DAY 1 WEDNESDAY 4th April 2018

07:30 – 08:30am **Registration, poster set up, coffee** (Hunter Halls)

08:30 – 08:45am **Welcome by Rachael Jack** (Bute Hall)

8:45am – 9:45am **KEYNOTE TALK** (Bute Hall)

PROF. BATJA MESQUITA, KU Leuven, Belgium

Emotional Acculturation: Emotions as Gateways to Minority Inclusion

People learn to have emotions that fit the values central to their own culture, and that benefit the types of relationships that are valued in that culture. By sharing the emotions of the culture, individuals align themselves –often unwittingly– with the values of their groups and cultures. Thus, cultural variations in emotional phenomena are best understood as a function of *culturally* normative relationship goals that tell individuals how to feel, when to feel and why to feel. Considered this way, having the "right" emotions is a key social competence in achieving belongingness, fit and wellbeing. In this talk I present research on emotional acculturation, and its consequences for belongingness, fit, and wellbeing of immigrant minorities. I will also discuss how our insights on emotional acculturation may inform interventions to improve the belongingness and wellbeing of immigrant minorities.

WEDNESDAY MORNING SYMPOSIA

SYMPOSIUM 1: Affective Social Learning: Process, Context and Development

Wednesday 4th April, 10:15am – 12:15pm

Bute Hall

Convener: Daniel Dukes, Swiss Center for Affective Sciences, University of Geneva, Switzerland

Affective social learning is a novel concept that frames value acquisition in terms of inter-relational emotional processes (Clément and Dukes, 2017; Dukes and Clément, 2017). It sets out to explain how people's evaluations of the objects in their environment can be influenced by other people's affective expressions. Although this is probably not the whole story of how we learn to value objects (as some phenomena might automatically and universally disgust or amuse, for example), affective social learning can go a long way to explaining why what matters to us, matters to us. In part, this is a meta-concept – an umbrella term for older, well-studied concepts

such as social appraisal (Fischer & Manstead, 2001) and social referencing (Campos, 1983) that describe how other people's affective relationships with the objects in the environment influence our feelings and behaviour towards those objects. Given the complexity of detecting how people feel about things, it also invites researchers in emotion recognition to go beyond thinking in terms of static faces of basic emotions, or, for example, of a smile as capturing all positive emotion (and no negative emotions). It also draws on research on the relationship between the observer and the observed, an epistemic vigilance (Sperber, Clément, Heinz et al., 2010), that highlights the importance of being able to trust (or not) the person you are learning from. Furthermore, it has led to the proposition of including a new term – affective observation – to account for occasions when we can learn from others without them even being aware of being observed.

In this symposium, after a brief introduction to affective social learning, several aspects of the concept will be presented before concluding with a discussion of the themes that emerge. The first paper will be given by Daniel Dukes (Geneva) and will set out to describe the concept in more detail, explaining what is novel about it and how it may lead to a greater understanding of the mechanisms involved in the social transmission of value. The focus here will be on the developmental aspects of learning value from others. A developmental study will be presented that shows that children as young as 12 months old use other people's expressions of the emotion of interest to scaffold their own behaviour.

The second paper, to be given by Christian Mumenthaler (Geneva), will present empirical findings on socio-affective inferential mechanisms involved in emotion recognition, underlining the quasi-automatic integration of affective information provided by third-party sources for processing ambiguous expressions. As such, this paper will highlight some of the mechanisms involved in social appraisal, one of the affective social learning processes.

The third paper will be given by Magdalena Rychlowska (Queens, Belfast) and will highlight two aspects of affective social learning and discuss how they relate to intergroup resource dilemmas. Evidence will be provided that emotions our interaction partners display about past decisions, influence how much we trust them and their groups. A second set of experiments will demonstrate that different types of smile (rewarding, affiliative, domineering) can communicate specific intentions, thereby influencing trust between individuals and groups in particular ways.

The final paper, to be given by Brian Parkinson (Oxford), will highlight the fact that in interpersonal communication, not only do people's emotions provide information about each individual's interpretation of objects and events, they also adjust to each other in real time. The paper will suggest ways of modifying the

typical format of studies designed to investigate the communication of emotional influence that would allow a greater focus on the social effects and functions of emotion and set out the different forms of relation alignment that these modifications could identify. Such investigations could lead to different forms of affective social learning involving not only the acquisition of abstract semantic knowledge, but also the co-construction of contextualised pragmatic orientations.

Finally, Agneta Fischer (Amsterdam) will provide a commentary and lead the discussion on the themes emerging from the presentations.

10:15am – 10:35am **Paper 1: Affective Social Learning and the Transmission of (Social) Value**

Daniel Dukes[1] & Fabrice Clément[2]
[1]Swiss Center for Affective Sciences, University of Geneva, Switzerland
[2]Cognitive Science Centre, University of Neuchâtel, Switzerland

One of the main goals of affective social learning is to explain how children's value acquisition can be influenced by others' affective expressions. While in the philosophy of emotion the link between value and affect is often made, this link is less common in psychology. But if we can accept that an emotion is an evaluation of something in the sense that I can be angry about something, I can be disgusted by something or interested in something, emotional expressions can be seen as being illustrative of the 'value' that the emoter gives (or even the relation that the emoter has towards) the something in question. Studies in social appraisal and social referencing have demonstrated that by being able to appreciate this relation between person and object, an onlooker's feelings and behaviour towards objects can be influenced in terms of their own feelings and behaviour towards objects: A child who is born in a particular family may learn through the affective expressions of their parents, to love marmite but dislike sushi, to support the reds but hate the blues and admire realism but despise abstract art. This paper will focus on the developmental acquisition of value and present a simple initial experiment to illustrate the processes involved. Results showed that when infants were presented with the choice between an object that had been previously looked at with interest and another that had been looked at with disinterest, 9-month olds chose at chance level, whereas 12-month olds chose the object that had previously been looked at with interest. Unexpectedly, the infants aged 15 months old significantly chose the object that had been looked at with disinterest. While surprising, these results do suggest that infants as young as 12 months old use third-party expressions of interest to scaffold their value-judgements.

10:35am – 10:55am **Paper 2: Smiles, Trust, and Affective Social Learning in Intergroup Resource Dilemmas**

Magdalena Rychlowska[1], Job van der Schalk[2] & Antony Manstead[2]
[1]Queen's University Belfast, UK
[2]University of Cardiff, UK

Affective social learning or using other people's emotions as a guide to valuing events and objects, is influenced by many factors. Among them is the relationship between the observer(s) and the other(s). We investigated how facial expressions of emotion, in particular smiles, affect trust and social appraisals in intergroup social dilemmas. In two previous studies, groups of participants were led to believe that they were playing a trust game with another group. In round one, each group was exposed to an outgroup member who acted unfairly and expressed positive or negative emotions concerning their decision. In the second round, each participant played individually with another anonymous outgroup member. Participants' behaviour in this round was affected by the outgroup exemplar's emotional expression in the first round, such that smiling following unfair decisions, compared to expressing regret, decreased the amount of resources shared with the outgroup. However, not all smiles are equal, so we conducted four studies in which we explored the effects of reward, affiliative, and dominance smiles displayed with regard to unfair behaviour. The three smile types elicited different social appraisals. Affiliative smiles, the function of which is to convey appeasement and prosocial motives, communicated the expresser's willingness to repair the relationship between groups, leading to higher levels of trust than reward and dominance smiles, conveying enjoyment and superiority, respectively. The effects of smiles on behavioural trust varied between studies, suggesting an influence of participants' involvement. Our findings support the theories of social appraisal and affective social learning, by demonstrating that emotions expressed by one outgroup member shape observers' evaluations of the situation and subsequent trust in other members of this outgroup. They also illustrate the versatility of smile signals and the importance of context in interpreting these facial expressions.

