001; ηp^2=.04) and overall CATI scores (ß=-0.12, p=.001; ηp^2=.02), with strongest effects in diagnosed autistic adults (ηp^2=.14–.18). No effects were observed on communication. Findings suggest multilingual engagement is associated with reduced social autistic traits in adulthood. Implications include potential underdiagnosis of multilingual autistic individuals and potential benefits of promoting multilingualism to support social functioning. Underlying sources of the relation may involve enhanced executive function, Theory of Mind[2,6], and/or social self-efficacy[7].

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Temporal prediction in a novel nonword segmentation task.

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Lengthening of word onset consonants directs listeners to boundaries within speech [1]. Using a novel nonword segmentation task, we examined whether listeners' interpretation of such timing cues requires predictive processing based on foregoing speech rate [2]. In Experiments 1-4, listeners heard 12-syllable nonsense utterances (e.g., "dumipakolibekubinudafolu") containing trisyllabic nonword targets (e.g., "libeku") in Early, Medial, or Late positions. Timing cues varied across three (diphone-synthesised) conditions: Flat baseline – all segments 120ms; C1 – longer target-initial consonants (170ms); C2 – longer second-syllable onsets (170ms). In (lab-based) Experiments 1-2, target probes followed utterances, with differential timing effects only for Late targets, suggesting that lengthening cues are detected only after sufficient utterance exposure facilitates listeners' temporal predictions. Experiments 3-4 (online) used target probes prior to utterances and again showed Timing × Utterance interactions, potentially confounded by learning and attention effects. Experiment 5 reverted to post-utterance probes, added three syllables at the start of each utterance, and modulated attention through trial-by-trial feedback. Reliable C1 cue use was found for Medial targets, now the same temporal distance from utterance onsets as Late targets previously. This supports our interpretation of temporal predictions arising from accumulated utterance exposure. Ongoing work examines how task demands modulate position-dependent use of timing cues.

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Age-of-acquisition affects object recognition and compound word identification: Evidence from visual duration thresholds and progressive demasking.

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Items acquired during childhood are processed more quickly and accurately than those acquired during adulthood, a phenomenon known as the Age of Acquisition (AoA) effect. One explanation is that the AoA effect results from the arbitrary nature of the input-output mapping during the development of a lexical-semantic representation. However, previous behavioural studies have not directly compared the AoA effects in pictures and word processing. To investigate this, 48 British English students completed a visual duration threshold task and four variations of progressive demasking experiments. In these tasks, participants were shown 150 compound words, either unspaced or spaced, while attempting to identify the modifier, head, or the full compound word. In

addition, in Experiment 4, we used a visual duration threshold task (VDT) for 150 objects that represented 150 compound words in order to assess the mapping theory. We observed that early-acquired items were identified more quickly than late-acquired items across all tasks, including the VDT. The AoA effect was strongest for PDT with unspaced and spaced compound words, followed by the VDT for pictures and PDT with component identification for spaced compound words. The only exception was the PDT with component identification of unspaced compound words, where the effect was not present. These results align with the integrated account, as the AoA effect is rooted in semantic representation during word identification but is also influenced by the connection between perception and semantics in the VDT.

Reduced visual search efficiency can discriminate between Progressive Supranuclear Palsy and Parkinson's Disease.

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Nearly half of individuals with Progressive Supranuclear Palsy (PSP) are initially given an alternative diagnosis (most commonly Parkinson's disease). Correct diagnosis of PSP is delayed by an average of three years compared with Parkinson's disease (PD). A handful of studies indicate that visuospatial attention is impaired in PSP, but no studies have systematically compared visual search in PSP and PD. In our study, people with PSP (N = 28), PD (N=28) and age matched controls (N=27) completed 3 single target search tasks: easy feature search, difficult feature search, conjunction search, and a multiple target search. Perceptual sensitivity was largely preserved, but search was significantly slower and less efficient in PSP than the other groups. Reflexive orienting along the vertical axis was also impaired in the PSP group. The PD group were slower than AMC but more efficient on the multiple target search. Critically, ROC analyses revealed that the Quality of Search score classified PSP and PD with a sensitivity of .82, specificity of .96 and AUC of .92. These data suggest that PSP is associated with a profound visual search impairment, and that multiple target search tasks may have potential for differential diagnosis of PSP.

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Is looming motion the 'impossible' stimulus? Evidence for asynchronous diffusion in visual search.

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In visual search experiments, inferences about attentional movements are conventionally based on differences in slope (RT × N), whereas intercept differences are attributed to processes occurring either side of attentional selection. We have previously reported that targets looming towards the observer produce identical slopes to those receding away, but with reliably shorter intercepts. Following convention, we concluded that identical slopes result from attentional capture by motion per se, while shorter intercepts reflect motor priming by looming motion. The present study tested the motor hypothesis across four experiments that isolated perceptual sensitivity and minimised motor involvement. Surprisingly, the distinctive slope-intercept pattern persisted, suggesting that the intercept advantage for looming motion reflects more efficient perceptual processing. We discuss these findings as the first behavioural evidence of parallel processing during item recognition and as support for asynchronous diffusion – a central component of Guided Search theory previously considered 'impossible' to verify.

Visual search for communicative interactions: Greater search efficiency and distinct scanpaths.

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Existing evidence indicates that the human visual system processes interacting agents as a unified whole, rather than each agent independently, to infer social interactions. Key evidence includes findings of more efficient search for a dyad in which the people face each other, when presented amongst non-facing distractor dyads, than search for a non-facing target among facing distractors. In these studies, facing direction serves as a proxy for interaction, but evidence of search asymmetries for dynamic interactions is lacking. Our study employed dyadic point-light displays of communicative interactions and independent actions. Across two experiments, participants judged the presence or absence of a target dyad among varying numbers of distractors while manual responses and eye movements were recorded. Experiment 1 revealed that communicative interactions were detected more accurately and rapidly than independent actions on target-present trials, with shallower search slopes and smaller search time intercepts, indicating greater search efficiency. Eye-tracking analyses showed shorter gaze durations on communicative targets and distinctive fixation patterns that allowed above-chance decoding of search type. Experiment 2 manipulated facing direction to disrupt spatial contingencies. Findings support the hypothesis that spatiotemporal contingencies in social interactions enhance attentional prioritization, consistent with Gestalt-like processing of interactive actions.

24th EPS Mid-Career Prize Lecture.

Semantic control as a distinct and flexible system for regulating meaning.

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Semantic cognition enables us to interpret ambiguous language and situations, generate creative associations, and select context-relevant features of knowledge. Because concepts are richly structured, adaptive thought requires mechanisms that regulate which aspects of knowledge are retrieved. Although this regulation has often been attributed to domain-general executive control, convergent evidence indicates that it depends on distinct semantic control processes. Semantic and non-semantic control impairments are associated with dissociable patterns of structural disconnection in semantic aphasia: disruption within a left-lateralised semantic control network versus interhemispheric prefrontal disconnection. Functional neuroimaging provides convergent topographical, univariate and multivariate evidence for this dissociation in control systems. These regions occupy an intermediate position between default mode and multiple-demand systems, show selective increases in activation for demanding semantic decisions and, unlike multiple-demand regions, do not cross-classify difficulty across semantic and non-semantic contexts. Finally, regulation of meaning operates through flexible changes in connectivity. During retrieval of strong associations, semantic control regions increase coupling with the default mode network, whereas weaker, context-specific associations are accompanied by enhanced connectivity with attention and sensorimotor systems. These findings suggest that semantic control is defined not only by regional localisation but by dynamic shifts in large-scale network configuration that support flexible, context-sensitive thought.

Recall Me Maybe: The impact of temporal segmentation on free recall.

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Research suggests that spatiotemporal boundaries enhance recall (Logie & Donaldson, 2021). However, it is unclear whether this reflects the boundaries themselves or the post-encoding processes they enable (e.g., resource replenishment). Across four experiments, participants learned word lists in a virtual environment while spatial and temporal features of encoding were varied. Words were presented either in one room (spatially non-segmented) or across several rooms (spatially segmented). Within the spatially non-segmented conditions, we introduced several temporal or task-based variations either between individual items or groups of items. These intervals were designed to provide one of three formats: free time, task-based activity, or a mixed sequence that included both. We found that free time improved memory across experiments, regardless of whether it occurred between items or groups of items, and regardless of whether it coincided with a change in spatial location. Across manipulations, the pattern of results was most consistent with free time supporting the replenishment of encoding resources. These findings suggest that the improved recall observed in previous work can be attributed to free time itself and the cognitive processes it affords, rather than to temporal boundaries.

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What do we remember when we're wrong: Memory for unexpected words and their surrounding context.

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Prediction error (PE) is said to support memory encoding (Henson & Gagnepain, 2010; van Kesteren et al., 2012). However, findings are mixed (Hubbard & Federmeier, 2024; Gambi et al., 2024; Höltje & Mecklinger, 2022), and few studies have examined PE's effects on episodic memory. We conducted a two-phase experiment with a 24-hour delay. During training, participants heard sentences that biased them to have either a strong or weak prediction for a specific word. Instead of that predicted word (lure word), they were presented with a plausible but unexpected alternative, which either strongly violated their prediction (high PE) or weakly violated it (low PE). Their memory was then tested using word recognition and semantic relatedness judgement task. Word recognition data show no significant difference between strongly and weakly violated words, providing no clear evidence that PE enhances word memory. In relatedness judgement, although there is no simple effect of PE, the significant interaction between sentence plausibility and PE suggests their joint influence on episodic memory. Additionally, reaction time results further suggest that PE supports forming episodic traces, linking the lure (predicted but unseen words) with the unexpected words encountered.

When words leave a trace: Language improves episodic memory for scenes.

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Language is deeply intertwined with other cognitive processes, including memory. Linguistic labels have been demonstrated to both impair memory by biasing representations toward category prototypes (Lupyan, 2008), and enhance it by promoting more distinctive encoding (Richler, Palmeri, & Gauthier, 2013). Here, we examine how language comprehension and production shape long-term visual memory, focusing on the complementary roles of information compression and distinctive processing. Across a series of experiments using a shared dataset of real-world scene images, participants completed a recognition memory task for images encoded in one of three conditions. One experiment compared hearing a basic-level category label, hearing a brief image description, and passively viewing the image, whilst another compared speaking a self-generated label, reading a provided label, and performing a search task. Memory was significantly improved when scenes were accompanied by self-generated labels or heard descriptions compared to proffered category labels either heard or read aloud. All language conditions outperformed the non-linguistic tasks. Crucially, descriptive language not only increased hit rates but also significantly reduced false alarms, showing that language enhances visual memory not merely by strengthening representations, but by making them more distinctive and resistant to confusion, highlighting language as a powerful mechanism for structuring episodic visual memory.

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How emotional valence impacts episodic memory is altered by stimuli presentation order using a real-world what-where-when memory task.

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There is a lack of consensus for how emotions impact episodic memory, particularly the relative contributions of emotional valence (positive/negative) and arousal. Whilst evolutionary theories suggest a practical, survival-based advantage to encoding and recalling negative stimuli, emotional modulation (McGaugh, 2004) theories explain this advantage via enhanced consolidation processes. Emotional mediation theories (Talmi, 2013) suggest this advantage is driven by arousal, and when balanced, emotional stimuli will be better recalled supporting the theory of Enhanced Emotional Memory. The ecologically valid Real-World What-Where-When task (Holland & Smulders, 2011), which incorporates spatial and temporal elements critical for episodic memory, was adapted to include emotional stimuli as objects. When valence and arousal were carefully balanced, the

emotional memory advantage shifted from negative to positive, highlighting a particularly important role for remembering locations. Experiment 1 (N=46) found a distinct memory advantage for negative stimuli consistent with evolutionary and emotional modulation theories. In Experiment 2 (N=32) emotional valence and arousal were balanced and a pseudorandom presentation order utilised producing an advantage for positive stimuli. A GEE analysis explored how objects were bound to locations, finding memory for Location was altered, with neutral locations shifting from being worst remembered in Ex1, to best remembered in Ex2.

