DISSERTATION TOPICS AVAILABLE 2015/2016

This document lists the academic staff available to supervise MSc dissertations for the 2015/16 academic year, along with a brief statement of research interests, and a description of topics that each staff member is willing to supervise. In some cases, specific projects may be described; in others, a more broad description of a research area is given. In addition to the specific topics suggested, it is possible for you to suggest your own topic to a potential supervisor.

It is up to you to approach supervisors to discuss topics. Your dissertation topic will be negotiated with your supervisor and must be agreed by both parties. Any student can be supervised by any academic staff member, provided that the topic is approved by your taught Programme Director as a topic relevant to your MSc programme.

Once you have agreed upon a dissertation topic with a supervisor, the Programme Director must be informed, and asked to approve the topic. Only then will your project with that supervisor be confirmed.

Your dissertation topic should ideally be confirmed by the end of February, and considerably earlier if the project is complicated or likely to involve special populations (e.g. children, neuropsychological patients) or requires NHS approval.

Please be aware that supervisors might have limited places, so you should not necessarily expect to be accepted for your first choice of project.

The recommended word limit for the dissertation is 8,000 words.

The submission deadline for the dissertation is 4pm, Thursday 18th August 2015. Details of how to format the dissertation will be available on the PPLS PG website.

PHILOSOPHY

Prof Andy Clark

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Research Interests
Philosophy of Mind, Artificial Intelligence, including robotics, artificial life, embodied cognition, and mind, technology and culture.

Topics
- Foundations of Cognitive Science
- Embodied Cognition
- Extended Cognition
- Robotics and Artificial Life
- Mind, Technology, and Culture
- Prediction, Simulation, and the Bayesian Brain

I'd like to supervise work on 'predictive processing' models of mind and action, and especially their (problematic) applications to motivation, emotion, and conscious experience. I'd also be interested in work addressing the debate between representationalist and non-representationalist interpretations of predictive processing, and/or the relations between these approaches and work in embodied cognition.

Dr Alix Cohen

Office: 4.13 (DSB)

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Research Interests
History of Philosophy, Kantian Ethics, Aesthetics, Philosophy of Social Sciences, Philosophy of the Emotions.

Topics
- Kant
- Hume
- Rousseau

Dr Guy Fletcher

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Research Interests
Metaethics, Ethics, Political Philosophy.

Topics
- Moral Motivation
- Moral Testimony
- Well-Being
- Hate Speech

Dr Mikkel Gerken

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Research Interests
Epistemology and philosophy of mind.

Topics
I'm happy to advice on any topic within these areas. I'm also happy to teach on theses on philosophical psychology and philosophical methodology.

Dr Inna Kupreeva

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Research Interests
Ancient Greek Philosophy

Topics
- Ancient philosophy
- Medieval philosophy (mind and matter, the problem of knowledge, human action, free will)
- Ancient science and medicine

Dr Jane Suilin Lavelle

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Research Interests
Cognitive science, philosophy of mind, experimental philosophy, philosophy of biology and nature of explanation.

Topics
Anything to do with social cognition; evolutionary psychology; levels of explanation in cognitive science; experimental philosophy concerning consciousness and group minds.

Dr David Levy

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Research Interests
Moral Philosophy, Wittgenstein, Understanding, Plato, Meaning, Simone Weil, Epistemology, Psychology

Topics
- Moral understanding and phenomenology
- Wittgenstein
- Plato's moral philosophy

Dr Andrew Mason

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Topics
- Ancient ethics
- Ancient aesthetics
- Philosophy of religion

Dr Aidan McGlynn

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Research Interests
Epistemology, philosophy of language, philosophy of mind (especially its intersection with epistemology)

Topics
- Epistemology (Entitlement, self-knowledge, knowledge-first)
- Language (Implicature, speech act theory, assertion)
- Feminism (Pornography and free-speech, epistemology, epistemic injustice)

Dr Pauline Phemister

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Research Interests
History of Philosophy and Philosophy of Nature

Topics
- Early Modern Philosophy (Descartes to Leibniz): metaphysics, epistemology, philosophy of nature, philosophy of mind, ethics, aesthetics
- Ecological philosophy

Dr Bryan Pickel

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Research Interests
Metaphysics, Philosophy of Language, History of Analytic Philosophy

Topics
- Variables and Quantifiers
- Belief Ascription
- Ontological Commitment
- Problem of Universals
- Frege, Russell, Moore, Quine

Dr Brian Rabern

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Research Interests
Philosophy of language, formal semantics, philosophical logic.

Topics
- Indexicality and context-dependence
- Two-dimensional semantics
- Dynamic semantics
- The semantics of names, variables, quotation, and epistemic discourse
- The semantic paradoxes

Dr Alasdair Richmond

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Research Interests
Metaphysics (especially time and space), philosophy of science, the British empiricists (especially Hume on miracles)

Topics
- Metaphysics (preferably time and space)
- British empiricism and idealism
- Philosophy of science
- Philosophy of religion

Prof Michael Ridge

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Research Interests
Moral philosophy.

Topics

- Meta-ethics
- The moral philosophy of David Hume
- The philosophy of games
- Normative ethics

Dr Debbie Roberts

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Research Interests
Metaethics and metanormative philosophy, normative ethics, philosophy of law.

Topics
I'm happy to supervise any topic that falls within my research interests, as well as topics that are at the intersection of ethics / metaethics and any other area of philosophy.

Dr Anders J. Schoubye

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Research Interests
Philosophy of language, formal semantics and pragmatics, philosophical logic, epistemology.

Topics
- Semantics of quantifiers, referential terms (e.g. names, pronouns, descriptions), and modals (e.g. epistemic and deontic modals, propositional attitude verbs)
- The nature of presuppositions and implicatures
- The distinction between semantics and pragmatics
- Other topics in philosophy of language / formal semantics / philosophical logic

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Dr Wolfgang Schwarz

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Research Interests
Formal Epistemology, Metaphysics, Philosophy of Language, Logic.

Topics
- Decision theory
- Bayesian epistemology & confirmation theory
- Conditionals
- Semantics of context-dependence
- Nature of mental and linguistic content
- Metaphysics of modality (laws of nature, chance, "metaphysical" modality)

Dr Patrick Todd

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Research Interests
Free will, moral responsibility, metaphysics, ethics, philosophy of religion.