10:55am – 11:15am **Paper 3: Socio-Affective Inferential Mechanisms in Emotion Recognition**

Christian Mumenthaler & David Sander
Swiss Center for Affective Sciences, University of Geneva, Switzerland

Numerous lines of research have shown that contextual information can strongly modulate the perception of facial expressions. In fact, because we often perceive people when they are surrounded by other people, the faces of those others are habitual contextual cues in social situations and provide crucial information. Even so, it is important to make a distinction between the general affect expressed by others and a more specific inferential process in which the apparent emotional reaction of others is directed at a certain person. Such socio-affective inferential mechanisms, as present for instance during social appraisal and probably involved in an affective social learning process, may exert specific influences on the recognition of emotional stimuli, particularly when facing uncertain situations. We used a similar method across five experiments to investigate this process. Participants were asked to judge dynamic facial expressions of emotion in a target face presented at the centre of a screen while a contextual face appearing in the periphery either expressed an emotion or did not, and either looked at the target face or away from it. We manipulated gaze direction to be able to distinguish between the general emotion expressed by others and a more specific socio-affective inferential mechanism. Experiments 1 and 2 provided first evidence of a socio-affective inferential mechanism when the target and contextual faces expressed emotions that were functionally related (i.e. anger–fear pairs). Experiments 3 and 4 revealed the automatic nature of this process and Experiment 5 showed that this effect is not limited to the recognition of basic emotions but can also be observed in complex social emotions (i.e. disgust-shame pairs). In sum, our findings highlight the importance of socio-affective inference mechanisms, which are automatically integrated into the dynamic emotion recognition process, providing useful information for processing uncertain situations.

11:15am – 11:35am **Discussion/Q&A/Comfort break**

11:35am – 11:55am **Paper 4: Interpersonal Emotional Influence: Meaning and Orientation in Social Appraisal and Other Forms of Relation Alignment**

Brian Parkinson
University of Oxford, UK

This paper focuses on experimental research into social appraisal and its implications for our understanding of interpersonal emotional influence and affective social learning. Most studies manipulate explicit information about a discrete emotion expressed by a source with whom participants have little or no direct contact. Reported effects on perception, appraisal, emotion or behaviour thus require receivers to make sense of a one-way communication of a specific emotional meaning. Relaxing the constraints of this paradigm permits investigation

of a wider range of emotional influence process, involving reciprocal co-ordination of relational orientations in addition to appraisal communication. People's emotions adjust to each other as well as providing information about the interpretation of objects and events. This paper considers some of the alternative methods available for exploring social effects and functions of emotion and sets out the different forms of relation alignment that they can identify, including both inferential and non-inferential processes, and implicit as well as explicit forms of regulation and co-regulation. These processes may lead to different forms of affective social learning that involve acquisition of contextualised pragmatic orientations in addition to abstract semantic knowledge.

11:55am – 12:15pm **Commentary and Discussion**

Agneta Fischer
University of Amsterdam, The Netherlands

Commentary and discussion on the themes emerging from the presentations.

12:15pm – 13:45pm **LUNCH & POSTERS** (Hunter Halls)

SYMPOSIUM 2: Affect Recognition in Humans versus Machines: Current Issues and Future Challenges
Wednesday 4th April, 10:15am – 12:15pm
Senate Room
Convener: Eva Krumhuber, University College London, UK

Machine analysis of human affective behaviour is increasingly of interest to both scientists and lay people. The promise of automatically detecting and scoring emotional states carries significant potential to facilitate and augment existing methods of emotion assessment. Besides the potential use in numerous applied fields, automated systems can also act as an important tool to increase the accessibility of nonverbal communication analysis as a behavioural measure. Furthermore, these systems can be employed to validate the emotional content of human data, such as emotion self-reports and observer judgements. Large collections of training and test data are needed to develop systems that accurately specify the emotional content of human recordings. In the past, relevant efforts for machine analysis have often been hampered by a lack of comprehensive and labelled sets of dynamic emotional portrayals.

This symposium aims to a) bring together state-of-the-art research on automatic emotion classification using dynamic expressions of emotion, and b) highlight similarities and differences between humans and machines in affect recognition. This will be achieved by using a variety of publicly available databases and validation techniques, including subjective measures (self-reports, observer ratings) and objectives indicators (physiology, motion capture, computer vision). The symposium will feature four speakers and one discussant.

Recio opens the symposium by exploring human versus machine classification through a dynamic version of the KDEF dataset. Machines achieve acceptable consistency with human rates, but they may still lag behind in classifying blended emotional expressions in the face.

By including electromyographic and motion capture data, Olugbade uses the EmoPain dataset to investigate how objective measures contribute to the automated detection of fear and pain in body movements. Rather than relying solely on visual cues, covert information provided by electromyographic data can function as additional input for machines, introducing the potential to exceed performance levels by human judges.

This is followed by Krumhuber who presents the first empirical challenge of dynamic facial expression databases: comparing the performance of humans and machines in recognising the six basic facial emotions across 14 different sets. Although machines generally outperform humans in recognising the target emotion, this effect is largest for posed displays and classification rates are comparable in the context of spontaneous expressions.

Next, Dupré provides a comparison between three commercial software packages (Affectiva, Kairos, Microsoft) to reveal how classifiers differ in the automatic recognition of spontaneous facial expressions provided by the DynEmo database. Although detection rates between the three systems are comparable in terms of how well a target emotion is recognised, substantial differences can be observed when it comes to ruling out relevant non-target emotions.

The symposium will conclude with a discussion by Kappas on new trends in data analytics and machine learning, which have the potential to supersede theoretically guided hypothesis generation. This discussion includes a critical reflection on the usefulness of the concept of emotion, and various factors that moderate its relation to ground truth.

10:15am – 10:35am **Paper 1: Validation of the KDEF-Dyn by Human Observers and Automated Analysis of Facial Expression with Computer Software**

Guillermo Recio[1], Andrés Fernández[2], Mario Del Líbano[3] & Manuel G. Calvo[4]
[1]Universität Hamburg, Germany
[2]Universidad Internacional de La Rioja, Spain
[3]Universidad de Burgos, Spain
[4]Universidad de La Laguna, Spain

The validation of standardized face stimuli in emotion research for use as induction method, or as recognition test for emotional categories, traditionally involves a group of human observers who rate the emotional content of the stimuli. High agreement across observers with the intended emotional category is taken as validation of the face stimuli. The selection of a representative and large enough sample of raters to guarantee the quality of validation can be time and resource-consuming. Automated analysis of facial expressions appears as a more efficient and objective alternative to manual coding, if observations obtained with both methods converge. We compared recognition performance and consistency between human raters and automated analyses of facial expressions using a dynamic version of the Karolinska Directed Emotional Faces (KDEF; Lundqvist, Flykt, & Öhman, 1998). Original stimuli were morphed with computer software to show different expressive intensities as well as static blended emotions (e.g. smiling mouth with angry eyes). Results showed acceptable consistency in classification by automated assessment and human raters. The software was able to distinguish and score fine-grained differences in expression intensity, but human observers outperformed automated assessment in the recognition of blended expressions. Implications of these results and challenges for the automated analyses of facial expressions with software will be discussed.