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The role of decomposition in the learning of (pseudo)compound words, from stanbish to durehime: An eye-movement investigation.

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A large proportion of vocabulary is acquired incidentally through reading. We examined the role of individual differences in reading ability, vocabulary size and morphological awareness on the incidental learning of pseudocompound words. In English, morphological units can be thought of as either semantically transparent (e.g., campfire) or opaque (e.g., flapjack). Morphological transparency is associated with consistent meanings of constituent lexemes, and opacity is associated with inconsistency. We mimicked these properties using meaningful sentences with embedded constituent lexemes (e.g., “dure”, “hime”), pseudocompound words (e.g., “durehime”), and target words (e.g., durecuff). This experiment used eye-movement recordings and a categorisation-based output task to assess processing and semantic consolidation of target words. Results indicated that semantics of transparent pseudocompound words were integrated more robustly than opaque pseudocompound words. We also found that semantically transparent items were processed more efficiently when participants had previously encountered their constituent lexemes. Individual differences in vocabulary size predicted variance in eye-movement behaviour more strongly than reading ability. Although morphological awareness did not significantly influence eye-movement measures, higher morphological awareness was associated with more accurate semantic integration. Taken together, this suggests morphological awareness affects semantic consolidation of novel lexical representations, even when lexical processing appears unaffected.

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Morphologically motivated phonographic inconsistencies delay the encoding of handwritten words in beginning and advanced German writers.

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We investigated how morphologically motivated inconsistencies in phoneme-grapheme mappings affect encoding processes in handwriting in German. We asked 3rd/4th graders, 6th graders, young adults (18-23 years), and middle-aged adults (40-65 years) to copy target and filler words from a computer screen onto a graphic tablet. As target words, we compiled pairs of words with identical voiceless final phonemes, such as [t], with one word being spelt with the default consonant spelling and the other with a non-default spelling (e.g., WELT [velt], 'world' and WALD [valt], 'wood'). Based on tablet recordings, we coded stroke durations and inter-letter-interval (ILI) durations. Mixed effect models with letter position/ILI, word type and their interaction as fixed effects yielded significant effects of consistency on average stroke durations for the last and the penultimate letter positions in most groups. Across groups, the inter-letter interval durations preceding the penultimate letter were longer in words with non-default final consonant spellings. These findings suggest that across age groups, spelling consistency affects the encoding of handwritten words at the level of letters and syllable segments. Supplementary analyses indicated that consistency effects may differ between primary school children depending on the method of spelling instruction they had been exposed to.

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Compensation mechanisms in adult developmental dyslexia in English and Greek.

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University students with dyslexia are often described as ‘compensated’, raising the question of which skills support their reading, despite their persistent phonological difficulties. We investigated whether Morphological Awareness (MA) had a compensatory role in literacy skills in English and Greek, two languages of differing orthographic transparency, using closely matched measures. In English, hierarchical regressions showed that MA explained unique variance in reading comprehension in dyslexia (n=53), beyond phonological, decoding, orthographic, vocabulary and reasoning skills (ΔR^2=.11, p=.01). In controls (n=68), comprehension was predicted by vocabulary and reasoning, with no additional contribution from MA. Quantile regressions on reading resilience (a refined index of comprehension accounting for phonological decoding skills) revealed a double dissociation: MA predicted resilience across lower and middle quantiles in dyslexia, whereas vocabulary was the key predictor in controls. In an exploratory Greek study (dyslexia n=19, controls n=45), MA showed no unique effects. In both groups, word reading was primarily associated with phonological decoding, while spelling was driven by orthographic skills. Estimates of predictors of reading resilience were imprecise. Overall, English findings support morphological compensation in dyslexia, while Greek findings provide preliminary insight on the psycholinguistic skills associated with reading and spelling in a transparent orthography. Cross-linguistic patterns will be discussed.

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The Reading Between the Lines Project: Co-reference processing in autistic and non-autistic readers.

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The Reading Between the Lines project aims to understand the time course of inference generation for autistic readers. In this first experiment autistic and non-autistic participants read sentences containing a cataphoric pronoun (he/she) and two noun phrases (NP1 and NP2) that were morphologically marked for gender (e.g., waiter and waitress). We manipulated NP1 to be gender consistent or inconsistent with the pronoun. Eye-movements were recorded whilst participants read these sentences, answered comprehension questions, and rated their response accuracy certainty. Global eye-movement measures demonstrated similar disruption in autistic and non-autistic readers when NP1 was inconsistent with the pronoun. Local eye-movement measures for NP1 and NP2 spillover regions indicated a delay in the onset of this disruption for autistic readers (first appearing in regressions and go past time) relative to non-autistic readers (first appearing in first fixation duration). Comprehension accuracy and certainty was high for both groups, and re-reading behaviour during these tasks was guided by question type and response decision. Results indicate that autistic and non-autistic readers form co-reference links and share a bias to assign a cataphoric pronoun to NP1 over NP2, but the timing of this process is delayed, suggesting differences in validation processes during first-pass reading in autism.

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Is our perception of white influenced by our phone screens?

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The visual system forms priors for familiar objects, as observed in the memory colour effect, where achromatic objects appear tinted toward their characteristic hue. It remains unknown whether the visual system forms priors to objects whose colours are dynamic; such as the displays of our phones. If we form priors to our phone displays, white adjustments will approximate display characteristics rather than the ambient illumination. Our experimental paradigm involved participants (N = 323) making white adjustments on their phones using a custom-made application. We characterised the displays of a subset of participants (N = 41) to control for individual variations in device displays. We calculated mean perceptual distance (ΔEab) of white settings from both, the display's whitepoint, and the ambient illuminant in the testing room. A Bayesian paired t-test comparing ΔEab across these two models showed strong support for the alternative hypothesis that the device whitepoint (meanΔE = 0.744) is a better predictor of white settings than the illuminant chromaticity (meanΔE =

20.092), which supports our hypothesis that white settings approximate device gamut. Our findings were successfully replicated in a subsequent experiment (N = 276) and have implications for colour psychophysics and in understanding implicit learning in interactions with technology.

Perceptual judgements under temporal visual constraints in table tennis.

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In high-speed ball sports, a key ingredient for success is the capacity to identify and use the visual features of an opponent's movement to anticipate potential future events (i.e., 'advanced cues'). Studies of tennis and badminton suggest that elite athletes can use advanced cues from arm, torso, and leg position to accurately predict an action outcome. However, few studies have examined advanced cues in table tennis and those which have done so have exclusively examined the forehand stroke. A series of studies explored how elite (Chinese provincial, national & Olympic level), intermediate (Chinese district level), recreational (social level), and novice (university level), table tennis players (n=14/group) used advanced cues when responding to forehand and backhand strokes and serve. Participants were shown temporally occluded videoclips of a player striking the ball (T1 = -250ms, T2 = -125ms, T3 = 0ms/paddle-to-ball contact, T4 = +250ms) and had to predict the landing position of the ball with a left or right button press. Results showed that expert advantage was present at different times for forehand and backhand, and only for the most elite group. Participants were also asked about where they looked, and this social validation data suggested experts looked at the face, not the racquet, which was different to other groups. On a practical level, these results suggest coaches should encourage players to look at their opponents' gaze direction to improve their ability to predict where a ball will land.

Expectation-led perception and hallucinations.

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Hallucinations are often associated with a diagnosis of schizophrenia, but also occur in non-clinical populations, where they tend to be less distressing and more controllable. Self-report scales also show variation across the general population in hallucinatory experiences (HE), which are reported as more fleeting and less frequent. Propensity towards HE across these groups seems to be associated with common underlying cognitive processes. Here, I will describe a series of experimental studies in which we investigated expectation-led perception (i.e., top-down processing) and its links to hallucinations using an auditory signal detection paradigm, in which participants were instructed to detect a voice stimulus in white noise. In a large multisite study (N = 594), we demonstrate that 'false alarm' responses on this task are associated with self-reported HE. In an experimental study (N = 209), we then manipulated pre-task stimulus exposure, showing that prior knowledge of the stimulus led to an increase in false alarm responses, associated with a change in response bias but not in task sensitivity. Next steps will involve manipulation of stimulus ambiguity alongside exposure to the stimulus to investigate the exact conditions under which prior knowledge may be relied upon to elicit hallucination-like experiences.

New sensory cues to location reveal individual differences in multisensory integration.

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The ability to benefit from multiple sensory cues by integrating them varies greatly from one person to another. Training participants with a new cue limits the influence of unisensory differences on the variability of these integration benefits, and could therefore help unravel the properties of multisensory integration. Across two experiments, we studied the ability to integrate familiar and newly learned cues to depth across two sessions. We investigated multisensory performance after participants (N=60) learned to use a new cue within a 1-hour training session. We also performed individual-level analyses of eight observers in a longer, 10-12 hours training phase. Both studies confirmed the existence of stable individual differences: Only half of the participants showed significant multisensory benefits before and after training. Overall, these results showed that multisensory benefits vary from one individual to another. These differences also seemed to persist over time, hinting at substantial stable intra-individual variability in integration. These intra- and inter-individual variabilities suggest that the ability to optimally integrate multisensory signals may depend on both the individual and the types of cues. Results from a large-N study involving multiple audiovisual pairs of cues over two sessions will characterise more precisely the stability and domain-generality of multisensory integration.

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Implicit belief tracking in adults.

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A central and highly debated question in Theory of Mind research concerns whether mental state tracking occurs implicitly, such that it operates even in the absence of explicit instruction or task relevance. In prior work (O'Connor et al., 2024), participants viewed video clips depicting a moving target object and an agent who held either true or false beliefs about the object's location. We demonstrated that the belief the agent held influenced participants' RTs to report where that object was in reality. Across three online experiments, the present research investigated whether this belief-interference effect persisted when explicit prompts that required participants to attend to the agent's mental state were removed. Experiment 1 replicated the original effect observed in O'Connor et al. (2024). Experiment 2 demonstrated that the effect persisted even in the absence of any requirement to attend to the agent's mental state. Experiment 3 showed that the effect was abolished when participants were no longer required to sustain attention to the agent throughout the full video sequence. Together, these findings provide converging evidence for implicit mental state tracking. Upcoming experiments investigating whether these data are best explained by implicit knowledge attributions, belief attributions, or non-social factors will also be discussed.

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Knowledge and ignorance processing is faster than belief processing.

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It has been recently claimed that processing knowledge and ignorance, rather than beliefs, forms the foundation by which we understand other people's mental lives: knowledge and ignorance processing are therefore more basic than belief processing. We tested this claim across three experiments, measuring how fast participants could attribute different mental states. Participants were presented with statements regarding what objects an agent knew or believed were present in a scene, followed by an image which varied by whether the agent was knowledgeable and had a true or false belief about those objects. Participants' RTs to respond to whether the statement correctly matched the image were recorded. Experiments 1 and 2 compared RTs for knowledge and belief statements when the agent in the image was both knowledgeable and had a true belief. Across both experiments, participants were significantly faster to respond to knowledge than belief statements. Experiment 3 compared RTs for ignorance ("He does NOT know") and negated-belief ("He does NOT think") statements when the agent in the image was ignorant and had a false belief. Participants were significantly faster to respond to ignorance than negated-belief statements. Overall, these results suggest that knowledge and ignorance are more basic mental states than belief.