Topics
- Free will and determinism
- Moral responsibility
- Blame and praise
- Fatalism
- Truth and time
- Presentism and grounding
- The coherence of theism (esp. omniscience)

Dr Nick Treanor

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Research Interests
Philosophy of mind, metaphysics, epistemology.

Topics
I'd be happy to consider supervising theses in most topics within my research areas.

Dr Dave Ward

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Research Interests
Philosophy of mind and cognitive science

Topics
- Philosophy of Mind
- Philosophy of Cognitive Science
- Enactivism

I'm happy to supervise any topic pertaining to the relationships between perception, agency and understanding, and most topics in embodied and enactive approaches to the mind. I'm also interested in Hegel, Nietzsche, Merleau-Ponty, narrative understanding, and naive realist or relational approaches to perceptual experience.

PSYCHOLOGY

Prof Sharon Abrahams

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Principal Research Grouping
Human Cognitive Neuroscience

Research interests
Neuropsychology (executive and memory functions, social cognition, behaviour abnormalities) in dementia. My primary focus is on motor neurone disease (MND) and frontotemporal dementia. I am willing to discuss areas within my discipline of clinical neuropsychology with a particular focus on executive and memory functions and the effects of aging or neurodegenerative disease.

Topics

- ***The Edinburgh Cognitive and Behavioural ALS Screen (ECAS) – Brief***

Co-supervised by Dr Tom Booth. The ECAS is a new screening measure designed to detect cognitive and behavioural impairments in people with physical disability. This study will use Item Response Theory to analyse previously collected dataset of 100 MND patients in order to determine which items within the task are the most sensitive to cognitive and behavioural impairment. The study will aim to develop an abbreviated scale. The study is suitable for a student who enjoys statistical methods!

- ***The Edinburgh Cognitive and Behavioural ALS Screen. IPAD version***

This study will further develop and test an IPAD version of this new screen. The study will look at ease of use by the clinician and also the person with Motor Neurone Disease's experience of the assessment.

- ***The Utility of the Free and Selective Cued Reminding Test in differentiating between young onset dementias***

The Free and Selective Reminding Test has been suggested to be sensitive to dementia and in particular Total scores from the task have been previously suggested to be sensitive to Mild Cognitive Impairment and Alzheimer's disease. Here we look at the learning profile to see whether this gives any additional information in differentiating between young onset dementias. The data is being routinely collected within a clinical neuropsychology service. Here the student will collate and analyse this data.

- ***Computerised Cognitive Rehabilitation***

This study will trial a new computerised cognitive rehabilitation package within an inpatient setting. The study is being co-supervised by Dr Blanca Poveda (Clinical Neuropsychologist) at the Astley Ainslee hospital. The study aims to look at whether improvements in standard neuropsychological tests, functional and awareness measures are found. This project is suitable for 2 students with advanced knowledge of statistics and an interest in computerised cognitive rehabilitation.

- ***Dissertation Projects in Clinical Psychology***

Projects within the clinical psychology department will also be available, please contact me if you are interested in being supervised by a member of the clinical psychology department.

Dr Bonnie Auyeung

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Research interests
Autism, early child development (social and cognitive development, neural development, eye gaze), sex differences, neurodevelopmental outcomes

Topics
- Infant and early child social and cognitive development
- Neurodevelopmental sex differences
- Autism and developmental disorders
- Development of new measures of social and cognitive behaviour

Dr Nic Chevalier and I offer opportunities for co-supervised MSc dissertations on cognitive and/or social-affective development in children.

Dr Thomas Bak

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Research interests
Cognitive effects of bilingualism across the lifespan, Translation and adaptation of cognitive and motor tests into different languages and cultures, The interaction between movement, language and cognition in neurodegenerative diseases

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Projects

- ***Cognitive effects of bilingualism***

Such projects could look at the relatively recent and hotly debated question whether bilingualism can influence cognitive functions across the lifespan. Potential projects could examine different types of bilingualism (from early balanced one to learning new languages in later life), different tasks and different populations.

Vega-Mendoza M, West H, Sorace A, & Bak TH (2015). The impact of late, non-balanced bilingualism on cognitive performance. Cognition. E-pub 14/1/2015.
Bak TH, Vega-Mendoza M, Sorace A (2014) Never too late? An advantage on tests of auditory attention extends to late bilinguals. Frontiers in Psychology no. 5: 485. On-line publication 26 May 2014.

- ***Movement, language and cognition in neurodegenerative diseases***

Current bureaucratic hurdles make direct work with patients as part of an MSc project impossible, so the most clinical work I can offer is using already collected and anonymised patient data, in particular Edinburgh Motor Examination (EMAS) and Boston Cookie Theft Description for Boston Diagnostic Aphasia Examination (BDAE). An exception would be overseas students having access to patients in their own countries.

Prof Tim Bates

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Principal Research Grouping
Differential Psychology and Human Cognitive Neuroscience

Research interests
My work uses experimental methods and behavior genetics. Particular foci include variables linked to attainment and social status (education, dyslexia, IQ, Conscientiousness), and non-cognitive traits (positive psychology and attitudes). We have a number of twin datasets with many hundreds of phenotypes for you to work on.

Topics
- Positive Psychology: Optimism, Need for cognition, Persistence, cooperation in groups
- Experimental work on factors that influence attainment: Intervention trials

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Dr Tom Booth

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Research interests
My research interests include quantitative methods (particularly latent variable models, structural equation modelling and scaling methods), psychometrics and personality theory and measurement. I am interested in the development and decline of individual difference traits, group differences, and how traits influence life outcomes, particularly health and in the workplace. Some of my recent work has also been focussed on the relations between individual differences and allostatic load (the wear and tear on the body over time due to the stress response.

Topics
I would be interested in supervising projects around any of the topics listed above. I would encourage students who have ideas around individual differences and health to come and have an informal chat. I have a number of psychometric projects which would be suitable for MSc dissertations.

Prof Holly Branigan

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Principal Research Grouping
Language, Cognition and Communication

Research interests
My main interests are in language production in adults, children and bilinguals, particularly relating to syntax (what are the processes and representations involved in combining words to form complex expressions? how do children and non-native speakers acquire and develop these processes and representations, and how do they differ from those of adult native speakers?) and communication in dialogue, including human-computer interaction (how do people adapt their language to fit their conversational partners? what kind of evidence do they use to make inferences about what their partner knows?).