10:35am – 10:55am **Paper 2: Assessment of Pain and Related Fear by Clinicians and Machines**

Temitayo Olugbade, Min Hane Aung, Nadia Bianchi-Berthouze & Amanda Williams
University College London, UK

Chronic pain is associated with fear of pain and movement (Vlaeyen et al., 2016). An interesting question for technological intervention is how well machines can recognise expressions of pain and related fear. We investigated this question using the EmoPain dataset (Aung et al., 2016) which incorporates, besides self-reports of pain, video clips, motion capture, and electromyography data from people with chronic pain (and control

participants) performing everyday movements. The video data were labelled on a frame level by clinicians for guarding, i.e. restrictions in movement associated with fear (Watson et al., 1997). Agreement between the coders based on temporal concordance was poor. However, automatic detection performance (using the labels, aggregated across the coders and movement instance frames) using the motion capture and electromyography data was excellent. Re-labelling a subset of the video data per movement instance rather than per frame led to much better level of agreement between human coders. The subset was further labelled for pain level, but the coders argued against this insisting on subjectivity in pain experience. Using the self-reported labels, automatic detection performance of pain levels was also excellent. These findings suggest that machines can achieve higher levels of agreement with ground truth than human coders can do with confidence. This may be due to the objective nature of machines in classifying data compared to human judges who are prone to biases, often not conscious, in their ratings. Also, human coders commonly have to rely on visual cues, whereas covert information as provided by electromyographic data can act as an additional data source for automatic detection. The present findings provide a platform for discussion on whether collaboration with machines can make human observers better affect assessors.

10:55am – 11:15am **Paper 3: The First Empirical Challenge of Dynamic Facial Expression Databases in Humans and Machines**

Eva Krumhuber[1], Datin Shah[1], Manuel G. Calvo[2], Dennis Küster[3,4]

[1]University College London, UK

[2]Universidad de La Laguna, Spain

[3]University of Bremen, Germany

[4]Jacobs University, Germany

Within the last two decades, the use of dynamic facial expressions in affective science has markedly increased due to the stimuli's greater realism and ecological validity. In order to meet the need for appropriate stimuli in research and applications, several databases containing dynamic facial expressions have been developed. While thematic and practical differences in stimulus creation have been reviewed (Krumhuber, Skora, Küster, & Fou, 2017), no cross-database evaluation of the available sets exists to date. The current study sets out to be the first to empirically compare the performance of human and machine analysis in recognising facial expressions from multiple dynamic databases. To this end, 14 datasets were chosen, each portraying dynamic expressions of anger, disgust, fear, sadness, happiness, and surprise. In Study 1, human observers provided emotion confidence ratings for 162 video-clips of six basic emotions. Recognition rates were clearly above chance level but differed

significantly between the databases. From all emotions, happiness was best recognised, while fear was the least well recognised expression. In Study 2, the same dynamic stimuli were submitted to automatic emotion classification using the Emotient FACET SDK v5.7 (iMotions, 2016). The results showed that FACET generally outperformed humans in recognising the target emotion. This was particularly the case for posed displays, with comparable rates between humans and machines in the context of spontaneous expressions. Overall, facial actions that were predicted to signal a basic emotion category occurred with moderate frequency and were found to be correlated with human recognition accuracy. Together, these findings have important implications for advancing developments of dynamic databases and automated affect recognition.

11:15am – 11:35am **Paper 4: A Comparison of Three Commercial Systems for Automatic Recognition of Spontaneous Facial Expressions**

Damien Dupré and Gary McKeown
Queen's University Belfast, UK

Automatic facial expression recognition systems can provide important information about our emotions and how they change over time. While the use of automatic systems has seen a steady increase over the last years, their classification results have not yet been systematically compared. The aim of this research was to test commercial software packages from Affectiva, Kairos and Microsoft companies in terms of their recognition accuracy. For this, we focused on spontaneous and dynamic facial expressions as provided by the DynEmo database –Disgust, Fear, Joy, and Surprise. In order to compare the classification results, we calculated the systems' ratio of True positives (only the target label is recognised), False positives (the target label as well as a non-target label is recognised), True negatives (no label is recognised) and False negatives (target label is not recognised whereas a non-target label is). The results of the comparison between the systems showed comparable detection rates in term of True positives and False positives. However, their detection rates of False negatives and True negatives significantly differed between the different recognition systems. Specifically, systems were not equal in their tendency to detect non-target labels erroneously as well as in their tendency to not detect any emotion label. When examining emotion recognition accuracy for each video/emotion, videos with higher recognition accuracy were those that depicted as joyful facial expression. Other facial expressions resulted in a proportion of target emotion detection statistically equal or lower than the detection of non-target emotion. These results suggest that systems are not equivalent in their ability to detect specific spontaneous emotions. Therefore, users of such systems have to be aware of the strengths as well as of the potential limits of the data provided by automatic emotion recognition systems.

11:35am – 11:55pm **Paper 5: Challenges to Taking Emotions at Face Value**

Arvid Kappas
Jacobs University, Germany

The scientific interest in facial behaviour goes back to Darwin's "Expression of the Emotions in Man and Animals" (1872). Since then, enthusiasm and scepticism have in turn oscillated, triggered by specific empirical challenges, or methodological developments. One of the biggest problems has been measurement. Standardized tools, such as Ekman and Friesen's "Facial Action Coding System" (1978) promised to overcome the poor methodology of early research. However, it takes too much time to reliably code facial behaviour, using trained coders, so that only few studies could ever attempt to employ them at a larger scale. The combination of high cost and a lack of sophisticated statistical methods to deal with a high-dimensional data space with low numbers of data points hindered significant advances in our understanding of the relationship of affective states and expressive behaviour. Recently, there have been significant improvements in automatic measurement of facial behaviour, suggesting that the issue of low numbers could be an issue of the past. Another relevant development regards methods in data analytics targeted at finding data patterns without constraining the search space with theoretically guided hypotheses, for example "machine learning". Now, it appears viable to develop artificial systems that are better than humans in detecting affect, deception, or disease. However, there are a number of concerns that I would like to raise, such as the usefulness of the concept of "emotion" in some of these studies, particularly as it relates to ground truth and the differences between posed and "felt" displays. I will discuss what I perceive as researchers' agnosticism regarding moderating factors, such as cultural and social factors. Furthermore, there is reason to believe that comparing classification of emotions by humans and machines might be biased by using self-report in humans as opposed to physiological indicators.

11:55am – 12:15pm **Discussion/Q&A**

12:15pm – 13:45pm **LUNCH & POSTERS** (Hunter Halls)

SYMPOSIUM 3: Deadly Sins Revisited: A New Look at the Social Nature of Envy, Pride, and Greed

Wednesday 4th April, 10:15am – 12:15pm
Gilbert Scott Conference Suite (Room 253)
Convener: Jens Lange, University of Amsterdam, The Netherlands

In line with their characterization as deadly sins in the Christian tradition, envy, pride, and greed are overwhelmingly condemned by the public. Envious, proud, and greedy people are frowned upon. Moreover, experiencing these emotions is considered to be a sign of bad character and may lead the sinners to be ostracized. This negative moral view also informed initial scientific conceptualizations of these three emotions if they were investigated at all. However, recently, more research effort was directed at understanding the social nature of deadly sins and this research paints a more multi-facetted picture. One central insight of these efforts is that deadly sins such as envy, pride, and greed are not entirely immoral. Instead, they can manifest in diverse ways, they might be expressed differently across social contexts, and they may relate to a variety of social outcomes. Scientific conceptualizations of envy, pride, and greed have to take this contextualized diversity into account in order to advance research on deadly sins.