Social interactions influence subjective awareness reports.

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Humans are fundamentally social creatures, yet how our social context moderates the content of perceptual experience remains unknown. Previous studies have shown how individuals share metacognitive feelings of confidence in social settings, resulting in a 'matching' process where an individual's private sense of uncertainty shifts towards that of a partner. In this work, we show how a similar process can be found in a perceptual detection task where participants report their subjective awareness of near-threshold stimuli. Across multiples experiments, we find participants matched their awareness reports to those of a partner, irrespective of whether their partner was prone to detecting the stimulus more or less often than themselves. Critically, 'matched' awareness reports continue once the social interactions ended, suggesting that this effect outstripped public reports of awareness and penetrated participants' private cognition. A non-social version of the experiment was run to investigate the contribution of domain-general and socially-specific mechanisms. Amongst other insights, these results point to a mechanism that could enable sociocultural learning to alter experience and awareness of 'presence' - with possible implications for understanding how hallucinations and extraordinary beliefs vary across cultures.

Blurred Lines or Clear Boundaries? Synchrony and social dominance shape domain-specific self-other processing.

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Synchronous behaviour is widespread across social species and is a common feature of human social interaction. Prior research shows that synchrony can alter self-other processing, yet findings are inconsistent, potentially due to task differences and individual variability. In this preregistered study (54 dyads), we examined whether synchronous finger tapping influences self-other cognition across three domains: episodic memory, source memory, and emotion. Synchrony increased source memory performance but did not affect item memory. In contrast, synchrony heightened emotional egocentric bias, suggesting that synchrony can sharpen self-other differentiation in memory while increasing reliance on one's own affective state when inferring others' emotions. Social dominance moderated these effects. Dyads with higher combined dominance synchronized more strongly, and dominant individuals showed greater egocentric responding in memory tasks and retained egocentric bias in source memory even after synchrony. These findings highlight domain-specific consequences of synchrony and the importance of interpersonal traits in shaping synchrony outcomes. ***Withdrawn***

Lean in: Posture affects judgment and memory of emotional language.

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Two experiments investigate the role of body feedback in remembering and judging the emotionality of affective language. Participants held either an open or slumped posture while reading and responding to sentences designed to have either negative or positive affect. Both experiments demonstrate a significant effect with open posture slowing emotional judgments (Experiment 1) and open posture facilitating recognition of positive words in a memory task (Experiment 2), hinting at a task-dependence. These findings reflect on three major topics of research in cognition: whether abstract concepts can be embodied, the extent to which emotion and bodily states co-occur, and how task demands determine the direction of effects.

Semantic and Social Prediction and its Effects on Memory.

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AG functions as a dynamic buffer integrating temporally extended information [1] and may compute prediction error (PE) when incoming information conflicts with ongoing representations [2]. However, its role in sense-making remains underexplored. The AG has also been implicated in episodic buffering during memory construction, yet PE-related effects on memory remain mixed [3,4]. Research Questions: 1. Does the AG act as a sense-making hub that compares sensory input with predictions, computes PEs, and updates ongoing representations? 2. Does this process support 24-hour memory consolidation? Method: 26 native English speakers completed an EEG sentence-reading task in semantic and theory-of-mind (ToM) domains, manipulating contextual constraint (HC/LC) and word congruency (C/IC), followed 24 hours later by word recognition and word-context association tasks. Result: Linear mixed-effects modelling revealed enhanced N400 responses to IC words in the semantic domain, supported by a posterior cluster permutation contrast (IC-C). Source reconstruction localised IC-related activity to the left AG. C words following LC contexts elicited larger N400 amplitudes, reflected by a posterior negative cluster across domains. Memory favoured C over IC words in a domain-dependent manner, with participants remembering exact words. IC word-context associations were recalled in both domains, more accurately in the ToM domain.

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Does inviting face recall during an initial, Achieving Best Evidence interview negatively impact subsequent facial composite effectiveness?

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Facial composites are created by eyewitnesses to resemble a perpetrator and may facilitate their identification. The ability to recognise a face or, in this case, recognise that a composite well-resembles a previously encoded face, can be complexly impacted by prior face-recall attempts. While it is typically found that composites are more effective when construction follows a face-recall Cognitive Interview (CI; cf. no interview), eyewitnesses frequently undergo an Achieving Best Evidence (ABE) interview with a police officer immediately after a crime which, if inclusive of face-recall elicitation, may impact the veracity of both later face recall, given during the CI, and the constructed face. To explore this possibility, participants either engaged in an ABE that invited detailed face-recall, minimal, more general appearance-based recall, or did not complete an ABE. They then completed a best-practice, holistically-adapted CI before constructing either a feature or holistic composite. Results reveal a clear, system-agnostic benefit to composite effectiveness following an ABE (whether detailed or minimal) versus no first interview. Our findings have implications for the optimal types, timing and repetitiveness of face-recall interviews, pre-construction.

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Using narratives as a tool to boost learning.

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Narrative texts have a familiar, story-like structure that helps information to be easily understood and remembered. Similarly, meaningful materials tend to be forgotten more slowly than arbitrary information. However, there is currently little empirical evidence that narratives can enhance the learning of educational materials. In a series of studies, we tested the prediction that embedding educational information within a higher-order narrative would improve memory retention relative to if the information was learnt as a list of isolated facts. In a within-subject design, participants learnt facts about historical events, either as a list of sentences in the isolated fact condition or embedded in a passage of text that described the chronological and causal links between each fact in the narrative condition. We then tested memory using recall and recognition tests after a delay of one, two or three weeks, allowing us to compare forgetting rates between the two encoding conditions. In the first two experiments we found that learning information as part of a narrative increased participants interest in the materials but did not boost memory performance. In ongoing work, we continue to manipulate both the encoding and test phase to further explore the boundary conditions of narrative-based learning benefits.

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Higher multiplication fluency is associated with greater grey-matter volume in the right opercular-insular cortex.

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Single-digit multiplication fluency requires the coordination of multiple cognitive processes, including verbal encoding, semantic activation, fact retrieval, and resistance to interference from similar problems (e.g., 4 × 3 vs. 4 × 2). These processes have been linked to a distributed fronto-parietal and cingulo-opercular network. Here, we used whole-brain voxel-based morphometry (VBM) to test whether individual differences in timed multiplication fluency relate to grey-matter volume (GMV). Participants solved as many single-digit multiplications as possible in 60 seconds, and we formed high (top 25%; 58–60 correct) and low (bottom 25%; < 20 correct) fluency groups. All participants then underwent a T1-weighted structural MRI scan. Relative to the low-fluency group, the high-fluency group showed greater GMV in a right perisylvian/opercular–insular cluster (cluster-level corrected; cluster maximum at MNI 63, −10, 12). This pattern suggests that, in speeded production, multiplication fluency partly depends on domain-general task-set maintenance, monitoring, and interference-control mechanisms.

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Disrupting prefrontal control reduces the memory boost of reading aloud.

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Reading words aloud typically makes them easier to remember than reading them silently. It remains unknown whether this “production effect” reflects enhanced attentional control at encoding. We examined the role of attentional control processes in the production effect by modulating cortical excitability in the dorsolateral prefrontal cortex (DLPFC), a region implicated in top-down attention and goal-directed control, using theta-burst transcranial magnetic stimulation (TMS). Forty participants completed three TMS sessions in which continuous theta burst stimulation (cTBS), intermittent theta burst stimulation (iTBS), or sham stimulation was applied bilaterally to the neuronavigated DLPFC. Following stimulation, participants encoded 80 words (40 aloud, 40 silent; colour-cued) and then completed an old/new recognition test. Under sham stimulation, recognition accuracy showed the expected production benefit. Critically, cTBS significantly reduced this benefit relative to sham stimulation and iTBS, indicating that disrupting DLPFC function attenuates the memory advantage for produced words. These findings provide causal evidence that DLPFC-mediated control processes contribute to the enhanced memorability of produced words.

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Trait expression of Autism and ADHD interact to modulate response inhibition.

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Autism and attention-deficit/hyperactivity disorder (ADHD) traits frequently co-occur, yet their combined influence on behaviour remains unclear. In the present study, we investigated the independent contribution of autistic and ADHD trait expression as well as their interaction on response inhibition, which is often linked with both ADHD and autism. In a non-clinical adult sample (N = 94; Age = 18–32), participants completed a Go/No-Go task indexing action restraint (percentage of No-Go commission errors) while self-report measures of ADHD traits (ASRS) and autistic traits (AQ) were collected. Trait scores were standardised and entered into a generalised linear model predicting commission errors; interaction effects were probed using the Johnson Neyman technique. The overall model was significant, and while neither ADHD traits nor autistic traits showed a reliable independent association with performance, the AQ * ASRS interaction significantly predicted commission errors. Johnson–Neyman analyses indicated that ADHD traits were positively associated with commission errors primarily at lower levels of autistic traits ($ZAQ \leq -0.84$ SD), whereas autistic traits were associated with lower commission errors at higher ADHD trait levels ($ZASRS \geq 0.76$ SD). These findings provide evidence for an interactive (rather than purely additive) trait model in which autistic traits may partially attenuate ADHD-related response inhibition on action restraint, highlighting the value of dimensional approaches in adult samples for understanding the co-occurrence of ADHD and autism.

Research Plan - Constructing a Slovene Corpus of Parkinson Disease Patients' Speech and Writing.

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Research on computational methods for automatic early detection of cognitive impairment (CI) from language has proliferated in the last decade. However, these methods are limited by available training data. Most publicly available datasets include only a few well-resourced languages (e.g., English, Mandarin), so it is unclear how well current methods transfer to less-resourced languages. Additionally, most datasets include speech from speakers with Alzheimer's Disease (AD), while few include speakers with e.g., Parkinson's Disease (PD) so studies on differential diagnosis are rare. We will create a corpus of speech and writing by Slovene speakers with PD. At least 30 PD patients and healthy age- and gender matched controls will complete a battery of speech- and writing tasks: sustained vowel phonation, a picture description task, a read speech task, a semi-structured biographical interview, and a longitudinal written diary entry task. We also collect detailed clinical and demographic meta-data. Once completed, we intend to make our corpus available to the research community. Its utility will be showcased in three planned studies on: 1) conversational dynamics and timing in PD and multiple regression analyses, 2) computational analysis of selfhood expressions, and 3) the development of cross-linguistic models for detecting CI.

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Effects of schema and novelty on verbal memory: An eye-tracking study.

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Schema theory suggests that information aligning with pre-existing schemas is better remembered, while prediction error accounts propose that surprising information is more memorable. The SLIMM model reconciles these contradictory accounts by proposing that memory is a U-shaped function of congruency, where both expected and unexpected information are better remembered than unrelated information; along with better incidental memory in unexpected conditions [1, 2]. The current eye-tracking study tests the behavioural predictions of the SLIMM model for verbal memory and examines underlying processes. Forty participants were first presented with famous faces paired with idiomatic sentences with the final word blanked out (e.g., Margaret Thatcher: "Never count your chickens before they [hatch/cook]"), followed by images representing the final word, and made probability judgments (expected, unexpected, neutral). Subsequently, surprise memory tests of the sentence-ending and speaker images were administered. Results revealed better memory for expected images than for unexpected and neutral images. Expected images were associated with lower RTs and gaze times in the initial fixation, while unexpected images had greater number of fixations. Similarity in gaze patterns across participants was higher for expected than unexpected images. Findings shed light on the predictive and attentional processes underlying the effects of prior knowledge on memory.