Projects
I would be interested in supervising any dissertation relating to language production or dialogue from a cognitive perspective. Please note that research involving children must be organised well in advance. Some example project areas are listed below:

- Structural priming in children
- Alignment in human-computer interaction

- Cross-linguistic interference in bilingual production
- Syntactic processing in children's language production

Dr Nicolas Chevalier

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Research interests
While working on a project or assignment, you may need to prevent mind wandering and ignore the temptation to check your emails and Facebook page. Efficient control over your thoughts, actions and emotions will help you stay on task and get it done. In contrast, children tend to be “all over the place”, not exerting cognitive control (also referred to as executive functioning) as well as do adults. Yet, emerging cognitive control during childhood is one of the best predictors of academic achievement and later life outcomes such as health, income, or criminal records. Impaired cognitive control is also often observed in developmental disorders such as autism and ADHD. Given the key role of cognitive control in child development, the study of its development has become one of the “hottest” topics in developmental science. My work uses behavioural, eye-tracking, and electrophysiological (ERPs) measures to address how preschoolers and school-age children process environmental information to determine how and when to engage cognitive control.

Projects on cognitive control development will give you the opportunity to learn how to design and conduct an experiment with children of various ages, and to familiarize yourself with the collection and analysis of behavioural (reaction times, accuracy), eye-tracking (e.g., gaze time, pupillometry), and electrophysiological (event-related potentials – ERPs) data.

Dr Bonnie Auyeung and I offer opportunities for co-supervised MSc dissertations on cognitive and/or social-affective development in children.

Dr Moreno Coco

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Principal Research Grouping
Human Cognitive Neuroscience
Computational Cognitive Science

Research interests and Topics
- Language processing (production and comprehension) situated in visual world context, using eye-tracking

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- Expectancy and predictive mechanisms of stimulus processing, using EEG
- Cooperative dialogue and dynamics of cognitive alignment and task success
- Visual working memory in healthy aging and neuro-degenerate populations
- Visual attention, scene understanding and the role of contextual information

I am happy to discuss personal projects of students broadly interested in cognitive science, and especially those willing to combine experimental data analysis with computational modelling.

Dr Martin Corley

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Web: http://www.ppls.ed.ac.uk/psychology/people/martin-corley

Principal Research Grouping
Language Cognition and Communication

Research interests
I am interested in the production and comprehension of human speech, and in particular, of "natural" human speech including errors and pauses. I'm happy to discuss research proposals in this general area; below are a couple of specific topics I'd be interested in.

Topics

- ***Understanding speech with self-repairs***

Spontaneous speech often includes self-repairs as speakers audit, and change, the message they are producing. Although a lot of work has been done on the self-monitor and the error-repair mechanism, the effect on the *listener* of self-repairs is under-researched. When a speaker says something like "I want to go to Paris – er, I mean Rome", does the listener simply forget that Paris was ever mentioned, or is there a lingering representation of what was said? There is scope in this project for a number of methodological approaches, ranging from eyetracking to EEG.

Corley, M. (2010). Making predictions from speech with repairs: Evidence from eye movements. *Language and Cognitive Processes, 25,* 706-727.

- ***Hesitations in speech and attention***

When speakers hesitate (and pause, or interject an "um" or "uh"), listeners have a clue that something's gone wrong in the process of fluent speech production. A potential consequence is that the listener pays more attention to what's being said. And if that's the case, the balance between top-down information (i.e., prediction from the context) and bottom-up information (i.e., attention to the signal) may change. In this project we will combine phonetic research techniques with disfluency research to try and pinpoint the exact influence of hesitation on attention.

Fox Tree, J. E. (2001). Listeners' uses of um and uh in speech comprehension. *Memory & Cognition, 29,* 320–6.

Pitt, M. A., & Szostak, C. M. (2012). A lexically biased attentional set compensates for variable speech quality caused by pronunciation variation. *Language and Cognitive Processes, 27,* 1225–1239.

- ***The little voice inside your head***

Most of us experience an internal voice when we read, think, or (plan to) speak. However, it's not clear what that voice 'sounds like': is it just like speech, complete with phonetic detail, or is it more like 'prototypical' speech with some of the details left unspecified? In this project, we'll use a speech-error elicitation paradigm in which people either speak aloud, or imagine speaking aloud, and report the errors they make. The trick will be to make people make *enough* errors to really work out what's going on: Previous work has relied on tongue-twisters, but can we improve on that?

Corley, M., Brocklehurst, P. H., & Moat, H. S. (2011). Error biases in inner and overt speech: Evidence from tonguetwisters. Journal of Experimental Psychology: Learning, Memory and Cognition, 37, 162-175.

Oppenheim, G. M., & Dell, G. S. (2008). Inner speech slips exhibit lexical bias, but not the phonemic similarity effect. *Cognition*, *106*(1), 528–37.

Prof Sergio Della Sala

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Principal Research Grouping
Human Cognitive Neuroscience

Research interests and topics
Cognitive neuropsychology, in particular memory and amnesia or visuo-spatial and representational neglect, and the cognitive deficits associated to Alzheimer's Disease.

I am prepared to supervise projects proposed by MSc students within the field of my expertise.

Dr Leonidas Doumas

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Principal Research Grouping
Human Cognitive Neuroscience, Language, Cognition and Communication

Research interests
Humans routinely make inductive inferences that far outstrip those made by even our closest primate cousins. Broadly, I am interested in how humans (and non-human machines) develop the kinds of representations that support these inferences. More specifically, I am interested in how systems can and do learn structured relational representations (like *above*, *next-to*, or *chases*). Relational reasoning (reasoning based on the relational roles that objects play rather than the literal features of those objects) is ubiquitous in human cognition, but relational representations are exceedingly difficult to learn. The power of relational representations stems from their promiscuity: Our representation of a relation like *more*, for instance, can take any possible arguments (e.g, the dog can weigh more than the cat, the winnings can be more than the losses, and the relative neatness of one particular cartoon alien can be more than the neatness of another particular cartoon alien). In other words, the representation of the relation is invariant with respect to its arguments. However, we never actually experience generalised instances of relations in our environments. Our experience of relations in the world occurs only in the context of specific objects. So, our representation of a relation like *more* is disembodied, or untied to any specific objects, but our experience with *more*-ness in the world has precisely the opposite property.

How, then, do we learn these kinds of relational concepts? How is it that children by (roughly) the age of 5, reason about many relational concepts like experts, while no non-human animal seems able to even approximate truly relational thinking? In my lab we use both empirical (with children and adults) and computational methods to get at answers to these and other related questions.