The symposium constitutes a collection of contributions that accept this challenge. Specifically, first, Jens Lange will present an integrative theory of envy derived with a data-driven approach. This theory supports that envy is a diverse emotion characterized by tormenting feelings of inferiority in light of an upward comparison (i.e. pain) that positively relate to both, thoughts and motivations aimed at improving personal standing (i.e. benign envy) as well as efforts directed at harming the envied person (i.e. malicious envy).

Second, Jan Crusius will present evidence that envy has a dark side that may nevertheless be functional for the underlying goal to level the difference between the self and the envied person. He will argue that contrary to common criticism, benign envy is not entirely moral but also relates to Machiavellian (i.e. ingratiation, strategic compliance, concealment) strategies that are nevertheless associated with higher status at work. In contrast, malicious envy relates to Machiavellian and psychopathic (i.e. impulsive manipulation, antisocial action) strategies.

Third, Katrin Rentzsch will present an interpersonal model of envy. She will argue that envy must be understood as an emotion that is elicited as part of an interaction between two individuals and is, thus, based on shared appraisals, perceptions, and evaluations that collectively foster a multitude of social outcomes.

Fourth, Yvette van Osch will present a line of research that shows how social context affects the expression of pride. It implies that pride is not unequivocally displayed but is selectively inhibited when not doing so could have negative consequences for others and the self.

Finally, Marcel Zeelenberg will present data showing that greed relates not only to intentions to enlarge personal wealth but also to more social desires. In particular, greed is associated with a higher fear of missing out, a desire to stay connected with others who may enjoy rewarding experiences of which one feels deprived.

Collectively, the symposium offers a new look at the social nature of envy, pride, and greed. The contributions converge on the notion that these emotions must be investigated within a social framework to unravel their diverse manifestations, context-dependent expressions, and social outcomes. We hope this approach may consequently broaden scientific conceptualizations of deadly sins and thereby spur more research efforts directed at understanding these publicly condemned emotions.

10:15am – 10:35am **Paper 1: A Data-driven Theory of Envy**

Jens Lange[1], Aaron C. Weidman[2] & Jan Crusius[3]
[1]University of Amsterdam, The Netherlands
[2]University of Michigan, USA
[3]University of Cologne, Germany

Envy is a powerful social emotion that affects many life domains in different ways. Various theories try to explain the complex social nature of envy. However, they are widely inconsistent. One theory conceptualizes envy as entirely malicious, a second theory distinguishes a benign and a malicious form, and a third theory conceptualizes envy as pain, fostering multiple motivational tendencies. In five studies (total N = 1,237), we empirically integrated the scientific and lay conceptualizations of envy with a data-driven approach and derived as well as validated the Pain-driven Dual Envy (PaDE) Theory. Exploratory factor analyses of representative sets of envy components support that envy entails three elements (Studies 1 and 2). That is, envy entails a painful reaction following an upward status comparison—characterized by inferiority and preoccupation with the situation—that positively predicts two independent tendencies, namely benign envy—characterized by desire for the envy object, improvement motivation, and emulation of the envied person—and malicious envy—characterized by a motivation to talk about the envied person as well as directed and non-directed aggression. Confirmatory factor analyses indicate that the PaDE Theory explains the nature of envy better than all previous

theories (Studies 3 and 4). Furthermore, an event-contingent experience sampling study supports that, following the elicitation of envy, the intensity of pain decreases more quickly than the intensities of benign and malicious envy (Study 5). Thus, envy is composed of a fleeting affective reaction (i.e. pain) that predicts temporally enduring attitudinal constructs (i.e. benign and malicious envy). Finally, we applied the PaDE Theory in a meta-analysis on the controversial relation of envy and schadenfreude (N = 4,366). It indicates that only malicious envy correlates with schadenfreude. In sum, the PaDE Theory clarifies the nature of envy and thereby provides a promising conceptualization of the diversity of envious reactions.

10:35am – 10:55am **Paper 2: Elucidating the Dark Sides of a Deadly Sin: Distinctive Links of Benign and Malicious Envy with Dark Personalities**

Jan Crusius
University of Cologne, Germany

Recent research on envy is characterized by an ardent debate about the very nature of envy. Some researchers have argued that the diversity of envious responding reflects two qualitatively distinct emotions. These forms of envy may share a feeling of painful inferiority but involve distinct pathways in which people deal with being worse off: malicious envy might be directed at harming others, benign any might be directed at personal advancement. This view is opposed by researchers proposing a unitary conceptualization of envy. They suggest that benign envy merely reflects constructive and socially desirable consequences of envy, whereas malicious envy reflects envy's dark and immoral outcomes. In three studies (total N = 3,123), we challenge the assumption that only malicious envy is destructive, whereas benign envy is entirely constructive. Instead, both forms have links with elements of the Dark Triad of personality. Benign envy is associated with Machiavellian strategies (i.e. ingratiation, strategic compliance, concealment), whereas malicious envy is associated with both Machiavellian and psychopathic (i.e. impulsive manipulation, antisocial action) behaviors. In Study 1, this pattern emerged in meta-analyzed trait correlations. In Study 2, a manipulation affecting the envy forms mediated an effect on antisocial behavioral intentions. Study 3 replicated these patterns by linking envy to specific antisocial behaviors and their impact on status in the workplace. Together, our correlational and experimental results suggest that the two forms of envy can both be malevolent. Instead of evaluating envy's morality, we propose to focus on its functional value. The two forms of envy may share the underlying goal to level the difference between the self and the envied person. However, they may invoke distinct behavioral strategies that can be socially undesirable in their own way.

10:55am – 11:15am **Paper 3: Towards an Interpersonal Model of Envy**

Katrin Rentzsch & Thomas Lösch
University of Bamberg, Germany

Envy is an intense, unpleasant feeling that arises when a person realizes that someone else has something that the person longs for, strives for, or desires. Envy is a social emotion, as it arises from a negative upward comparison with another person. Paradoxically, though envy is regarded as a social emotion, only little research has investigated envy in real social interactions before. Previous research has primarily focused on the person who experiences envy. Consequently, interpersonal perceptions or behaviors between both interaction partners, i.e. the envier and the envied person, are largely unknown. Extending previous research on envy, an Interpersonal Model of Envy is proposed. The model claims that experiences of envy and its social outcomes can never be fully understood without analyzing the perspectives of both individuals, that is, the social emotion of envy is not just experienced by a person, but also directed at and received by the interaction partner. The objective of the current research is to test the Interpersonal Model of Envy by investigating interpersonal antecedents and consequences of envy in social interactions. In the present investigation, first results of the PESI project (Personality and Emotions in Social Interactions) will be presented. After filling out an online questionnaire, 420 participants met in dyads in a video-lab setting. Participants were matched with respect to gender and age. One interaction partner of each dyad faced an upward social comparison with the other partner. Participants provided self- and other-reports of emotional experiences, cognitive appraisals of the situation, and interpersonal perceptions of liking and closeness. Following our preregistered hypotheses, we investigate theoretically relevant antecedents of envy focusing on cognitive appraisals of the situation for both partners. Results will be discussed with respect to the underlying mechanisms of the interpersonal phenomenon of envy.