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~~Social transmission of moral certainty.~~

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~~When we make ethical judgments, we can often feel uncertain about the moral 'rightness' or moral 'wrongness' of a particular idea, activity or behaviour. While the strength of our convictions seems intuitively to come from our own internal 'moral compass' – there is substantial evidence that the confidence or uncertainty we express in moral claims is strongly shaped by social norms. In theories of metacognition developed outside of moral psychology (e.g., in perception), some have suggested that privately-felt and publicly-communicated uncertainty are held separate. However, in our recent work we have found evidence for social learning of (e.g., perceptual) uncertainty – such that we 'match' the uncertainty expressed by others, with changes in confidence persisting once interactions end. Here, across five experiments (total N = 200) we test whether the same blending of private and public confidence happens during moral choice. In our moral decision making paradigm, participants made judgments about whether certain beliefs or behaviours (e.g., faith in God, veganism, feminism) were morally right or wrong, while giving confidence ratings. Participants first made moral choices alone, then made choices while observing the judgments of a 'partner' – who was programmed to have generally high or generally low moral conviction. Our results show a strong tendency to gravitate towards the partner's level of moral certainty, that this effect is socially-specific, occurs equally for moral 'allies' and moral 'opponents' and persists even when participants return to making judgments alone. These results suggest an important role for the social world in calibrating our own sense of confidence in moral claims – consistent with the idea we learn from others about the uncertainty we should feel.~~ ***Withdrawn***

How do cognitive factors affect speech rate tracking: A pilot study.

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Listeners track speech rate to manage conversational turn-taking (Corps, Gambi & Pickering, 2020), with individual variation in timing perception potentially influencing interactional dynamics. Additionally, executive function variation is already known to influence aspects of speech processing (e.g. Amunts et al., 2020). This study asks whether individuals' speech rate tracking ability is predicted by both executive functions and metrical processing, with two pilot studies (N = 5; N = 10) refining tasks to effectively elicit between-subject variation. An Arrow Span Task, measured by edit-distance scoring, (Gonthier, 2023), showed adequate working memory range (8 - 27; 9 - 24). A Card-Sorting Task assessed cognitive flexibility, showing ceiling accuracy rates, but adequate range (19.3 - 88.6) in Rate Correct Score (RCS) (Woltz & Was, 2006). A Dichotic Listening Task elicited poor auditory attention performance, but an alternative Test of Attention in Listening (TAIL), showed wider performance range (RCS: 4.4 - 239.7). An adapted Limerick Task was used to measure metrical perception, via silent readers' detection of metrical incongruity. Circular statistics were used to score speech rate tracking in a (perceptual) Finger-Tapping Task and a novel Pick Up Speech (production) Task. Ongoing full-scale testing will assess how effective the predictors are at determining individuals' speech rate tracking ability.

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Exploring the personality traits associated with hyperfocus in the general population.

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Hyperfocus describes an intense state of sustained concentration accompanied by diminished awareness of the self, time, and environment. Hyperfocus is frequently discussed alongside ADHD and, to a lesser extent, autism- both of which involve heterogeneous impairments in executive functioning (EF) and reward sensitivity (RS). The prevalence of trait hyperfocus in subclinical populations remains unclear, as does the extent to which EF and RS are co-occurring traits in neurodevelopmental conditions and how they contribute to hyperfocus. This study aimed to (1) examine the prevalence of trait hyperfocus in the general population and (2) investigate the relationship between specific executive processes and RS and how this underpins trait hyperfocus. Eighty-three participants (F= 59; M= 21) aged 18-70 completed seven self-report questionnaires and three cognitive tasks measuring trait hyperfocus, neurodevelopmental traits, EF and RS. Correlational and regression analyses explored these relationships. Key results showed that trait hyperfocus was significantly correlated with ADHD traits, autistic-like traits, poorer executive functioning, poorer attention control and steeper temporal reward discounting. Individually, ASRS, AQ10, ADEXI and DDT Area under Curve values significantly predicted AHQ-D scores, with the strongest predicters being ADHD traits and self-reported EF. Findings add to our understanding of hyperfocus within subclinical populations and identify the importance of EF and RS in hyperfocus.

Forgetting of object features depends on encoding strength rather than structure.

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Object encoding rarely occurs in isolation. Real world objects are encountered in wider episodic contexts. However, their forgetting is typically assessed in isolation. We hypothesised that forgetting differs dependent on whether object features (e.g., colour and size) are encoded in isolation or embedded in episodic events. Across three experiments, participants studied written descriptions of objects and two-unique-feature combinations in isolation or embedded in event sentences (including a spatial location, and a person). Each feature, selected from 5 categories, was repeated 1-5 times across studied objects. On separate trials, we tested memory for each object feature against four foils both immediately and 48h after encoding. In Experiment-1, we saw less forgetting for objects-in-events than objects-alone. However, objects-alone showed higher initial performance. In Experiment 2-3 we introduced two manipulations to equate initial accuracy and found no clear differences in forgetting rate. Across experiments, we also found evidence for interference when objects features were repeated across different objects, but this effect was also modulated by initial performance. These data suggest that the forgetting of object features does not differ dependent on the presence of wider event information, instead objects are forgotten faster and are more susceptible to interference when initial performance is high.

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Reward-guided decision-making across option features.

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A foundational assumption of goal-directed decision making is that agents select choices with the greatest expected value, and that these value estimates are learned from past experience of choice-outcome contingency. Recent analysis of probabilistic decision making has suggested that factors outside of choice-outcome contingency affect the construction of value estimates, and agents' decisions to stay with, or switch from, recent choices (Wittmann et al., 2023). Alongside local choice-outcome contingency learning, the global reward state, a non-contingent index of recent reward, has been found to associate rewards to a recency-weighted history of recent choices. Furthermore, local reward was found to increase staying with a choice, whereas global rewards increased switching to a different choice. We now explore whether these parameters have a similar effect on behaviour across different outcome features. Logistic regression analysis of human performance on three 3-arm bandit tasks, where options differ either in reward probability, reward magnitude or effort magnitude, suggests that the expression and influence of these parameters is dependent on outcome features. This may suggest that these learning parameters are sensitive to reward signals, and optimal behaviour may depend on selecting the appropriate learning and decision making model for the given context.

How facial expressions modulate configural and featural processing across eye and mouth regions.

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Faces are perceived through configural and featural processing. How facial expressions modulate these processes across facial regions remains unclear. The present study examined whether happy, neutral, and sad expressions influence the recognition of configural and featural changes in the eye or mouth regions, and whether these abilities relate to face memory. Participants (N=170) completed an online face task in which differences were configural or featural in the eye or mouth regions, while facial expression was task-irrelevant. Accuracy, similarity rating, and reaction time were analysed using mixed-effects models, and face memory was assessed with the Cambridge Face Memory Test (Duchaine & Nakayama, 2006). Results showed that configural processing was more accurate for eye than mouth regions and was superior for neutral and sad faces relative to happy faces. Featural processing showed strong main effects of facial region and expression, alongside significant interactions, indicating that expressions differentially modulated featural discrimination across regions. Importantly, configural but not featural processing accuracy was positively associated with face memory across all expressions. These findings suggest that facial expressions selectively modulate configural and featural processing, with configural processing playing a key role in individual differences in face memory.

AI Voices and the illusion of truth.

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While the rise of AI-assisted voice technology offers many positive applications, it also poses risks for cybersecurity, fraud, and disinformation. One phenomenon that could be exploited by AI voices is the illusory truth effect (ITE), whereby repeated information is more likely to be perceived as true regardless of its actual veracity. This effect is robust across information types and time delays, indicating that repetition alone strongly shapes belief. Although ITE research is predominantly conducted with written statements, AI voice technology enables repetition to be easily delivered by multiple, distinct-sounding speakers, potentially creating a false sense of consensus that further strengthens belief. The proposed poster reports two experiments (N = 150) investigating the illusory truth effect using AI voices. Experiment 1 demonstrated a robust illusory truth effect when a single AI voice was used throughout the study. In Experiment 2, statements were repeated either by the same or a different AI voice than during the initial exposure phase, but no significant differences emerged between same vs different voice repetition. However, overall truth ratings in Experiment 2 were significantly higher than Experiment 1, suggesting an ambient consensus that boosted truthfulness regardless of whether it came from the same or a different voice.

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Temporal structure at encoding affects subsequent recall.

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Temporal structure at encoding influences later recall, yet the conditions under which brief rest periods enhance recall remain uncertain. We assessed whether short ‘rest periods' between clusters of words (the inter-cluster interval; ICI) modulated free recall performance. In Experiment 1, 80 online participants completed five study-test blocks. Each block contained 30 words, organised into five clusters of six words. In each block, the ICI was fixed at 1s, 3s, 6s, 15s, or 30s. After each study block, participants completed a free recall task. No effect of ICI on recall was observed. However, participants classified as deep encoders, based on self-report measures, recalled significantly more words than shallow encoders. In Experiment 2, we explicitly manipulated encoding strategy, asking participants to use either a deep (elaboration) or shallow (repetition) strategy during encoding. We hypothesised that deep encoders would recall more overall and show a greater ICI effect. For this in-person experiment (N = 47, ~50% of the sample), we see a significant main effect of ICI and Strategy. However, there is no clear evidence of an interaction, with both groups benefiting from increased ICI. Our results demonstrate that short ‘rest periods' during encoding may benefit memory performance.

This work is supported by the Leverhulme Trust.

Investigating the role of deictic cues in infants' novel word learning.

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Learning new words is an important developmental process, however, it is also complex as it is influenced by a range of underlying skills and environmental factors. Infants learn words in a social and multimodal environment, meaning there are additional cues they can rely on to support word learning, a key one of which is gesture. Gesture is related to language outcomes, and one potential explanation for this relationship is that gestures guide infants' attention and disambiguate referents, making it easier to form object-word connections. Much previous research has been observational, so we lack controlled evidence into gesture as a mechanism. The present study, therefore, investigated whether the use of deictic cues during labelling influences novel word learning with 88 10-24-month-olds. Participants were taught novel words either without a cue or with an index finger point, open hand point, or look to the target object. Participants then completed preferential looking and congruent/incongruent test trials, with results indicating infants were more likely to learn novel words when a cue was used during labelling. These findings suggest that gestures guide infants' attention to objects and help them to form the correct object-word mapping, thus helping them learn new words.

Emotive cues impair and bias human detection of deepfakes.

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While most research on deepfakes focuses on improving algorithmic detection, less attention has been paid to how humans perceive deepfakes, particularly emotional content, despite emotional manipulation being a common tactic in misinformation. This study examined how emotional facial expressions influence human deepfake detection across two experiments. In Experiment 1 (N = 89), participants viewed "visually rich" videos of actors displaying neutral or emotional expressions, as well as "degraded" versions preserving only motion and facial structure. Emotional expressions reduced detection accuracy in visually rich stimuli (86% vs. 92%) but improved accuracy in degraded stimuli (53% vs. 40%), suggesting that emotional expressions can either impair or aid detection depending on available visual information. Experiment 2 (N = 180) replicated these effects and introduced a semi-degraded stimulus set and a manipulation to test whether the emotion effect was due to increased cognitive load. Similar to Experiment 1, emotional expressions impaired detection in visually rich conditions, while semi-degraded stimuli showed no facilitative effect and increasing cognitive load did not alter emotion-driven impairments. These results suggest that emotional expressions could bias judgments of trust in visually rich contexts, and highlights the context-dependent influence of emotion and visual information on human susceptibility to deepfakes.