Topics
- Relational reasoning
- Development of relational reasoning
- Capacity limits in human relational reasoning
- Training regimens and acquisition of relational concepts

Dr Sue Fletcher-Watson

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Research interests
Longitudinal trajectories of intellectual disability and autism; early infant cognitive development; early intervention especially with technology.

Topics
We seek a highly motivated and capable student (or two students) to work with an existing, valuable and high-impact data set which includes cognitive and diagnostic (autism, schizophrenia) assessments collected longitudinally from a sample (n=80) of

individuals with intellectual disability.

Prof Catharine Gale

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Principal Research Grouping
Centre for Cognitive Ageing & Cognitive Epidemiology

Research interests
My areas of expertise are cognitive and life course epidemiology. My main research interests are the relationship between cognitive ability in youth and subsequent health, life course influences on cognitive ageing and the development of physical frailty, and the part played by mental health and wellbeing in later health outcomes. I'm also interested in how personality traits affect health outcomes.

Dr Elena Gherri

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Web: http://www.ppls.ed.ac.uk/psychology/people/elena-gherri

Principal Research Grouping
Human Cognitive Neuroscience

Project 1/2: Investigating the control mechanisms of spatial attention (ERP project)
Shifts of spatial attention are known to be associated with lateralised ERP components that can be observed in the cue-target interval of attentional cueing tasks (ADAN, LDAP). These components are supposed to reflect brain activity within frontal and posterior areas of the fronto-parietal attentional control network (e.g. Corbetta & Shulman, 2002).

- ***Project 1. Links between spatial attention and action planning (ERP project)***

Students working on this project will learn to collect and analyze ERP data. For this reason, they should be already familiar with behavioural data collection and basic statistical data analysis. Because collecting ERP data is very time consuming, this project is ideal for two students working together on data collection.

- ***Project 2: Investigating the neural mechanisms underlying shifts of tactile spatial attention (ERP project)***

The sample size requested by this project is considerably large, as compared to standard behavioural studies. For this reason this project is ideal for two students

working together on data collection.

Requirements for ERP projects
Students working on this project will learn to collect and analyse ERP data. For this reason, they should be already familiar with behavioural data collection and basic statistical data analysis. This project is ideal for two students working together during data collection (Although highly motivated students, or students with prior ERP experience can work on their own).

Project 3/4. Investigating peripersonal space (Behavioural projects)
Consistent evidence shows that the body representation in the brain is highly flexible and quickly adapts following apparent or real changes to the body (e.g. Farne et al., 2000; Graziano et al., 2000; Pavani et al., 2000) as well as following active tool-use that extends reachable space (e.g. Iriki et al., 1996; Maravita et al., 2002).

- ***Project 3 Does personality modulate the extension of peripersonal space?***

- ***Project 4. Investigating the plasticity of body representations and peripersonal space***

Dr Paul Hoffman

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Research interests
I am interested in how the brain represents semantic knowledge (verbal and non-verbal knowledge about the world) and how we regulate our use of this knowledge in different situations (for example, the knowledge involved in playing a piano is different to that required for moving a piano). I use a variety of techniques including neuropsychology, psycholinguistics, neuroimaging and connectionist computational modelling. I am particularly interested in how the semantic system interacts with speech and language abilities. I am happy to supervise any of the projects below, or other projects in this area.

Projects
Automating estimation of coherence in natural speech In natural language, coherence refers to the degree to which utterances relate meaningfully to one another and to the topic under discussion. Traditionally, coherence has been measured with subjective ratings; however, an alternative approach pioneered in schizophrenic patients uses an automated statistical technique, latent semantic analysis, to assess this objectively. This project will compare these two approaches for some natural speech samples from healthy subjects, with a view to optimising the automated method.

Elvevag, B., Foltz, P. W., Weinberger, D. R., & Goldberg, T. E. (2007). Quantifying incoherence in speech: An automated methodology and novel application to schizophrenia. Schizophrenia Research, 93, 304-316.

How to learn new words effectively
When individuals lose vocabulary as a consequence of brain damage, therapy often aims to reinstate this knowledge with targeted practice naming a particular set of objects. A key challenge in these cases is ensuring that patients generalise the words they learn to new instances of the same type of object but without over-generalising them to other objects (e.g, using “dog” to refer to Alsatians, poodles, Labradors etc. but not to foxes or wolves). This project will investigate new word learning in healthy older people and explore ways of promoting effective generalisation.

Hoffman, P., Clarke, N., Jones, R. W. & Noonan, K. A. (2015). Vocabulary relearning in semantic dementia: Positive and negative consequences of increasing variability in the learning experience. Neuropsychologia,76, 240-253.

The semantic diversity of object concepts There are some words that we use in a wide range of different situations (e.g., time) while others are encountered in a more restricted set of contexts (e.g., spinach). These differences in semantic diversity affect how quickly we recognise and understand words. This project will apply the same idea to non-verbal concepts for the first time and will investigate how semantic diversity influences performance in an object processing task.

Hoffman, P., Lambon Ralph, M. A., & Rogers, T. T. (2013). Semantic diversity: A measure of contextual variation in word meaning based on latent semantic analysis. Behavior Research Methods, 45, 718-730.

Dr Marios Kittenis

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Principal Research Grouping
Human Cognitive Neuroscience and Koestler Parapsychology Unit

Research interests
Consciousness, perception & volition, studied using cognitive neuroscience & psychophysics methods. Currently investigating changes in the dynamical organisation of electrocortical activity associated with shifts in states of awareness (such as in wake/sleep transitions, dreaming, hypnosis-induced and others), primarily using EEG but also other psychophysiological measures.

The neurophysiology of healthy & disordered sleep (especially using non-linear and complexity analysis methods of polysomnographic & EEG activity).

Topics
I would consider supervising projects related to any of the above topics (and could suggest specific research questions within these areas suited for MSc dissertations).

Prof Robert Logie

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Principal Research Grouping
Human Cognitive Neuroscience

Research interests
Research and teaching interests lie in the cognition of human memory in the healthy brain across the lifespan, focused on experimental behavioural studies of working memory.

Topics
I am available to supervise MSc projects next summer using cognitive, behavioural, experimental approaches to the study of any area of human memory.

Dr Steve Loughnan

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Research interests
The psychology of attributing humanity and moral concern to people (dehumanization, objectification) and to animals (anthropomorphism). The psychological impact of inequality and scarcity.