11:15am – 11:35am **Paper 4: Show or Hide You Pride? Selective Inhibition of Pride Expressions as a Function of the Social Context**

Yvette van Osch, Marcel Zeelenberg, Seger M. Breugelmans & Mark J. Brandt
Tilburg University, The Netherlands

Pride expressions draw positive attention to one's achievements, but there is also evidence that expressing pride can result in negative outcomes, such as being envied and negatively evaluated. We investigated whether people

anticipate such negative outcomes and regulate their pride expressions accordingly. Eight experiments (total N = 953) suggest that people selectively inhibit their expressions of pride when failing to do so could hurt others. Pride expressions were reported to be less intense when the achievement was relevant to the observer of those expressions, both in hypothetical (Experiments 1a, b, c, 2a, b, and 3) and actual pride experiences (Experiment 4). In a final test (Experiment 5) we also found that this effect is not only self-reported but can also be observed. Independent raters saw videos of people talking about an achievement to an audience for which the achievement was relevant or not and indicated that they observed less pride expressions when the situation was relevant rather than irrelevant for the audience. These effects were independent of the experienced intensity of pride. A meta-analysis on seven of the studies revealed that the effect was of medium size (Cohen's $d = 0.51$). The results illustrate the important role of social context in understanding pride expressions and thus both the dark and bright sides of this emotion.

11:35am – 11:55am **Paper 5: Greed, Regret, Envy, and the Fear of Missing Out**

Marcel Zeelenberg[1,2]
[1]Tilburg University, The Netherlands
[2]VU Amsterdam, The Netherlands

This research focuses on the relation between experiences of greed (with regret and envy as benchmarks) and the social phenomenon of Fear of Missing Out (FoMO). Przybylski, Murayama, De Haan, and Gladwell (2013, p.1) define FoMO as "a pervasive apprehension that others might be having rewarding experiences from which one is absent, FoMO is characterized by the desire to stay continually connected with what others are doing." Social media provide users with ways to be continually connected, and therefore to be aware of what others are doing. They also enable their users to share updates about their own activities. Here we extend our previous research on greed (and regret and envy) to obtaining social experiences, and especially to the fear of missing out on them. We believe that greedy people are particularly likely to fear missing out on rewarding social experiences. FoMO is related to various negative outcomes such as distraction due to phone use while driving, a lower overall life satisfaction (Przybylski e t al., 2013), and alcohol related harm such as blackouts (Riordan, Flett, Hunter, Scarf, & Conner, 2015). In order to protect individuals from these negative consequences, it is important to investigate what factors, such as greed, contribute to FoMO. In two studies ($N_1 = 306$ MTurk; $N_2 = 176$ Dutch undergraduate students) we examined the relative contribution of greed to FoMO, in the context of two competing psychological factors that may contribute to it, namely anticipated regret and envy. We found support

for all three measures in explaining FoMO. These findings concerning fear of missing out will be discussed in relation to theories of greed, regret and envy.

11:55am – 12:15pm **Discussion/Q&A**

12:15pm – 13:45pm **LUNCH & POSTERS** (Hunter Halls)

SYMPOSIUM 4: Intrapersonal and Interpersonal Functions of Crying
Wednesday 4th April, 10:15am – 12:15pm
Lecture Theatre G466
Convener: Leah Sharman, The University of Queensland, Australia

After childhood, crying appears to change from crying to attract the attention of caregivers because of hunger or physical pain, to crying primarily because of emotional pain. In fact, crying is thought to be uniquely human, with no other animal thought to produce emotional tears or continue crying after childhood. Crying in adulthood is theorised to have an intrapersonal, self-soothing, and cathartic effect on the crier, as well as a social (interpersonal) function, with crying intended to attract the attention of others who may provide us with social support and resources.

This symposium is comprised of five papers presenting recent advances in research on both the interpersonal and intrapersonal functions of crying. Each of these papers provides further insight into our limited understanding of crying in adults through a variety of research methods, including self-report, hormonal responses, and facial thermography. The first paper, presented by Ad Vingerhoets, investigates the role of intrapersonal crying proneness and its relationship with interpersonal processes. This paper replicates previous research on physical disgust as a predictor of moral judgements and pro-social functioning, while extending that research using crying proneness as another intrapersonal predictor. Results presented in this paper indicate that an individual's proneness to crying predicts pro-social behaviors.

Popular science suggests that adult crying has an intrapersonal function, by providing catharsis and aiding recovery from stressful events. The second paper, presented by Marc Baker, examines this idea of crying as self-soothing via the suppression of crying. The authors theorise that if crying is cathartic, instances of suppression

should be accompanied by prolonged physiological arousal compared to instances of crying. This was examined through physiological measures of thermal imaging of the face, heart rate, heart rate variability, skin conductance, and respiration. Preliminary results will be presented.

Similarly, the third paper, presented by Leah Sharman, investigates the notion that crying reduces stress through theorised secretory processes. This was investigated in a laboratory study with female participants who were assigned to a sad (criers vs. non-criers) or neutral (control) condition and were then subjected to the cold pressor task. Indices of stress were measured through salivary cortisol, heart rate, and respiration. Contrary to lay-beliefs, results of this study do not support the view that crying has physiological stress reducing effects when compared to those who don't cry and those in a neutral condition.

Tears appear to have a direct signalling function to attract attention and form social bonds, an idea that underlies the social function theory of crying. Lisanne Pauw's paper investigates how responses to crying change within different situational contexts, and the effectiveness of support provided to the crier. These results find that the type of support that is provided to criers is somewhat context dependent but is usually focussed on short-term comforting strategies.

The final paper, presented by Eric Vanman, investigates the role of tears on perceptions of happiness. Using facial electromyography, mimicry to Duchenne (genuine) and non-Duchenne (posed) smiles was measured to faces that did or did not include tears. Despite tears previously showing enhanced perceptions of others sadness, this didn't translate to enhanced happiness perceptions. When tears were present on smiling faces, they were interpreted as less happy, and some evidence was found for greater frowning expressions from observers when smiling faces with tears were shown.

10:15am – 10:35am **Paper 1: Tears and Disgust: Emotional Basis of Our Moral Compass?**

Ad Vingerhoets[1], Nancy Hoevenaar[1], & Asmir Gracanin[2]
[1]Tilburg University, The Netherlands
[2]University of Rijeka, Croatia

Recently, there is increasing evidence that emotions play a significant role in our prosocial and moral functioning. Connections were found in particular between physical and moral disgust as well as between being moved and elevation and prosocial behavior. These studies were mainly experimental showing that the induction

of those specific emotions resulted in a positive effect on moral judgment and/or prosocial behavior. Chapman and Anderson (2014) additionally reported cross-sectional evidence that individuals high in trait physical disgust rated moral transgressions to be more wrong than did low trait disgust individuals. The current investigation aims to replicate and extend Chapman and Anderson's study. We hypothesized that both the tendency to experience physical disgust and crying proneness would independently predict moral judgment and self-reported prosocial behavior. We included both students and participants from the (Dutch) general population (85 men and 238 women; age range: 14 – 79 years). Disgust proneness, crying proneness, and social desirability were predictors, whereas moral judgment and prosocial behavior were the dependent variables. Both dependent variables were very modestly positively correlated (r = .248, p <. 001). The results of two regression analyses partly confirmed our expectations. Regarding moral judgement, after controlling for age, gender, and social desirability, disgust (*beta* = .204; t = 3.688; p < 001) and crying proneness (*beta* = .120; t = 2.097; p = .037) both contributed significantly to the amount of explained variance. Concerning prosocial behavior, it appeared that, again after taking into account age, gender, and social desirability, crying proneness was the strongest predictor (*beta* = .213; t = 3.651; p <.001) with an additional significant negative contribution of disgust (*beta* = -.132; t = -2.352; p = .019). In conclusion, the present findings replicated previous US findings and revealed an additional possible important role for crying proneness as a determinant of moral and prosocial functioning.