Examining the impact of tiredness on infant attention using e-books.

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Tiredness is a universal experience. While adults are able to regulate their tiredness, infants lack this ability. As a result, a tired infant is fussy, emotionally unstable and, most importantly, lacking in attention. This inattention ultimately impedes infant learning, highlighting the importance of capturing tiredness in the moment as infants learn. Here, we investigate the effects of tiredness on attention with an e-book task where parents read a wordless e-book on a computer screen to infants aged between 10 and 24 months. As the task takes place, we capture eye tracking data and neuroimaging data with functional near-infrared spectroscopy (fNIRS). To measure tiredness, we use the Durham Infant Tiredness Questionnaire (DITQ), a purpose-developed questionnaire designed to capture infant tiredness. Thus far, results show that tiredness is affecting attention, demonstrating the impact of tiredness. It is clear that overlooking tiredness in development has restricted research from fully capturing the complexities involved in development. We are excited to present our initial findings on tiredness and attention which we hope will enhance the way developmental data is collected and interpreted.

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Investigating how post-encoding load during the post-learning period affects wakeful memory consolidation in healthy older and younger adults.

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Periods of quiet wakefulness immediately following learning are thought to promote memory consolidation by facilitating hippocampal reactivation in the absence of interference. However, how the depth of post-encoding processing modulates this benefit is unclear, and whether such effects differ with age. This study examines how post-learning processing demands influence verbal memory retention. Older adults (60+) completed three counterbalanced post-encoding conditions following non-word encoding: (1) wakeful rest, (2) shallow face processing (orientation judgements of unfamiliar faces), and (3) deep face processing (semantic judgements of different unfamiliar faces). Recognition was assessed immediately after encoding and after an 8-minute delay. Preliminary results from older adults suggest immediate recognition is broadly comparable across conditions, whereas delayed recognition shows emerging separation by post-learning condition: the shallow condition tends to show the largest immediate-to-delayed decrement, with wakeful rest and deep encoding showing smaller decrements on average. Younger adult testing is underway; the full dataset will be analysed using a 3 (Condition) × 2 (Time) × 2 (Age) mixed ANOVA to test condition effects and age differences. Full results will be presented at the conference.

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Research Plan - Auditory perceptual capacity and speech in noise perception in Autism.

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Autistic individuals have a higher auditory perceptual capacity than allistic individuals (Remington & Fairnie, 2017). They perceive a greater amount of simultaneous auditory input compared to non-autistics. The study's aim is to replicate those previous findings (Remington & Fairnie, 2017; Brinkert & Remington, 2020) and to investigate whether auditory perceptual capacity is associated with speech-in-noise perception. Autistic people often report that difficulties understanding speech within background noise is a strong burden for daily life and social participation (Landon et al. 2016; Bendo et al. 2024). The underlying mechanisms of these difficulties are not yet, however, fully understood (Ruiz Callejo & Boets, 2023), and no research has yet investigated the potential relationship between auditory perceptual capacity and exacerbated speech-in-noise perception in autism. I will conduct a behavioural experiment with autistic and non-autistic participants. Using a staircase procedure, I will assess participants' auditory perceptual capacity by measuring the threshold of number of distinct sound sources (either animal sounds or various speaker) for detecting a target sound. The digit-in-noise test by Smits et al. (2013) will be used as a standard method to assess participants' ability to perceive speech in noise. This study could provide further insights into differences in auditory perceptual capacity within autistic and non-autistic individuals and their implications for everyday life.

This work is supported by the Leverhulme Trust Aural Diversity Doctoral Research Hub (LAURA).

Priming of spatial attention during virtual aiming: The role of occlusion.

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Although the impacts of video-game play on cognition have been well studied, fewer studies have focused on the cognitive processing that takes place during action video game play. This study investigated whether location-based priming, a signature of visual attention, would occur in a virtual aiming task inspired by first-person shooter gameplay. The key question was whether aiming responses would be inhibited (Klein, 2000) to repeated locations when targets onset into a static background but facilitated when revealed through simulated locomotion. Participants used a computer mouse, which controlled a 3D view of a simple scene, to aim at and click single, circular targets. Between successive targets, participants' viewpoint either remained static or moved behind an occluding surface. The results showed faster response times for repeated locations specifically when target locations were occluded between trials. Surprisingly, inhibition of previous locations was not observed when targets onset into static backgrounds. Given that priming of location is often found in visual search (Talcott et al., 2022), target detection may rely more on endogenous, search-like processes when players' virtual locomotion reveals targets. If so, dynamically controlling a virtual viewpoint, as is common in action video games, may place unique demands on endogenous attention.

Visual search foraging in Parkinson's Disease.

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Evidence for visual search deficits in Parkinson's disease (PD) remains inconsistent, in part because traditional single-target tasks do not capture the complexity of naturalistic multi-target search. Accordingly, this study used a foraging task to test whether PD-related search issues arise from eye-movement difficulties or changes in decision-making. PD patients, older adults, and young adults searched through “patches” of 75 object images to find four target types hidden among distractors. Each target had a point value and a specific frequency. Participants could leave a patch at any time to start a new one, aiming to reach a total point goal. Results showed that PD participants used a suboptimal strategy; they left more targets behind and moved to new patches more often than healthy older adults to reach the goal. While target value and prevalence influenced selection order and foraging rates across all groups, these factors did not interact with PD diagnosis. Basic oculomotor metrics (saccade amplitude, fixation count) did not differ between groups, although both older groups showed longer fixation durations than young adults. These findings suggest that, in naturalistic multi-target search, PD is associated with an altered “exit” strategy and less efficient exploitation of available targets, rather than oculomotor impairment.

Modulating Social Belief Learning and Updating with Prefrontal focal tDCS.

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Adaptive social behaviour depends on the ability to update beliefs about others when social contingencies change. Experimental work examining the causal neural mechanisms supporting social belief updating remains limited. The dorsolateral prefrontal cortex (DLPFC) has been linked to cognitive control and behavioural flexibility, suggesting a potential role in updating social evaluations. This study examined whether modulating left DLPFC excitability using transcranial direct current stimulation (tDCS) influences learning and updating of social evaluations. In a within-subject, double-blind, sham-controlled design, participants completed two sessions receiving anodal or sham transcranial direct current stimulation (tDCS) over the left DLPFC while performing a social reversal-learning task. Participants learned probabilistic associations between facial stimuli and positive or negative outcomes via approach avoid responses, followed by a reversal phase requiring updating. In general, anodal stimulation was associated with valence-dependent effects during learning and a modest overall tendency toward improved updating performance, with further analyses planned to examine differences across levels of social anxiety. The results suggest task- and valence-dependent effects of left DLPFC modulation on social learning, with more tentative evidence for an influence on belief updating. Collectively, these findings highlight the importance of prefrontal mechanisms in supporting social cognitive flexibility and offer evidence for a novel approach to improving performance.

Conversations in Dual-Task Situations: Exploring everyday multitasking challenges in older adults with hearing loss.

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Conversations rarely occur in isolation; they are often embedded within other everyday activities, such as walking or driving. These dual-task situations can place additional demands on cognitive and sensory resources, particularly for older adults with hearing loss. While previous research has examined dual-task interference, most studies have focused on listening-only tasks and have overlooked how naturalistic conversations are affected. There is also limited understanding of how individuals with hearing loss adapt their communication behaviours and manage conversations under multitasking demands. To address this gap, we conducted a qualitative study using semi-structured interviews with older adults (aged 40-75), all of whom had hearing loss. Participants described real-life experiences of engaging in conversation while simultaneously carrying out other tasks. The interviews explored perceived challenges, benefits, and the strategies participants used to balance

both activities. For hearing aid users, we also investigated the perceived role of amplification in managing these situations. Interview transcripts were analysed using inductive thematic analysis. Results show a range of frequently encountered multitasking contexts, including those involving cognitive and/or motor demands, and how such situations shape the way conversations unfold and are managed. The resulting themes (e.g., overloaded demands) will be illustrated alongside examples of everyday activities where dual-tasking commonly occurs. These findings contribute to the development of a structured catalogue of everyday dual-task conversation scenarios. Such a catalogue could inform ecologically valid assessments of hearing technologies and support communication strategies tailored to real-world challenges.

This work is supported by WSAudiology

The roles of featural and configural information in familiar and unfamiliar face recognition.

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The present study aimed to examine the relative contributions of featural and configural information to the recognition of familiar and unfamiliar faces, as well as their relationship with face memory performance. In this behavioural study, participants were presented with either same-face pairs or different-face pairs in blocks of familiar and unfamiliar faces. They were required to judge whether the configural or featural features of each face pair were the same and to provide ratings from both configural and featural perspectives. Participants also completed the Cambridge Face Memory Test following the face recognition task. The results showed that for unfamiliar faces, both configural and featural information from the eye region contributed significantly to face recognition performance, compared with the mouth region. However, for familiar faces, only featural information from the eye region showed a significant effect on face recognition performance, while configural processing did not show a significant contribution. In addition, face memory performance was positively associated with both configural and featural processing for both familiar and unfamiliar faces. Overall, these findings highlight the interdependence of featural and configural information in face recognition, with the eye region playing a particularly important role in both familiar and unfamiliar face processing.

Examining the influence of ADHD and autism-related traits on the early consolidation of new declarative memories.

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Memory consolidation is the hippocampal-driven process crucial for stabilising new memories, with strengths and weakness in declarative memory varying across differing neurodiverse populations. Traits associated with autism and ADHD lie on a continua within the general population regardless of formal diagnosis, yet the effects of these individual differences on memory consolidation of long-term memory remain under-researched. Furthermore, sensory processing sensitivity (SPS), executive

functioning impairments (EF), and reduced attentional control (AC) are strongly associated with both conditions and may be particularly relevant during memory consolidation. Our questionnaire-based study (N > 4,800) identified three clusters with distinct profiles (i) high autism / AC: ii) high ADHD / EF: iii) all low traits) each differing markedly in self-reported everyday memory. The present work will examine whether the same profile-level differences are reflected in objective memory performance in younger and older adults. Participants complete a within subject's experimental paradigm manipulating post-encoding state (wakeful rest vs. attentionally demanding task engagement) with memory for non-words assessed via immediate and delayed recognition. Preliminary findings suggest comparable benefits of rest vs. high attentional demands on memory consolidation. Data collection is ongoing and further analysis will determine the extent to which these neurodevelopmental profiles predict consolidation performance across conditions.

Research Plan - How does attention to numbers influence older adults' susceptibility to fraud?