Topics
The psychology of attributing humanity and moral concern to people (dehumanization, objectification) and to animals (anthropomorphism). The psychological impact of inequality and scarcity.

Dr Michelle Luciano

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Research interests
I study the genetic (quantitative and molecular) and environmental determinants of behaviour, e.g., cognitive ability, personality, mood, and well-being. My research

utilises established population based cohorts where data are already available, so you will be expected to undertake more complex statistical analysis in lieu of data collection. I am happy to supervise students' own projects in this area.

Topics
If you are short on ideas, here are a couple:

- ***Religion as moderator of well-being heritability and of the personality-happiness relationship***

You will address this topic using data from the Midlife in the United States (MIDUS) study on health and well-being. Religiousness is positively associated with subjective well-being, a trait that shows genetic influence. No study has tested whether the heritability (i.e., genetic influence) of well-being is moderated by religion. A twin design can be used to answer this question. Personality traits have also been shown to correlate with subjective wellbeing, but might these relationships also be modified by religion?

Bartels, M., & Boomsma, D. I. (2009). Born to be happy? The etiology of subjective well-being. Behavior genetics, 39(6), 605-615.
Purcell, S. (2002). Variance components models for gene–environment interaction in twin analysis. Twin research, 5(06), 554-571.
Weiss, A., Bates, T. C., & Luciano, M. (2008). Happiness is a personal (ity) thing the genetics of personality and well-being in a representative sample. Psychological Science, 19(3), 205-210.

- ***Combined effects of APOE genetic variation and cognitive ability on Body Mass Index***

Roles for both dementia- and APOE-associated changes in BMI during the adult life course have been shown. The proposed study will test whether this effect can be detected by using cognitive ability scores rather than dementia and whether the effect is found in men and women. Participants will be drawn from the Lothian Birth Cohorts, who are aged over 70 years and have been measured longitudinally for BMI, as well as genotyped for APOE.

Bäckman K, Joas E, Waern M, Östling S, Guo X, Blennow K, Skoog I, Gustafson DR (2015) 37 Years of Body Mass Index and Dementia: Effect Modification by the APOE Genotype: Observations from the Prospective Population Study of Women in Gothenburg, Sweden. J Alzheimers Dis. Sep 16. [Epub ahead of print]

Dr Adam Moore

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Principal Research Grouping
Human Cognitive Neuroscience

Research interests
Embodied moral judgement
Bayesian information updating in real world decisions

Topics
I am willing to supervise other projects that tie-in with my research themes.

Dr Alexa Morcom

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Principal Research Grouping
Human Cognitive Neuroscience; Cognitive Neuroimaging Group (Centre for Cognitive and Neural Systems); Centre for Cognitive Ageing and Cognitive Epidemiology

Research interests
My main research interest is in the cognitive neuroscience of memory: basic memory mechanisms, and how memory changes as we age. I use behavioural as well as neuroimaging methods, both event-related potentials (ERPs) and functional magnetic resonance imaging (fMRI).

Episodic memory involves conscious long-term memory for specific events. It is one of the mental abilities most affected by ageing. Events are less likely to be recollected in detail, and false memory more likely. It is currently unknown to what degree these memory difficulties can be explained by failures of memory control, for example in memory search, and to what degree they reflect basic difficulties distinguishing in memory between similar events.

Topics

- ***Memory self-cueing and external cueing: behavioural study***

Strategic aspects of memory function show a prominent decline in normal ageing and are thought to reflect a decline in executive function (for a short review see (Luo & Craik, 2008). However it is unclear whether this affects the ability to control what is retrieved from memory. Craik's theory states that older adults are more dependent on external cues for 'environmental support', due to impairment in self-cueing, but because of measurement difficulties little evidence so far speaks directly to this.

Young adults 'self-cue' when trying to remember, strategically processing external cues in order to retrieve currently relevant information and avoid retrieval of irrelevant information (= 'internal cueing') (Jacoby, Shimizu, Velanova, & Rhodes, 2005; also Morcom & Rugg, 2004 for an ERP study). This is difficult to study behaviourally as we need to know how retrieval cues are processed before anything is retrieved. However, two research groups have found neat ways of doing this.

A recent study demonstrated interaction between self-cueing of memory and the provision of external cues (Starns & Hicks, 2013). This approach has the strength of also looking external memory cueing using visually rich scenes but does not actually measure internal cueing. The other method is the 'memory for foils' paradigm which gives an indirect independent behavioural measure of internal cueing (Jacoby et al., 2005), given use of the appropriate tasks.

In this project, you will look at age-related effects on internal cueing in older adults using the memory for foils paradigm, adding a manipulation of external cueing. Unlike Jacoby et al.'s (2005) study it is also important to test source memory, as ERP studies have shown that this can improve older adults' engagement with internal cueing.

References

Jacoby, L. L., Shimizu, Y., Velanova, K., & Rhodes, M. G. (2005). Age differences in depth of retrieval: Memory for foils. Journal of Memory and Language, 52(4), 493-504. doi: 10.1016/j.jml.2005.01.007

Luo, L., & Craik, F. I. M. (2008). Aging and memory: A cognitive approach. Canadian Journal of Psychiatry vue Canadienne De Psychiatrie, 53(6), 346-353.

Starns, J. J., & Hicks, J. L. (2013). Internal reinstatement hides cuing effects in source memory tasks. Memory & Cognition, 41(7), 953-966. doi: 10.3758/s13421-013-0325-6

Dr Candice Morey

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Research interests
I study working memory and attention, particularly how, when, and why auditory or verbal and visual representations interfere with each other. I approach these problems using cognitive research methods, eye-tracking, and developmental comparison.

Topics
Students are welcome to meet with me to discuss any ideas related to my research interests. Currently, I am especially focused on understanding how participants attempt to rehearse or retrieve visual memories, especially whether this differs between children and adults, and how this differs for visual compared to verbal memoranda. I have several ideas for research on these topics that could be further developed by an MSc student. If you are interested in discovering how we remember visual imagery, I encourage you to get in touch with me for discussion.

Dr René Mõttus

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Research interests
I am interested in individual differences, mostly on the personality side

Topics
Personality processes within individuals.

Dr Mante Nieuwland

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Principal Research Grouping
Language, Cognition and Communication. Human Cognitive Neuroscience

Research interests
Psychology and cognitive neuroscience of language. EEG/ERP and oscillatory analysis. Functional magnetic resonance imaging.