10:35am – 10:55am **Paper 2: Stemming the Tide: Psychophysiological Correlates of Tear Suppression**

Marc Baker, Paul Morris, Jerome Micheletta & Bridget Waller
University of Portsmouth, UK

Crying is associated with large physiological responses. Furthermore, there is consistent evidence that criers exhibit larger responses than participants that do not cry. This seems in opposition to the idea that tears are cathartic and have a function to reduce arousal/stress. Despite this, people often report feeling better because they cried. One way to further explore whether crying has a self-soothing function is to look at instances when crying has been suppressed. If crying is cathartic instances of suppression should be accompanied by prolonged physiological arousal compared to instances of crying. This is important from a stress and health perspective where prolonged emotional stress is thought to have profound effects on health, mediated by the physiological arousal associated with the experience of emotion. We compared the physiological, psychological and phenomenological experiences of 40 female 'fluent criers' whilst they watched a self-chosen sad movie. Twenty were asked to suppress emotional expressions and 20 were given no instructions. We employed the use of thermal imaging alongside more traditional physiological indices including heart rate, heart rate variability,

respiration rates, and skin conductance. Participants in the suppression condition reported having great difficulty holding back tears and this was reflected in the fact we observed a similar rate of tearing in both conditions. However, participants in the 'no instruction' condition appeared to cry more and whilst the suppressors often only shed single tears. Preliminary results and implications will be discussed.

10:55am – 11:15am **Paper 3: Coping Through Crying: A Laboratory Investigation into the Intrapersonal Function of Tears**

Leah Sharman, Genevieve A. Dingle, & Eric J. Vanman
The University of Queensland, Australia

It is often suggested that one of the main functions of crying is to facilitate recovery after having been in distress. Attempts to explore this previously have used retrospective studies, with none experimentally testing a functional explanation. Thus, our aim was to better understand the physiological changes that occur during crying and how it may aid recovery from stressful events. Participants were female undergraduate students (N = 197) who were randomly assigned to either the sad or neutral video sequence. Both consisted of short videos lasting 17 minutes. 'Sad' videos were selected for their extreme emotion elicitation, i.e. sad crying responses. After a 5-minute baseline recording period, participants watched either the sad or neutral video. Immediately following this, performance on a stressor (cold pressor task) was then timed. Throughout the experiment participants' heart rate, respiration, facial expressions, and cortisol were recorded, with salivary cortisol taken at 4 separate time points during testing. It is predicted that compared to controls participants who have cried will (a) be able to withstand a stressful task for longer; (b) show lower levels of cortisol following the stressor; and (c) have faster physiological recovery to baseline following the stress task measured using heart rate, respiration, and salivary cortisol. Results showed no differences between groups in time withstanding the stressor, cortisol changes, or heart rate. However, a significant reduction in respiration rate for the crying group compared to neutral was found, somewhat supporting the recovery hypothesis. Despite this, participants showed no benefit to self-reported mood when exposed to a stressful event, or ability to cope with the stressful task for longer. Overall, these results suggest that if there is any physiological benefit to crying, it is a small effect possibly perpetuated by our evaluation of crying as positive and beneficial to wellbeing.

11:15am – 11:35am **Paper 4: When Others Cry: The Effect of Emotional Intensity and Context on Social Support Provision**

Lisanne Pauw & Agneta Fischer
University of Amsterdam, The Netherlands

When in emotional distress, people often turn to others for social support. Listeners may respond to crying in several ways, such as trying to inhibit the expresser's emotions (suppression), comforting him or her (socio-affective support), or offering a different perspective on the situation (cognitive support). These types of support are associated with differential effectiveness, and which type listeners decide to give may depend on the situation of the support seeker. This study examined how context, and more specifically emotional intensity and inconvenience of the crying, affects support provision. To this end, 181 participants imagined to be on Skype with a friend, who was either about to go into an important job interview (inconvenient condition) or home alone (convenient condition). Participants were told that the friend had recently discovered that their fiancée had cheated on them. They then viewed a short clip of their supposed friend crying either moderately or intensely. Afterwards, they recorded a video message to their friend, and in hindsight reported on the support they gave. Results showed that participants provided significantly more socio-affective support compared to cognitive support or suppression attempts, regardless of emotional intensity. Furthermore, when crying was inconvenient, participants gave slightly less socio-affective support, and tried to suppress their friend's emotions much more compared to when crying was convenient. In sum, these findings show that regardless of the emotional intensity, people are strongly inclined to give socio-affective support to those who cry – a type of support that brings about short-term benefits and fosters connectedness yet may not facilitate long term recovery. However, when the situation was inconvenient and called for immediate down-regulation, participants were much more likely to try to suppress the other's emotions. Taken together, when providing emotional support, people appear to be sensitive to context, but less so to long-term effectiveness

11:35am – 11:55am **Paper 5: "Smile Like You Mean It"**

Madeline Fitzgerald & Eric J. Vanman
The University of Queensland, Australia

People smile in different ways and for different reasons, and their smiles do not always reflect a positive emotion. The Simulation of Smiles (SIMS) model proposed that when a smile is ambiguous, the perceiver will interpret the smiles using embodied simulation. Recent research has provided sufficient evidence to doubt this model (Vanman, Horiguchi, Philipp & Johnston, 2017). The current study investigated the role of mimicry and

emotion perception in the interpretation of Duchenne and non-Duchenne smiles in the presence and absence of tears. The emotional contradiction of tears on smiling faces increases ambiguity, allowing embodied simulation to occur. Tears have been shown to amplify perceptions of sadness for sad and neutral expressions, this study tests if this effect extends to smiling expressions. The study was conducted using a 2 (tears, no tears) x 3 (Duchenne, non-Duchenne, neutral) within participants design. Participants (N = 138) viewed static images of neutral, Duchenne smiles and non-Duchenne smiles shown with and without tears. Participants rated images on intensity, valence, happiness and sadness, whilst facial electromyography (EMG) monitored their facial muscles (zygomaticus major, orbicularis oculi and corrugator supercilii) for mimicry. Contrary to predictions, mimicry was not needed to interpret Duchenne and non-Duchenne smiles with or without tears. Tears had generalised expression effects on the emotion perception ratings, with all expressions being rated as more sad, negative and less happy. A novel result was found as the corrugator supercilii, typically related to frowning, increased activation for all stimuli presented with tears. Future research avenues include further investigation into the tear effect and how tears are interpreted when separate from crying or sad expressions.

11:55am – 12:15pm **Discussion/Q&A**

12:15pm – 13:45pm **LUNCH & POSTERS** (Hunter Halls)

SYMPOSIUM 5: Cross-Linguistic and/or Cross-Cultural Communication of Emotion

Wednesday 4th April, 10:15am – 12:15pm

East Quadrant Lecture Theatre

Convener: Pernelle Lorette, Birkbeck, University of London, UK

In this symposium, we approach emotions across languages and cultures from an applied linguistic perspective. While the first part of the symposium is mainly concerned with the expression of emotional content, the second part focuses on the perception of emotional content in cross-linguistic and/or cross-cultural contexts. The expression and perception of emotion appear to be less intuitive in a foreign language (LX) than in a first language (L1). Research among multilinguals has demonstrated that a LX often has less emotional resonance than a L1 (e.g. Dewaele 2013, Pavlenko 2012).

In the first paper of this symposium, Jean-Marc Dewaele focuses on psycholinguistic factors that might account for the lack of emotionality in a LX, particularly discussing the case of swearwords and how speakers express anger and love. Difficulties in the communication of emotions in a LX might result from (more or less subtle) differences between L1 and LX users' conceptualisation and appropriate use of emotion words (e.g. Dewaele & Pavlenko 2004).