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Introduction: Financial fraud disproportionately targets older adults, yet the cognitive processes that underlie vulnerability remain poorly understood. While low numeracy is a risk factor, most older adults retain procedural numerical skills; vulnerability may persist due to declines in attention and inhibitory control. This project addresses a theoretical gap: vulnerability may result not from a lack of mathematical ability, but from a failure in attention-to-number (ATN), the ability to selectively prioritize relevant numerical information over competing non-numerical cues during decision-making. While ATN predicts decision performance in younger adults, its role in older adults' fraud susceptibility is untested. This study examines whether ATN uniquely predicts fraud vulnerability beyond numeracy and executive function. Methods: In this online study, 316 adults aged 65+ will complete cognitive and behavioural tasks. ATN will be measured using a process-tracing financial decision task (attention ratio to numerical vs. verbal information) and a digit detection task. Fraud susceptibility will be assessed with the Older Adult Financial Exploitation Measure. Objective numeracy, executive function measures, and processing speed will serve as controls. Statistical analysis: Multiple regression will test whether ATN indices predict fraud susceptibility controlling for numeracy, executive function, and processing speed, specifically examining whether ATN explains unique variance in vulnerability.

Complex by Design, Memorable by Nature? Complexity and memorability signals in scene-selective cortex.

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Naturalistic scene images vary significantly in their memorability. Scene images that are perceived as more 'complex' tend to be more memorable largely due to reduced false alarms (Kyle-Davidson et al., 2025). One account proposes that complexity reflects the idiosyncratic details that distinguish exemplars within the same scene category and thus play an important role in visual memory (Evans

& Baddeley, 2018). Prior behavioural and neuroimaging studies into image complexity and memorability suggest that this relationship may preferentially emerge at higher levels of the visual processing hierarchy. To begin to understand the neural basis underlying the role of idiosyncratic details in visual memory, we investigated the neural correlates of image complexity and memorability using the 'shared1000' subset of the Natural Scenes Dataset (8 participants, 1000 images; Allen et al., 2022). Single-trial beta estimates were correlated with estimates of image complexity and memorability derived from computational predictors (ICNet and ResMem respectively). Consistent with earlier studies, we found voxels in higher-level visual regions, including the parahippocampal place area, whose activity correlated with both image complexity and memorability. These findings provide a foundation for future work aimed at more directly characterising the processes by which idiosyncratic scene details support visual memory.

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Adaptive Self-Monitoring: How volatility shapes metacognitive learning.

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Uncertainty monitoring shapes how we learn from and interact with the world, with theories suggesting that optimal learning requires adapting to environmental volatility. While much research has focused on how we track external rewards, less is known about whether volatility-driven prediction-error learning can be applied to metacognitive models of learning (how we learn about ourselves). In this study, we create a 'metacognitive learning task' to assess how individuals form and update beliefs about their own cognitive abilities under changing uncertainty. Participants (N=100) tracked their competency across two tasks that switched between easy and difficult, requiring them to monitor both which task they were good at and when task difficulties had reversed. We manipulated environmental volatility (stable vs. volatile) and implemented one version with explicit performance feedback and one without. In the feedback condition, participants showed significantly higher switch rates in the volatile environment compared to the stable environment. Critically, this effect was replicated in the second experiment without trial-by-trial feedback. These findings suggest that individuals can adaptively track volatility in their own performance, even without explicit feedback, suggesting self-monitoring mechanisms may operate through internal signals rather than relying solely on external reinforcement. This paradigm offers a novel approach to investigating how metacognitive self-models are utilised in uncertainty monitoring.

This work is supported by the UKRI ESRC UBEL.

Research Plan - What makes a partner too costly to coordinate with? Motor variability as a coordination cost.

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[3] Université Mohammed VI Polytechnique, Morocco
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People choose to coordinate with others even when acting alone would be easier and faster. Utility-based accounts suggest joint action can carry an added reward that offsets coordination costs. We propose to test whether a partner's temporal unpredictability reduces willingness to coordinate, because successful joint action depends on precise interpersonal prediction. Using a touchscreen box-clearing task in which 'together' choices require synchronous taps, we create partners with observably low versus high movement-time variability by manipulating target width (a Fitts' Law manipulation) during training. Participants then complete choice trials deciding whether to clear targets individually or jointly with their high- or low-variability partner. If the cooperation preference is robust, participants should tolerate partner variability as an additional coordination cost. Alternatively, if predictability is important for engaging the processes that support joint action, participants should reduce 'together' choices when interacting with partners with higher variability. A second study will then explore if any effect of unpredictability could be accounted for by a general effort computation by manipulating the participant's own difficulty while keeping partner variability constant. Together, these experiments identify whether partner predictability is a separable coordination cost that sets a boundary on cooperative decision-making.

Higher-order mental state reasoning as a potential tool for assessment of lifespan theory of mind.

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Research on mental state reasoning (Theory of Mind/ToM) in adults is impeded by a shortage of test instruments that combine convenience and rigour. We have developed a set of ToM test materials that take advantage of the reputed cognitive complexity of higher-order mental state reasoning. Higher-order mental state reasoning offers a potential means of discriminating individual differences in ToM ability in adults which would also allow meaningful comparison with children's capabilities. We presented adult participants with multiple-choice questions including items assessing both second- and third-order ToM. Some required false belief reasoning, and others involved other mental states such as knowledge and desire. Scores were higher for second-order test items, compared with third-order, consistent with the expectation that increasing levels of embedding of mental states would increase difficulty. Accuracy was lower on items specifically involving false beliefs, compared to those involving other mental states, reinforcing the view that false belief reasoning provides a more stringent assessment of ToM compared with reasoning about other mental states. This preliminary research suggests that higher-order mental state reasoning shows promise as a tool for assessment of ToM in adults and further work to validate and refine the test materials is warranted.

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Individual differences in neural markers of familiar face processing.

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While research has highlighted substantial individual differences in face recognition, event-related brain potential (ERP) correlates of the underlying neural processes remain rarely studied. Consequently, the current study investigated the relationships between two well-established psychometric tests (the Cambridge Face Memory Test, CFMT+, the Glasgow Face Matching Test, GFMT2) and two ERP effects: (i) the N250 effect, and (ii) the Sustained Familiarity effect (SFE), reflecting access to visual and subsequent person-related representations, respectively. Furthermore, we introduced a novel behavioural task measuring the recognition of familiar faces covered by varying degrees of visual noise. Performance in the CFMT+ and in this new familiarity task were found to correlate with the magnitude of both the N250 and SFE, potentially indicating that a higher ability to both learn new faces and to accurately identify familiar faces amongst visual noise, were related to more pronounced neural correlates of familiar face processing. In conclusion, these findings demonstrate that neural correlates of domain-sensitive perceptual and later post-perceptual stages of familiar face processing are related to individual differences in behavioural tasks.

Why does cognitive reflection predict biases?

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The Cognitive Reflection Test (CRT) traditionally measures an individual's ability to override an intuitive but incorrect response through deliberation. It has been shown to predict performance on various cognitive bias tasks, with these associations often interpreted as theoretical implications. For instance, a strong correlation with denominator neglect is taken to reflect miserly information processing. This study aimed to examine whether the CRT's predictive power stems more from correcting incorrect intuitions (01 responses) or from validating correct intuitions (11 responses). We recruited 720 UK-based participants via Prolific and employed a within-subjects two-response paradigm, where participants provided both intuitive and reflective answers to six CRT items, along with four cognitive bias tasks: belief bias, denominator neglect, base rate neglect, and conjunction fallacy. Results showed that 01 responses (22%) were more frequent than 11 responses (15%), consistent with prior findings. All CRT measures (total, 01, and 11) positively correlated with each bias. However, when examined separately, 01 and 11 responses showed similar predictive strength for the biases, as confirmed by Steiger's Z-tests. These findings suggest that both correcting and validating intuitions contribute comparably to bias detection, inviting further exploration of the CRT's role in predicting reasoning performance.

This work is supported by the Leverhulme Trust and the University of Essex.

Decoding the time course of intonation planning in speech production.

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The temporal dynamics of intonation planning during speech production remain poorly understood. Serial models of speech production propose that intonation is either integrated after word-form encoding or planned earlier via an independent prosodic template. Recent parallel activation accounts suggest that intonation may become available simultaneously with other linguistic information. We used EEG and multivariate pattern analysis (MVPA) to examine when intonation becomes neurally detectable during speech planning. Thirty native Dutch speakers performed a picture-naming task. The stimuli were disyllabic nouns varying orthogonally in semantic category (animate vs. inanimate), manner of articulation of the first phoneme (fricative vs. plosive), lexical stress (word-initial vs. word-final), and intonation (question vs. exclamation). Time-resolved decoding identified when each linguistic dimension became decodable from EEG. The results support serial accounts of speech production, with a progression from conceptual to phonetic encoding. Lexical stress had a weak independent representation, yet modulated the temporal profile of intonation decoding: above-chance decoding of intonation planning was earlier for words with word-final stress compared to word-initial stress. This interaction suggests a prosodic template in which intonation and stress are integrated and evolve together, and that is decodable from neural patterns, as demonstrated here for the first time.

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Eye-movement behaviour during reading at font sizes near the visual limit.

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We often need to read at small font sizes during everyday life, such as those on packaging or medicine labels. Previous research shows that reading slows down at font sizes approaching an individual's acuity limits, however, much less is known about how these small font sizes affect the cognitive and oculomotor processes underlying reading. Accordingly, in this study, eye movements were recorded while participants read sentences presented in three font sizes: a standard, easily readable size and two smaller, individually defined, sizes corresponding to each participant's critical print size (the size at which reading begins to slow) and reading acuity (the smallest readable size). Sentence stimuli included a manipulation of word frequency to examine interactions between visual and linguistic processing. As expected increased reading times were observed at smaller font sizes, particularly at reading acuity, compared to the standard font size. Our preliminary findings indicate that there was no difference across font size in the number of fixations per sentence, however, mean fixation durations were shorter for the standard font size than for the smaller font sizes. Together, these findings suggest that reading at font sizes near acuity limits alters eye-movement behaviour, highlighting the impact of visual constraints on reading.

The development of emotion recognition across adolescence reveals a shift in visual priorities within facial expressions.

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Understanding an individual's expectations of how emotions should be represented in facial expressions (their 'internal representations') offers insights into perceptual and affective processes. Here, we examine the developmental trajectories of internal representations of four emotions (sad, happy, fearful and angry) across three age groups: late childhood (N = 181, 8-11 years), mid-adolescence (N = 100, 16-18 years) and mid-adulthood (N = 100, 30-50 years). Using a psychophysical emotion recognition task based on genetic algorithms participants explore a multidimensional space of expressions to create representations of emotion. Group-level comparisons reveal children create more intense expressions ($p < 0.001$) with higher within-group variation than adolescents ($p < 0.001$) and adults ($p < 0.001$). Adolescents create significantly less intense expressions ($p < 0.001$), while adults create expressions similar in intensity to children but with lower within-group variability. Facial feature analysis suggests although children and adults create similarly intense expressions, adults integrate more regions across the face which may reflect the development of nuances in emotion. Our findings support a shift in affective processes during mid-adolescence, where adolescents expect that emotional facial expressions should be muted (e.g. less intense), which may correlate with changes in their social behaviours as complexity in emotion emerges.

A systematic review and a meta-analysis of large-scale spatial navigation studies in autism.

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The research on spatial navigation in autism is mixed, with some studies indicating better performance in autistic population compared to non-autistic, some worse, and some finding no difference. To systematize the research up to date, a systematic review and a meta-analysis appraised studies with tasks concerning large-scale spatial navigation in autism. The review identified 26 relevant studies, of which 11 were further compared statistically in three-level random-effects meta-analysis examining different types of tasks. Across studies autistic participants spent significantly less time dwelling in the target areas of the map on the arena tasks (g = 0.30). Latency to target tasks yielded no group differences (g = 0.43), with high heterogeneity. No reliable differences were observed in error rate measures, whether for proportion-based or continuously measured error. Across outcomes, effects were small to moderate, and despite the direction of poorer navigation in the autistic groups, the lack of power prevents from drawing reliable conclusions. We discuss the results in light of the moderators: type of navigation (egocentric or allocentric), task setting (arena and labyrinth), and individual differences. The results highlight methodological limitations, and systematically summarise the limited literature on the spatial navigation in autism.