Projects
For students who are comfortable using/learning Matlab, potential projects involve the oscillatory analysis of already collected EEG data on language comprehension (e.g., Hagoort et al., Science 2004).

Lewis, A. G., Wang, L., & Bastiaansen, M. (2015). Fast oscillatory dynamics during language comprehension: Unification versus maintenance and prediction? Brain and language.

Hagoort, P., Hald, L., Bastiaansen, M., & Petersson, K. M. (2004). Integration of word meaning and world knowledge in language comprehension. Science, 304(5669), 438-441.

For students with a strong interest in psycholinguistics and learning how to do EEG experiments, topics could include referential comprehension (e.g., pronouns).
If you have ideas for projects, I am happy to discuss them with you.

Nieuwland, M. S. (2014). “Who’s he?” Event-related brain potentials and unbound pronouns. Journal of Memory and Language, 76, 1-28.

Dr Antje Nuthmann

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Principal Research Grouping
Human Cognitive Neuroscience

Research interests
My current research interests include perceptual, oculomotor and cognitive control in everyday visual-cognitive tasks like scene perception, object-in-scene search, and reading. I approach these issues with experimental, corpus-analytical, and computational modelling techniques. Because human visual perception involves active information seeking via eye movements, I use eye tracking as my primary behavioural method. I do basic research and do not work with patients.

Topics

- ***How do the regions of the visual field contribute to visual search in real-world scenes? An eye-tracking study comparing dynamic and static scenes***

Visual search—looking for a specific item or object in a visual scene—plays an integral role in our daily life. Intuition may suggest that visual search crucially relies on our high-acuity foveal vision. However, previous research has shown that peripheral vision is oftentimes sufficient to successfully locate objects in space. This project investigates the contributions of foveal/ central/ peripheral vision in dynamic scenes (i.e., 20 sec movie clips) compared to static scenes (i.e., single frames from the movie clips). This is achieved by using gaze-contingent display-change techniques. The project will require the use of eye tracking and programming environments like R or Matlab.

References:
Nuthmann, A. (2014). How do the regions of the visual field contribute to object search in real-world scenes? Evidence from eye movements. Journal of Experimental Psychology: Human Perception and Performance, 40(1), 342-360. doi: 10.1037/a0033854.

Smith, T. J., & Mital, P. K. (2013). Attentional synchrony and the influence of viewing task on gaze behavior in static and dynamic scenes. Journal of Vision, 13(8):16, 1-24, doi:10.1167/13.8.16.

- ***How colour guides how we look for objects in real-world scenes: An item analysis***

The study is designed to investigate how colour facilitates gaze during real-world search. Previous research has shown that search is faster for colour than for greyscale scenes. The aim of this project is to replicate this finding and to investigate how it depends on the specific items (i.e., photographs of real-world scenes) used in the study. To this end, linear mixed-effects models will be used to assess between-item

variability in both search times and fixation durations. The student will learn how to collect data with an eye tracker. A solid background in statistics and interest in R will facilitate this project.

References:
Nuthmann, A., & Malcolm, G. L. (in press). Eye-guidance during real-world scene search: The role color plays in central and peripheral vision. Journal of Vision.

Prof Martin Pickering

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Principal Research Grouping
Language Cognition and Communication

Research interests
I am interested in language production, comprehension, dialogue, bilingualism, and reading. At the moment, I am particularly interested in studying interactive language as a form of "joint action" (whereby the use of prediction and covert imitation appears to make "smooth" dialogue possible), and in the question of whether interlocutors represent their partners' utterances in the same format as their own. However, I am also interested in "traditional" psycholinguistic questions, particularly as relating to syntax, semantics, and discourse.

Topics
- Joint production of utterances
- Structural priming and language production
- Language switching in bilinguals

Dr Hugh Rabagliati

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Principal Research Grouping
Developmental Science
Language Cognition and Communication

Research interests
Linguistic and conceptual development (e.g., semantic development, relationship between language and thought). Language processing in young children (e.g., eye tracking studies of predictive linguistic processing or mechanisms of language production). Relationships between conscious awareness and language processing in

adults.

Topics
I'm happy to supervise developmental work related to the above topics. I'm also happy to work with students to develop a (feasible) unrelated project, provided the idea is good. I typically work with children between 6 months to 4 years. Working with these populations takes a lot of time, and so it is important to get started early.

Dr Richard Shillcock

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Principal Research Grouping
Language, Cognition and Communication

Research interests
My research interests involve experimental and modelling approaches to understanding normal and impaired isolated word recognition and binocular reading of text; hemispheric interaction; philosophical issues in cognitive modelling and theory construction; the mental lexicon.

Projects

- ***Connectionist modelling of hemispheric interaction***

We will use a neural network simulator to test a hypothesis about the origins of sex differences in cognitive function. Some facility with computers would be desirable; programming not essential. The first reference below describes the data we will attempt to model. The second reference gives the flavour of the intended research.

Johnson, W., Carothers, A., & Deary, I. J. (2008). Sex differences in variability in general intelligence: A new look at the old question. Perspectives on Psychological Science, 3(6), 518-531.

Monaghan, P., & Pollmann, S. (2003). Division of labor between the hemispheres for complex but not simple tasks: An implemented connectionist model. Journal of Experimental Psychology: General, 132(3), 379.

- ***Analysis of an existing eye-movement database***

We will analyse a novel aspect of a very large database of binocular eye-movements in reading in English, Chinese, Arabic, Hebrew or Spanish, or in English-dyslexic. Some facility with R would be desirable. The first reference below is an example of our theorizing within this domain (but the project would not be at this level). The second reference gives the flavour of some of the effects that amy be apparent in the dyslexics' data.

Shillcock, R., Roberts, M.A.J., Kreiner, H., & Obregón, M. (2010). Binocular foveation in reading. Attention, Perception & Psychophysics. 72 (8), 2184-2203. doi:10.3758/APP.72.8.2184 [Designated "Best paper of 2010 in AP&P"]

http://www.research.ed.ac.uk/portal/en/publications/characterizing-binocular-eyemovements-in-reading-in-esotropic-duanes-syndrome(3006431c-e924-49e0-aff5-ac55ef8de070).html

- ***Artificial Grammar Learning***

We will employ a new means of presenting AGL stimuli to reinforce a new hemisphere-based interpretation of what is going on in AGL. An in-preparation paper is available on request.