In the second paper, Pia Resnik's findings support Dewaele's account of a lower emotional resonance in a LX, but she argues that the difficulties reported by Dewaele can to some extent be overcome through socialisation. The more one socialises in a LX (and its associated cultural contexts), the more emotional resonance this language is likely to acquire. Hence, language choice for conveying emotional content appears to be affected by the socialisation level one has built up in a certain LX and its associated culture. However, although communicating in a LX can bring about some difficulties in expressing emotions, it can also be seen as a useful resource. For instance, a LX might be preferred to a L1 to express ideas and feelings that would be perceived as too intense in the L1 and its associated culture – such as in the case of swearing.

As highlighted in the third paper by Louise Rolland, the emotional distancing potential of a LX can also be used as a strategy in psychotherapy. Multilinguals can regulate their emotionality level by using their LX when what they want to express would be too emotionally-loaded in the L1, or conversely by resorting to their L1 when they need to access feelings that would not feel authentic enough in the LX. Rolland argues that psychotherapists need to be aware of these different levels of emotionality – through dialogue with their clients – in order to consider the therapeutic implications of language choices.

In the fourth paper of this symposium, Alessandra Panicacci also focuses on positive outcomes rather than difficulties brought about by expressing emotions in a LX. While Resnik emphasises the influence that socialisation can have on LX emotion expression behaviours, Panicacci chooses the opposite angle as she investigates whether expressing emotions in a LX can affect acculturation to the LX culture. Interestingly, the more migrants tend to swear and express anger or love in their LX, the more their attachment to the LX culture tends to strengthen. Thus, Resnik's and Panicacci's findings suggest a mutual foster effect of socialisation/acculturation and emotional expression in a LX. The interplay between language, culture and emotion also manifests itself when it comes to the perception of emotions.

In the fifth paper, Pernelle Lorette investigates whether L1 and LX speakers as well as non-speakers differ in their ability to perceive emotions in Mandarin, depending on the modality in which the communication takes place, and depending on the participants' L1, their proficiency in Mandarin, and their cultural background.

As demonstrated by Xuemei Chen in the last paper, linguistic and cultural background also appears to be related to LX humour perception and appreciation. Chinese LX users of English perceive English humour as less funny and feel less amused than L1 users while processing humoristic content, suggesting that they are less able to engage emotionally in English than L1 users are. These findings support the view of a LX being typically less emotional than a L1 – despite having the potential to gain more emotional resonance, for instance through socialisation. However, although multilingualism can be linked with some difficulties when expressing or perceiving emotions in a LX, it can also be turned into a powerful resource to regulate emotionality.

10:15am – 10:35am **Paper 1: Why Emotion Words in Foreign Languages Feel Detached and Disembodied**

Jean-Marc Dewaele
Birkbeck, University of London, UK

In this presentation I will talk about possible psycholinguistic causes that underlie the lack of emotional power perceived by LX users regarding their LX emotion words and expressions (words of anger, swearwords, expressions of love and tenderness) lack emotional punch, which affects their language preferences for the communication of emotions and their reactions to these words (Dewaele, 2008, 2010; Dewaele & Salomidou, 2017; Pavlenko, 2005). The difficulties that LX users face can arise from gaps or inaccuracies in the semantic and conceptual representations of the LX emotion words which leaves them unsure about their exact meaning, their emotional force, their offensiveness and their perlocutionary effects. Paradoxically, perfect knowledge of the LX is no guarantee for successful communication of strong emotion because interlocutors might judge that, – contrary to L1 users, - LX users (identifiable through a foreign accent for example) might be unaware of the emotional force of their LX words or have no right to use words that are reserved to the 'in-group'.

10:35am – 10:55am **Paper 2: "I Can Say It All Day and It Doesn't Mean Nothing to Me": Expressing Love and Swearing in Different Languages**

Pia Resnik
University of Vienna, Austria

When expressing emotions, multilinguals frequently face the problem of partial or complete untranslatability across languages, partly due to conceptual and structural differences in emotion lexicons (Pavlenko, 2008). Thus, their verbalisation and perception of emotions is often not the same in their languages (Dewaele, 2010, 2016). This paper investigates communicating love and swearing cross-culturally and cross-linguistically, drawing on the results of a web survey, in which 164 multilinguals participated, and 24 in-depth interviews with German- and Mandarin-speaking foreign language (LX) users of English. The findings show that L1 socialisation plays a crucial role in LX users' verbalisation and perception of emotions: both communicating love and swearing showed a stronger emotional resonance in the L1, independent of the type of L1. While this led German-speaking participants to clearly favour the L1 when communicating love and to transfer the L1 concept onto the LX, Asian participants' application of their L1 concept onto the LX often led to a preference for showing affection rather than verbalising it. In the case of swearing, the greater emotional strength of swearwords in the L1 often led multilinguals to perceive swearing as easier in the LX. Asian participants, who overall reported less frequent swearing, either rejected the direct swearing in English or used the LX to overcome societal constraints in the L1. Other influential factors include language proficiency, frequency of use and residence. Gaining a deeper understanding of these processes is essential for successful cross-cultural communication.

10:55am – 11:15am **Paper 3: Translating Emotion: Multilingual Clients' Strategies for Dealing with Intense Feelings in Psychotherapy**

Louise Rolland
Birkbeck, University of London, UK

In psychotherapy, clients often recount experiences associated with painful emotions. Multilingual clients and their therapists have observed language switches, which tend to happen in moments of heightened emotion. Clients may switch to another language to access their feelings or on the contrary to distance themselves from them (Costa, 2014; Dewaele & Costa, 2013; Rolland, Dewaele & Costa, 2017). This paper reports on a mixed methods study of language practices in psychotherapy, combining internet questionnaire responses from 109 multilingual adults and five follow-up interviews. Strategies used by participants in situations of emotional intensity ranged from distancing themselves from unbearable emotion to gradually attempting to get closer to feelings in order to express them more authentically in therapy sessions. For example, 'Elena' experimented with switches from the therapy language to her first language, developing her own method of (re)telling stories from her childhood through writing and keywords, followed by explanations in the therapy language. Understanding multilingual clients' language resources and strategies for dealing with strong emotions is necessary for

psychotherapists to be able to gauge the intensity of clients' affect (Emilion, 2016). It will be argued that therapists should receive training on the therapeutic implications of multilingualism and that the research has implications for interactions with multilinguals in other emotional settings.

11:15am – 11:35am Paper 4: Does Expressing Emotion in a Foreign Language Help Migrants Acculturate?

Alessandra Panicacci
Birkbeck, University of London, UK

Previous research showed that emotional patterns could be modified by linguistic and cultural influences (Wierzbicka, 1999). Indeed, individuals who live in between languages and cultures generally report an intriguing emotional hybridity (Pavlenko, 2005) and often consider linguistic socialisation as an intense process of personal transformation (Dewaele, 2010). This research adopts a different perspective on the topic, investigating the potential contribution that expressing emotions in the local language (LX) might have on migrants' orientation towards the heritage (L1) and the host (LX) cultures. Quantitative results from 468 migrants, supported by 5 follow-up interviews, indicated that a frequent use of the LX for expressing anger, love and for swearing was linked to higher levels of acculturation to the LX culture. The LX use for expressing anger and love explained 9.1% of the variance in migrants' acculturation to the LX culture, where the LX use for expressing anger was by far the best predictor of the criterion. Conversely, participants' attachment to their L1 culture was unrelated to their linguistic preferences for expressing emotions, confirming migrants' linguistic and cultural hybridity (Grosjean, 2010; Panicacci & Dewaele, 2017). The originality of the present study lies in the finding that a language can be a strong emotional and social bond, able to affect migrants' acculturation attitudes.