Listening Across Difference: A voice-based exploration of the Double Empathy Problem in Autistic and non-Autistic communication.

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Double empathy problem (DEP) challenges traditional deficit-based views of autism by emphasizing the two-way nature of communicative difficulties between autistic and non-autistic people (Milton, 2012). Although many studies have focused on how people perceive facial expressions and gestures, the auditory dimension of social interaction hasn't received enough attention. Since spoken language relies heavily on tone, prosody and affect, looking at how autistic and non-autistic people perceive vocal cues feels like a necessary step in better understanding social cognition and improving communication approaches. This study focuses on how autistic and non-autistic people interpret each other's voices, especially in terms of emotional cues. It aims to understand how both groups respond to vocal tone and affect. By doing this, the project hopes to provide more empirical support for the DEP and contribute to better-informed, neurodiversity-affirming approaches in clinical, educational, and technological settings.

This work is supported by the Leverhulme Trust Aural Diversity Doctoral Research Hub (LAURA).

Research Plan - Mathematical Building Blocks: Investigating online attentional and cognitive processes underlying addition and subtraction.

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Addition and subtraction are basic building blocks for more complex arithmetic. Findings from our preliminary eye movement investigation of multidigit arithmetic (two numbers >100 and <1000) show that individuals prefer to solve problems from units to hundreds and that they demonstrate an optimal viewing position (roughly the middle digit of each column) during computations. The proposed research extends these initial findings. We will conduct three eye movement experiments using the moving window paradigm to investigate how people process information from the parafovea and within which regions of sums they allocate attention while engaging in mathematical processing. Specifically, in Experiment 1, we will manipulate the moving window as a horizontal or vertical window to assess optimal viewing and the cost to processing of a lack of preview; in Experiment 2, we will determine the perceptual span through using moving window with one, two or all three columns available; in the final experiment, we will explore the time course of processing through using a one-digit window, a two-digit window (driven by a fixation on the top or bottom digit) and a whole three-digit column window. Statistical analysis of eye movement measures will be conducted in R using Linear Mixed Models.

Research Plan - The allocation of attention in selective reading: An eye-movement investigation.

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In the digital age, reading often occurs in dynamic visual situations, requiring effective selective attention to maintain reading efficiency. Almost all research investigates reading processes under distraction-free conditions and almost no studies have investigated how visual distractors affect reading. The proposed research will use eye-tracking and the Selective Reading Paradigm to examine how readers prioritize text for reading whilst simultaneously suppressing distractor words in the text by manipulating the properties of distractors. Experiment 1 will employ four types of distractors: symbol strings, letter strings, pseudowords and words. A control condition will be included where the sentences are simply read in a standard format to quantify the disruptive influence of visual distractors. Experiment 2 will manipulate the number of distractor word units, maintaining consistency in character length, to assess lexical vs. spatial influences. Experiment 3 will present colour (associated) words as distractors, manipulating semantic and colour consistency (Stroop manipulation) to assess distractor processing difficulty effects on reading performance. We will compute eye movement measures to undertake Linear Mixed Model analyses using R. The findings will develop theoretical understanding of attentional allocation in reading and provide insight to support reading comprehension in environments with visual distractions.

Research Plan - Stereotype threat in developmental dyslexia.

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The project aims to enable fairer job selection processes by analysing how situational and individual factors can activate stereotypes in dyslexic individuals and affect their test performance building on previously published (Piotrowska & Barratt, 2024) experimental protocol. People with dyslexia, that make up 10% of the population, show lower employment rates, work in jobs below their qualifications, and earn less than those without dyslexia. We need to know how fear of being judged (i.e., stereotype threat) can lead to poorer performance in tests typically used for job selection in people with dyslexia. We need to know how individual differences moderate the relationship between stereotype threat and test performance so that we can identify when the stereotype threat is stronger and can design targeted interventions. We need to know how anxiety, emotions, thought intrusions and task-taking motivation mediate the relationship between stereotype threat and test performance so that we can understand the mechanism of stereotype threat and inform job selection practices and interventions. The project will analyse large-scale data gathered through an online experiment where participants with and without diagnosed dyslexia complete a test similar to those used in job selection preceded by stereotype threat triggering, reducing or control instructions.

Human-Robot Interaction in the Laboratory: Perceptions, motivations, and future expectations of research chemists.

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This qualitative study investigates the psychological and operational "tipping points" governing task delegation in autonomous laboratory systems. Semi-structured interviews were conducted either in-person or online with 13 research chemists from diverse academic and industrial backgrounds. The findings reveal a fundamental dichotomy in relational expectations: robots are viewed either as utilitarian tools for workload reduction or as collaborative partners in strategic discovery. As automation assumes physical labour, the chemist’s identity shifts from manual practitioner to systems manager and data curator. This transition highlights a tension between high-throughput efficiency and the potential loss of "tactile intuition" vital for recognising serendipitous results. While participants prioritise automation for multidimensional safety—reducing toxin exposure and the stress of human error—they reject humanoid aesthetics in favour of mechanical designs that reinforce functional clarity. The study concludes that successful human-robot synergy requires transparency to resolve "black box" opacity and high technical literacy to maintain intellectual agency. As bottlenecks shift from the bench to data management, chemists must navigate a developmental journey from professional anxiety to collaborative confidence, redefining expertise as the oversight of an "ensemble" of robotic and human actors.

Research Plan - Neuroadaptive Real-Time fMRI for mapping auditory representations across a large environmental sound space§.

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Natural environmental sounds vary along multiple acoustic and perceptual dimensions. Previous work has demonstrated structured neural representations of natural sound categories (1, 2), but has typically relied on small stimulus sets, limiting characterisation of neural responses across diverse sound variations. Here, we investigate how neural responses in auditory cortex vary across a large set of environmental sounds by representing all stimuli within a shared acoustic–perceptual space. We hypothesise that neural responses will vary systematically with underlying acoustic and perceptual dimensions, and that adaptive stimulus selection will identify sound variations that differentially engage auditory representations. Participants will undergo fMRI while listening to an adaptively-chosen subset of 530 environmental sounds characterised along multiple acoustic and semantic dimensions. Neural responses will be processed in real time to guide adaptive selection of subsequent sounds (3), concentrating sampling on stimuli that elicit distinct neural response patterns and enabling efficient characterisation of stimulus–response relationships.
Primary analyses will examine how neural response patterns vary as a function of acoustic and perceptual sound dimensions using representational similarity analysis and mixed-effects modelling. Neural representational structure will be related to stimulus properties to test whether specific acoustic or semantic dimensions predict response profiles.

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Do redundancy-driven inferences arise automatically during comprehension?

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Growing evidence suggests that expectations during comprehension are shaped not only by what is contextually plausible but also by what a cooperative speaker may choose to mention explicitly [1]. Although previous studies have shown that informationally redundant utterances can elicit pragmatic inferences [2], the cognitive mechanisms underlying these inferences remain unclear—in particular, whether such inferences arise automatically during comprehension. The current study investigated this issue using a sentence-completion task (Experiment 1) and a word-recognition task (Experiment 2). Participants read short scenarios involving two UK natives and one newcomer to the UK from China. One UK character produced an utterance that was either redundant or non-redundant. Redundant utterances involved common knowledge about UK life and were thus redundant for the UK characters but not the Chinese character. Across both experiments, participants—without explicit prompting—were more likely to indicate the Chinese character as the addressee (Experiment 1) or falsely recognize her as present (Experiment 2) in the redundant than in the non-redundant condition. The current results provide novel evidence that redundancy-driven inferences arise automatically during comprehension. They extend previous work on informativity-based expectations by showing that comprehenders use utterance content to update assumptions about communicative intent and shared knowledge.

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Oliver Panther
Keele University

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University of York

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c) personally delivered an oral paper or 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

We recommend booking accommodation as early as possible.

Newcastle Accommodation Options

Please note that any unsold rooms will be released back to the hotels four weeks prior to arrival, approximately 2nd March, so we recommend attendees book accommodation as soon as they can.

Newcastle has a huge range of accommodation options to cater for all budgets. You may find it helpful to consult https://newcastlegateshead.com/business-directory/where-to-stay for options and availability.

Travel

By Air

The region is home to the North East's largest airport – Newcastle International. With direct scheduled flights from countries such as Belgium, France, Germany, Ireland, the Netherlands, Norway, Spain and the United Arab Emirates, together with regular flights from regional airports in England, Jersey, Northern Ireland, Scotland and Wales, you can fly direct or easily connect.

By Rail

There are direct rail links between Newcastle and many of the UK's major cities and airports.

For train times, visit National Rail Enquiries.

By Car

Travelling by road to Newcastle is hassle-free thanks to a network of major roads, including the A1 which conveniently links Newcastle to London, the South, Scotland and major routes across the country.

The A69 heads west and connects Newcastle with historic Carlisle, Hadrian's Wall sites and Hexham as well as the Lake District and, via the M6, to the South, Wales and the West of England.

You can refer to Visit North East England for further information.

Getting Around the City and Local Area

You can find more information about all local transportation here.

Newcastle University – Online Campus Map

Newcastle University – PDF Campus Map

Conference Dinner

The conference dinner for EPS Newcastle will be held on Tuesday 31st March from 7:30pm at the Crowne Plaza Hotel which is just a 15 – 20 minute walk from the meeting. The address is Hawthorn Square, Forth Street, Newcastle Upon Tyne, NE1 3SA.

The booking form was available until 5pm (UK time) on Monday 9th March and is now closed.

Filling in the online form does not guarantee a place at the dinner, as places are filled on a first come, first served basis. If you are not successful on securing a place at the dinner, we will automatically add you to the waiting list.

You will NOT receive a confirmation email after completing the form, but will see a success message on the screen after you have completed the form and pressed submit.

Once Conference Dinner registration closes, we will contact everyone who submitted and you will receive an invoice for payment of the dinner.

The standard dinner cost for EPS ordinary members and guests is £40.00. Postgraduate attendees and presenters can book at a reduced fee of £20, 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.

Attendees will only need to choose one of the two choices for each course from the below options.

Starters
Roast Tomato and Pepper Soup (Vegetarian / Can be Vegan, Gluten Free or Dairy Free)
Cauliflower Cheese Soup (Vegetarian)

Mains
Honey Mustard Marinated Chicken (Can be Dairy Free and Halal)
Butternut Squash and Sweet Potato Risotto (Gluten Free and Vegan)

Desserts
Chocolate and Orange Tart (Gluten Free and Vegan)
Passion Fruit Cheesecake (Contains Beef Gelatin / May contain Peanuts and Treenuts)

If there are any special dietary requirements, please indicate these on the form so we can liaise with the venue.

Eating and Drinking

Cafés on Campus

The conference is being held in the Herschel Building on the main Newcastle University campus. The campus itself has several options for food and drink near the conference venue:

- Courtyard (Ground Floor, Old Library)

Variety of fresh food options including Asian fusion, homemade pizza slices, Friday fish & chips and Chef Specials. There are also a range of sandwiches, wraps, pastries and salads.

- Daysh Café (Ground Floor, Henry Daysh Building)

Barista drinks including coffee, herbal teas and hot chocolate. A range of sandwiches, hot paninis and sweet treats, with plenty of vegetarian and plant-based options.