I am happy to talk about students' individual ideas for projects within the field of eye-tracking or visual word identification.

Dr Patrick Sturt

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Principal Research Grouping
Language, Cognition and Communication

Research interests
I am interested in the moment-by-moment processes by which people assign meanings to sentences during language comprehension. More generally, I am interested in how people infer a hierarchical structure from linear or sequential perceptual input in linguistic and non-linguistic domains (e.g. in processing linguistic sentences, mathematical formulae, musical phrases, etc). At a more abstract level, I am also interested in the nature of the mental representation of hierarchical structure in language and other domains.

Projects
- Eye-tracking of mathematical expressions: Mathematical Garden Paths
- Incrementality and structural representations in mathematics and language

I am also happy to supervise any other project that falls within my area of expertise, and which I judge to be realistic for an MSc project. Topics could include; the time-course of dependency formation in sentence processing; processing of pronouns and anaphora; processing of non-linguistic structural information; etc. If you have ideas for projects, please come to discuss them with me.

Dr Alex Weiss

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Principal Research Grouping
Differential Psychology

Research interests
Broadly speaking, I am interested in personality and subjective well-being. I study these via several techniques, especially those that lend themselves to answering evolutionary questions. These include studying these traits in other species (especially nonhuman primates); behaviour genetic studies; and examining relationships between personality and outcomes, including mortality, aging, and depression. I believe more powerful and convincing studies are those that use multiple approaches. I am also interested in multivariate statistical analysis, including factor analysis, structural equation modelling, growth curve analysis, and survival analysis.

Topics
I am willing to supervise students interested in a broad range of questions related to personality evolution.

Dr Maria Wolters

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Principal Research Grouping
Human Cognitive Neuroscience

Research interests
I work both in PPLS and in Informatics and specialize in human factors, human-computer interaction, and eHealth (in particular applications to mental health and managing long-term conditions. I am particularly interested in supervising projects related to the following areas:

- the effect of mental health and wellbeing on how people use technology
- designing reminders that work
- cognitive aspects of user interface design for telecare and eHealth

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LINGUISTICS & ENGLISH LANGUAGE

Dr Rhona Alcorn

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Research interests
Historical phonology, historical dialectology, the relationship between sounds and spelling, linguistic history of Scots.

Prof Ronnie Cann

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Web: http://www.ppls.ed.ac.uk/people/ronnie-cann

Research interests
Formal semantics and syntax; the interaction of semantics, pragmatics and syntax; dynamic and non-transformational models of grammar; cognitive and model-theoretic semantics; historical morpho-syntax.

Topics
- The syntax, semantics and / or pragmatics of case-marking
- Syntax and semantics of prepositional and other adjuncts
- Vagueness and context dependence of word and sentence meaning

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Dr Vicky Chondrogianni

Office: 2.07a (DSB)

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Web: http://www.ppls.ed.ac.uk/people/vicky-chondrogianni

Research interests
First and second language acquisition of morphosyntactic phenomena; child bilingualism; language and cognitive development in bilingual children; children with developmental language disorders; sentence processing in bilinguals.

Topics
I am happy to supervise topics related to language and cognitive development in bilingual children and in children with developmental language disorders, as well as to sentence processing of morphosyntactic phenomena (e.g. subject-verb agreement,

tense, articles, pronouns, *wh*-questions, relative clauses) in bilingual children.

Dr Claire Cowie

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**On research leave in semester 2

Research interests
Language and globalization; World Englishes and English creoles; English in India; variation and change in Indian English; English as a lingua franca especially in call centres; Language attitudes and World Englishes.

Topics
I am potentially able to supervise on a range of topics related to my research interests. I am constructing a corpus of spoken Indian English and would welcome students interested in exploring variation in these recordings.

I am interested in supervising projects connected to the Edinburgh Speaks project: http://www.lel.ed.ac.uk/lel_research/edinburgh_speaks.php.

Dr Jennifer Culbertson

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Research interests
Language acquisition and change, learning biases, typology, (morpho)syntax, computational models of cognition, artificial language learning, grammaticality judgments.

Topics
- Language universals
- Cognitive biases
- Language change / historical linguistics
- Language acquisition

Dr Olga Feher

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Research interests
I am interested in the evolution and development of vocal communication systems, particularly birdsong and human language. At the moment I am involved in research investigating the social and evolutionary mechanisms involved in language learning, language transmission, and communicative interaction. I use artificial languages in laboratory experiments to study how adults learn and use these languages and how this in turn influences the way language change and evolve.

I'd be interested in supervising dissertations involving experimental techniques to look at language learning or language use during communication and transmission (when learners pass languages on across generations), and what social variables affect it. I am happy to discuss any ideas or suggest research topics.

Dr Joseph Gafaranga

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Research interests
Discourse and Conversation Analysis (theoretical and applied); Bilingualism (sociolinguistic and interactional dimensions).

Topics
I am happy to supervise any topics in the above areas of interest.

Prof Heinz Giegerich

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Research interests
Morphological and phonological theory in relation to English; in particular phonology/morphology interaction (lexical stratification) and the interface of syntax and morphology (compounding etc.).

Topics
Happy to supervise (almost) any topic relating to morphology and phonology of the

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Germanic languages and their histories.

Prof Nik Gisborne

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Research interests
Dependency theory; English syntax; lexical semantics; syntactic change and grammaticalization.

Topics
Happy to supervise in Syntax, Semantics, Syntactic Change; Grammaticalization and World Englishes.

Dr Lauren Hall-Lew

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Research interests
Sociolinguistics; phonetic variation and change in English

Topics
Happy to supervise any topic related to sociolinguistic variation, language attitudes, or language change. Particularly interested in topics on phonetic variation. Languages of particular interest include all varieties of English, Chinese, Spanish, and any West African (especially Kwa) languages.

I am interested in supervising projects connected to the Edinburgh Speaks project: http://www.lel.ed.ac.uk/lel_research/edinburgh_speaks.php.

Prof Caroline Heycock

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Research interests
Generative syntax; syntactic change; the syntax of the Germanic languages, the syntax / semantics interface.

Topics
Happy to supervise (or co-supervise) topics in any of the above areas. Current interests include copular constructions, "root phenomena," agreement.

Dr Patrick Honeybone

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Research interests
Historical Phonology, Phonological Theory and Northern Englishes.