- The Grand (King's Walk, between King's Gate and Blackwell's book shop)

Leaf teas and barista coffee. A selection of light food options (sandwiches, breakfast rolls and pastries, wraps, soups) as well as cakes and traybakes.

Please visit this site for full details and a map: https://www.ncl.ac.uk/catering/eat/

Food and Drink Off-Campus

The conference venue is in the heart of Newcastle, with a huge range of food and drink options just minutes away!

Some suggestions:

- Grainger Market (https://ourgraingermarket.co.uk/) – Grade I listed covered market with a range of food stalls and independent traders.
- Claremont Teahouse (https://www.claremontteahouse.com/) – loose leaf teas, cakes and excellent lunch options.
- Pani's Italian (https://paniscafe.co.uk/) – Italian/Sardinian.
- My Delhi (https://www.mydelhistreetfood.com/locations/newcastle) – Indian.
- Soho (https://www.sohoncl.co.uk/) – Korean and Japanese.

Pubs (no food, excellent beer):

- The Town Mouse.
- The Wobbly Duck.
- The Collingwood Arms.

Pubs serving food:

- The City Tavern.
- The North Terrace.

Things to do in Newcastle

Hancock Museum (https://www.northeastmuseums.org.uk/greatnorthmuseum)
Natural history and ancient civilisations with a North-East flavour!

Discovery Museum (https://www.northeastmuseums.org.uk/discoverymuseum)
Science and local history museum.

Life Science Centre (https://www.life.org.uk/)
A “science village” with a range of exhibits, activities and events.

Laing Art Gallery (https://www.northeastmuseums.org.uk/laing)
Collections of British painting and decorative arts.

BALTIC (https://baltic.art/)
A huge converted mill showcasing contemporary art.

Business Meeting

A Business Meeting will be held on Tuesday 31st March 2026 between 12:30pm and 1:00pm in Herschel Building LT2 at Newcastle University, Herschel Building, Newcastle upon Tyne, NE1 7RU.

AGENDA

26/15 Minutes of the Annual General Meeting, held at University College London on Thursday 8th January 2026

See Attachment 1.

26/16 Matters Arising

26/17 Secretary's Report

26/17.1 Hon. Secretary's Report

26/18 Treasurer's Report

26/18.1 Treasurer's Report

26/19 QJEP Editor's Report

26/19.1 Editor's Report

26/20 Arrangements for Future Meetings

26/21 Any Other Business

26/22 Date, Time and Place of Next Meeting

Attachment 1.

Annual General Meeting

The 78th Annual General Meeting was held on Thursday 8th January 2026 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. There were ~40 attendees.

MINUTES

26/01 Minutes of the Annual General Meeting, held on Thursday 9th January 2025

Minutes were approved without any changes.

26/02 Matters Arising

No matters arising.

26/03 Secretary's Report

26/03.1 Annual Report of the Society

EPS activities in 2025 were reviewed, with highly successful scientific meetings, including a joint meeting with the CSBBCS in July. Twenty-four applications for funding were approved in 2025 and members were reminded of the different schemes and when they could apply.

26/04 Treasurer's Report

26/04.1 Treasurer's Report

EPS funding activities in the financial year ending September 2025 were stable. Members were reminded to pay the voluntary registration fee if their work is funded by a grant and to make sure their subscription fee is at the £30 level and not he old £12.

26/05 QJEP Editor's Report

26/05.1 Editor's Report

QJEP activities in 2025 were reviewed, with the journal progressing smoothly, 434 papers were submitted in 2025 but more are welcomed. The call for a new Editor in Chief was held and if approved later in the meeting, the role will be shadowed in 2026 before the official transfer of the role in January 2027.

26/06 Confirmation of the Fifty-Fifth Bartlett Lecturer

Confirmed

26/07 Confirmation of the Twenty-Fifth EPS Mid–Career Award Lecturer

Confirmed

Attachment 1.

26/08 Confirmation of the Thirty-Fourth EPS Prize Lecturer

Confirmed

26/09 Confirmation of the Fifteenth Frith Prize

Confirmed

26/10 Election of Officers and Committee Members

Confirmed

26/11 Admission of Ordinary Members

Confirmed

26/12 Arrangements for Future Meetings

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

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

EPS Meeting: University College London. January 2027.
Local Organiser: TBC

EPS Meeting: Cardiff University. April 2027.
Local Organiser: Rob Honey

EPS Meeting: University of East Anglia. July 2027.
Local Organiser: Louise Ewing

Members were informed of the potential for joint meeting in 2028 in Italy and 2029 with the CSBBCS, dependent on expressions of interest for hosts in those years and developments with the international partner societies.

26/13 Any Other Business

Thanks to outgoing committee member, Rob Honey as Honorary President for all of his work during his two-year term. Another thank you to the meeting organisers; Adam Parker, Jeremy Tree and Sam Hurn.

26/14 Date, Time and Place of Next Meeting

The next business meeting will be on Tuesday 31st March at Newcastle University.

Attachment 1.

Election of Officers and Committee Members

Following the autumn EPS committee meeting, we are delighted to announce the Committee's award nominations for approval at the Annual General Meeting in January 2026.

The Committee seeks approval for the following nominations:

Election of the Fifty-Fifth Bartlett Lecturer
Marc Brysbaert (Ghent University, Belgium)

Election of the Twenty-Fifth EPS Mid-Career Award Lecturer
Clare Press (University College London)

Election of the Thirty-Fourth EPS Prize Lecturer
Jennifer Murphy (University of Surrey)

Election of the Fifteenth Frith Prize Lecturer
Denise Cadete (Birkbeck, University of London)

The Committee submits the following nomination for EPS Honorary Secretary:

Jim Grange (Keele University)

The Committee submits the following nomination for EPS Conference Secretary:

Alastair Smith (University of Plymouth)

The Committee submits the following nomination for QJEP Editor in Chief:

Carolyn McGettigan (University College London)

Admission of Ordinary Members

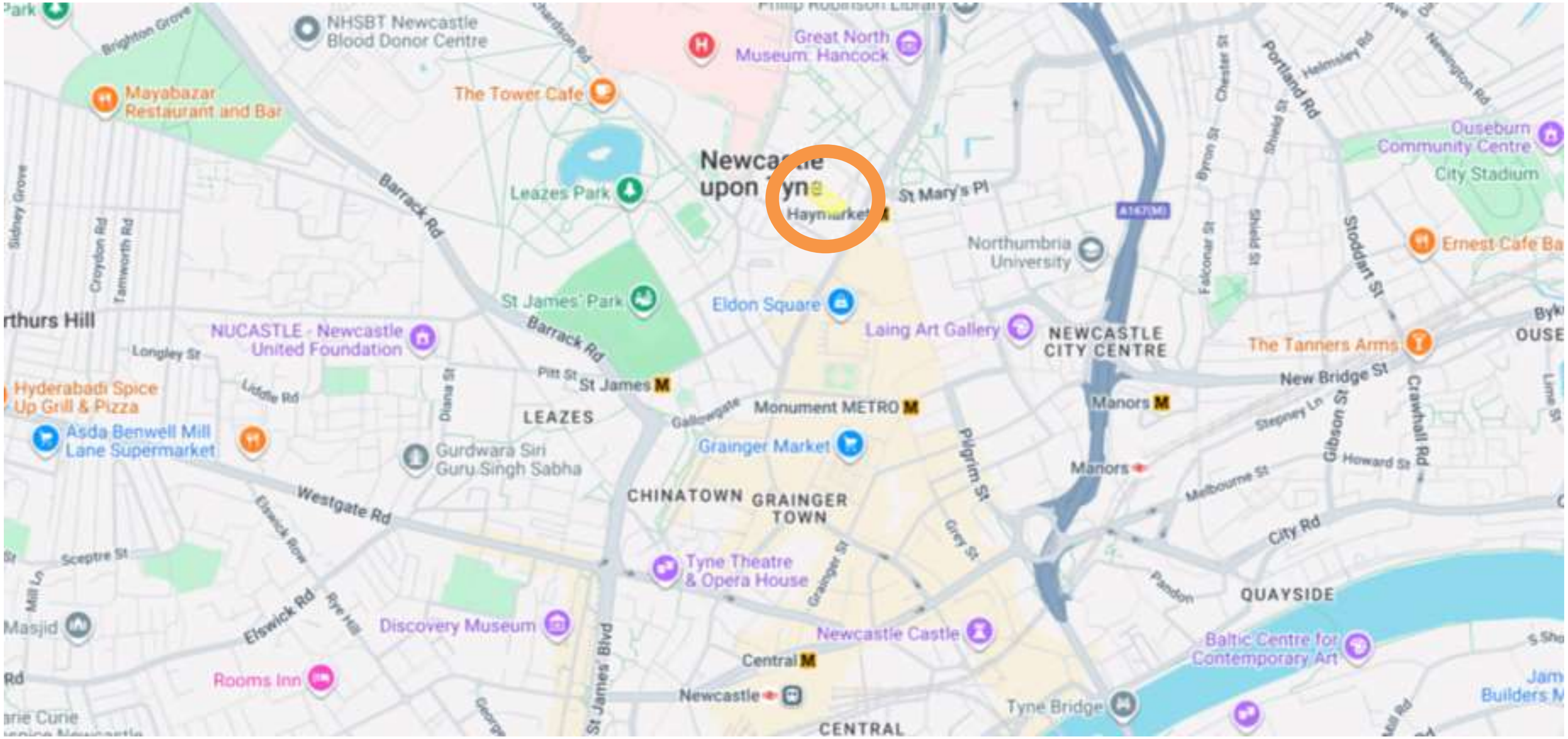
Under Rule 7 the list of applicants for Ordinary Membership was earlier circulated electronically in the December newsletter. These applications were provisionally approved at the Autumn Committee meeting.

Next Meeting: University of Essex. 1st – 3rd July 2026.

This meeting will include the 33rd EPS Prize lecture by Melissa Colloff (and accompanying symposium organised by Markus Bindemann). This meeting will also include the 15th Frith Prize Talk to be given by Denise Cadete.

The portals for this meeting will open on Monday 13th April 2026 at 10am (UK time) and remain open for at least 24 hours.

Local Organiser: Maria Laura Filippetti



Newcastle upon Tyne
Haymarket
St Mary's Pl
Northumbria University
Eldon Square
Laing Art Gallery
NEWCASTLE CITY CENTRE
Great North Museum: Hancock
NHSBT Newcastle Blood Donor Centre
The Tower Cafe
Mayabazar Restaurant and Bar
Leazes Park
St James' Park
Barrack Rd
NUCASTLE - Newcastle United Foundation
Hyderabadi Spice Up Grill & Pizza
Asda Benwell Mill Lane Supermarket
LEAZES
St James
Monument METRO
Grainger Market
Gurdwara Siri Guru Singh Sabha
CHINATOWN
GRAINGER TOWN
Westgate Rd
Tyne Theatre & Opera House
Discovery Museum
Rooms Inn
Newcastle Castle
Central
Newcastle
CENTRAL
Tyne Bridge
Baltic Centre for Contemporary Art
QUAYSIDE
City Rd
Manors
Pilgrim St
New Bridge St
The Tanners Arms
Stoddart St
Ernest Cafe Bar
Ouseburn Community Centre
City Stadium
Portland Rd
Crawhall Rd
Gibson St
Elswick Rd
Sceptre St
Masjid
St James' Blvd