Topics
- Phonological theory
- Historical phonology
- The phonology of English: structural, dialectological and / or historical issues
- English in the North of England

Prof John Joseph

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Research interests
Language and identities; language and politics; history of linguistics and semiotics.

Topics
Available to discuss with students whatever topics in the above areas they may wish to carry out.

Prof Simon King

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Research interests
Speech synthesis and automatic speech recognition.

Topics

- Speech synthesis for low resource languages or domains, especially using unsupervised machine learning
- Speech synthesis of audiobooks for children, including how to evaluate this with child listeners
- Speech processing to improve the intelligibility of speech, including for hearing aid users
- Any other topic in speech synthesis, including both unit selection and statistical parametric methods

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Prof Simon Kirby

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Research interests
Evolution of language; origins and evolution of culture.

Topics

- Computational models of language evolution
- Iterated learning in the experiment lab and online
- The origins of design features of language
- The role of improvisation, interaction and learning in the origin of linguistic structure
- Silent gesture and miniature artificial sign languages
- Evolutionary approaches to emerging sign languages
- Experimental approaches to the cultural evolution of music and art
- Self-domestication and language evolution

Prof Bettelou Los

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Research interests
My area of specialisation is diachronic syntax (especially English diachronic syntax, but also more generally), and the role on information structure in syntactic change, in particular with respect to the consequences of the loss of verb-second in English; and comparative information structure and macro-structural planning of the West-Germanic languages English, Dutch and German.

Topics

- The emergence of new constructions in English
- Narrative structure of Old or Middle English texts

- The function of clause-initial adverbials in English (compared to another language)
- The role of Face as motivating language change
- Referent tracking in Old English

Dr Warren Maguire

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Research interests
Dialectology, varieties of English/Scots, phonetic and phonological variation and change

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Dr Mits Ota

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Research interests
First and second language acquisition (phonological and lexical development in particular); prosodic phonology; connections between phonetic/phonology and other cognitive domains (e.g., orthography, social cognition, music)

Topics
- The role of linguistic input in early language development (e.g., Do phonological and/or morphological characteristics of infant-directed speech play any role in language development?)
- The relationship between lexical and phonological development (e.g., Do children learn words with certain phonological characteristics earlier?)
- Phonological representations in second language words (e.g., Are non-native contrasts underspecified in second language words? Does our native orthographic system affect the way we process second language words?)

Dr Michael Ramsammy

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Topics
Laboratory and theoretical approaches to phonology, experimental phonetics, sociophonetics, sign-language linguistics (BSL), language change/historical phonology in Romance or Germanic languages, Caribbean Creoles.

Dr Bert Remijsen

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Research interests
The phonetics, phonology and typology of suprasegmental contrasts, e.g. tone, intonation, stress, vowel length, and voice quality. Descriptive linguistics, with specific expertise on Austronesian languages, Nilo-Saharan languages, and Caribbean creole languages.

Topics
I can supervise self-suggested topics within my research focus area, and I may have topics readily available. Dissertation projects I have supervised in the past give a sense of the range - they include "An investigation into prosodic patterns in the Ness dialect of Lewis Gaelic"; "The voice quality distinction in Dinka songs"; "Suprasegmentals in Shilluk nominal morphophonology". The methodologies I am most familiar with are controlled elicitation and acoustic analysis.

Dr Marieke Schouwstra

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Research interests
I am interested in the evolution of language, and the emergence of syntactic structure. My own research focuses on laboratory experiments that involve improvisation, learning and communication, to investigate the roles they play in the emergence of language rules.

Topics
I am happy to supervise projects that use the laboratory techniques mentioned above (I may have topics available), but do get in touch if you have your own idea for a topic.

Dr Kenny Smith

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Research interests
I am interested in the evolution of communication, human language, and the human capacity for language. I use computational models and experiments with human participants to investigate these questions, simulating (in the computer or in the lab) the processes of language learning, language transmission, and communicative interaction. I'd be interested in supervising dissertations involving these techniques individually (e.g. looking at language learning or language use during communication) or in combination (e.g. how do languages evolve as a result of their learning and use).

I am happy to discuss your ideas, or I can suggest specific research questions and experiments.

Prof Antonella Sorace

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Research interests
Language development in child and adult bilinguals; bilingualism and general cognition; gradience at the lexicon-syntax interface. I direct the research and information centre Bilingualism Matters (www.bilingualism-matters.ppls.ed.ac.uk)

Topics
I would be interested in supervising dissertations (by myself or in collaborations with colleagues in LEL or Psychology) on the following areas/topics:

- ***Early (child) bilingualism***

Age effects in child bilingualism. Interactions of age of onset and type of input exposure. Interface conditions on syntactic realization, especially at the syntax-pragmatics interface (e.g. anaphoric forms) and at the syntax-lexicon interface (e.g. intransitive verbs and unaccusativity).

- ***Late (adult) bilingualism***

Limits of adult L2 ultimate attainment; linguistic and cognitive characteristics of very advanced (near-native) L2 speakers. Language and processing in late bilinguals. Effects of L2 on L1; comparison of advanced L2 acquisition and individual L1 attrition; L1 attrition in first and second-generation speakers.

- ***Language and general cognition in early and late bilingualism***

Is there a 'bilingual advantage' for general cognition in late bilinguals? Effects of bilingualism vs. multilingualism on general cognition. Bilingualism in minority languages. Bimodal (signed + spoken language) vs. unimodal bilinguals.

Dr Monica Tamariz

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Research interests
Language evolution, cultural evolution

Topics
- Cultural evolutionary dynamics in language and other aspects of culture
- Co-evolution between biology and culture
- Co-evolution between forms and functions
- The role of over-imitation in cultural inheritance
- Partner dance as a complex communication system
- Experimental and theoretical approaches to all of the above

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Dr Graeme Trousdale

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Topics
- Constructional approaches to language variation and change
- Morphosyntactic variation and change in British English dialects
- Figurative language

Dr Rob Truswell

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Research interests
Syntax, semantics, linguistic interfaces, syntactic change, language evolution, history of English.

Topics
I am happy to discuss topics in any of the above areas, but currently particularly interested in:

- the relationship between language change and language typology
- event structure
- syntax and semantics of relative clauses
- syntax and semantics of pronouns and binding
- quantifier scope

Prof Alice Turk

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Research interests
Phonetics, phonetics-phonology interface, speech production, speech perception, prosodic structure, timing, articulatory variation, models of speech motor control.

Topics
I would be interested in supervising topics relating to any of the areas listed above.