11:35am – 11:55am Paper 5: The Role of Linguistic Background in Multimodal Emotion Perception in Mandarin: A Pilot Study

Pernelle Lorette
Birkbeck, University of London, UK

Emotions can be communicated via both verbal channels – referring to the content of language – and nonverbal channels – referring to intonational patterns, facial expression, body language, etc. So far, the comparison of

different modalities in which emotions can be perceived has received relatively little attention in the literature, particularly when both nonverbal and verbal communication channels are considered – see Paulmann and Pell (2011) for an exception. This research project attempts to address this gap by comparing the ability of first language (L1), foreign language (LX) and non- (L0) speakers of Mandarin to perceive emotions expressed by a Chinese actor under five different modality conditions, namely vocal-only, visual-only, vocal-verbal, vocal-visual, and visual-vocal-verbal. Moreover, the relation between participants' L1(s), their proficiency in Mandarin, and their ability to perceive emotions in Mandarin will be investigated. L1, LX and L0 speakers of Mandarin will fill in a questionnaire online. Beside answering questions about their socio-linguistic background, participants' (lexical) proficiency in Mandarin will be assessed by means of a cloze test. Moreover, they will be presented with 12 recordings in different modality conditions. In each recording, a Chinese actor conveys one of the 12 intended emotions included in this study. For each recording, participants will indicate the perceived valence and arousal of the actor's emotional state, and then choose an emotion label which corresponds to the actor's emotional state. These findings will provide valuable insights into cross-linguistic and/or cross-cultural emotion perception, with various implications for business, education, or tourism. They will also contribute to the long-standing debate between the universalist and the dimensional emotion researchers on the nature of emotion.

11:55am – 12:15pm **Paper 6: Humour Perception among Chinese L2 Users of English**

Xuemei Chen
Birkbeck, University of London, UK

Researchers are becoming increasingly interested in L2 humour (Bell, 2011). The process of humour perception involves a cognitive disjunction and an emotional shift. Linguistic complexity, culturally influenced conceptual representations, and emotional detachment of an L2 may result in variations in the perception of L2 humour, as well as in emotional reactions during L2 humour processing. The present study aims to investigate how Chinese L2 users of English differ from English L1 users in humour perception and in emotional reaction in the process. This study used an online questionnaire embedded with audiovisual, multimodal humour stimuli: two-minute-long video clips from British sitcoms. A total of 279 Chinese L2 users of English (from the UK and China) and 94 English L1 users (from the UK) rated the funniness of the stimuli, the reasons why they perceived the video clips to be funny and the intensity of their emotional reactions. Results indicated that L1 users found British humour funnier than L2 users residing in the UK who in turn perceived it as being funnier than the L2 users residing in China did. A Principal Component Analysis revealed that three dimensions—socio-cultural factors,

linguistic/paralinguistic factors and humour intentional factors explained a total of 50% of variance in the perception of humour. The importance of three dimensions varied between L2 and L1 users. Besides, L2 users felt significantly less amused and had more other mixed feelings than L1 users. This study highlights the complexity of psycholinguistic, pragmatic, cultural and emotional processing in humour perception which presents a particular challenge for L2 users.

12:15pm – 13:45pm **LUNCH & POSTERS** (Hunter Halls)

WEDNESDAY LUNCH TIME POSTER SESSION

Wednesday 4th April, 12:15pm – 13:45pm
Hunter Halls

Poster 1: An Embodied Understanding of Living with a Heart Condition From 'Cradle to Grave'

Liza Morton
University of Strathclyde, UK

Objectives: For every 1000 babies born, eight will have a heart condition. Congenital Heart Disease (CHD) is a success story of modern medicine. 90% of these babies will survive into adulthood compared with 20% in the 1940s (Warnes et al, 2001). Lifelong monitoring is indicated for this growing adult population who live with an increased mortality and morbidity burden (Greutmann et al, 2015). Being born with a heart condition presents increased vulnerability to psychological difficulties including anxiety, depression and PTSD, previously accounted for by secondary factors (e.g. interrupted education, feeling different, discrimination) (Kovacs & Utens, 2015; Czosek et al, 2012; Morton, 2012; Karsdrop et al, 2007). Methods: Porges' Poly Vagal Theory (PVT) offers a more holistic account of CHD (Morton, accepted; 2017). PVT provides an embodied understanding of our nervous system, senses, emotions, social self and behaviours. Porges proposes the nervous system employs a phylogenetic hierarchy of strategies to self-regulate and respond to threat, adapting to our environment when we are safe (enabling the 'Social Engagement System') and unsafe (enabling 'fight-flight' or 'immobilisation' defence mechanisms), with homeostatic variability shaped during infancy. This theoretical paper proposes that since the heart is central to our nervous system cardiac anomalies may compromise the stress response, emotional regulation and the social self, further heightened by medical disruptions to the biologically embedded need for safe social connection. Results & Conclusions: This understanding has profound

implications, across the lifespan, for this population explored here drawing on contemporary psychological models including Attachment Theory, Body Psychotherapy and Neuropsychological Theories of Compassion (Bowlby, 1977; Hoffman et al, 2011; Keltner, 2010; Gilbert, 2009; Rothschild, 2000). Strategies to optimise normal development of social and defensive behaviours (by facilitating autonomic attunement with the attachment figure), inform therapeutic interventions (focusing on safety and stabilisation) and better humanise medical care are considered.

Poster 2: The Happy, the Sad, and the Anhedonic: Emotional Functioning in Anhedonic Individuals' Daily Life

Vera E. Heininga[1,2] & Peter Kuppens[1]

[1]Faculty of Psychology and Educational Sciences, University of Leuven, Belgium

[2]University of Groningen, University Medical Center Groningen, Department of Psychiatry, Interdisciplinary Center Psychopathology and Emotion regulation, The Netherlands

Anhedonia is clinically defined as the "markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day", and is one of the core symptoms of depression. However, compared to sad mood, we know very little about this core symptom. Laboratory research and depression theory predict blunted emotional reactivity to context, and research that investigated the emotional experience in daily life suggests that positive and negative emotional experience may be unstable, or dysregulated. We examined anhedonic individuals' emotional instability and emotional reactivity to positive and negative events in two samples: 1) in individuals with sub-clinical anhedonia, and 2) in individuals who meet clinical criteria for MDD, bipolar disorder, or borderline disorder. We investigated emotional instability in terms of PA and NA variance; auto-correlation (i.e. emotional inertia); and Mean Squared Successive Difference (MSSD). Next, we investigated emotional reactivity to positive and negative events by means of multilevel regression analyses with cross-level interactions in Mplus. The analyses of the context- and time-dynamic patterns showed that, at least in the sub-clinical sample, anhedonia was associated with lower pleasure rating of positive events, and lower levels of PA. Compared to controls, individuals with anhedonia showed more variability and less stability in PA, and, contrary to predictions from laboratory research and depression theory, no signs of blunted PA reactivity.

Poster 3: Is Happiness a Journey or a Destination? Depressive Symptoms Moderate the Relation Between Happiness Discrepancy-Reduction and Life Satisfaction

Egon Dejonckheere[1], Elise Kalokerinos[1], Brock Bastian[2] & Peter Kuppens[1]
[1]KU Leuven, Belgium
[2]University of Melbourne, Australia

People hold beliefs about how happy they ideally want to feel, which may be used as a standard of comparison to how happy they actually feel. There can be mismatches between these actual and ideal levels of happiness, especially among individuals with higher levels of depressive symptoms. In response to mismatches, theory suggests that people initiate attempts to reduce the discrepancy between actual and ideal happiness (i.e. discrepancy-reducing processes). In the present study, we investigate the association between happiness discrepancy-reducing processes and life satisfaction in daily life, and whether this association is moderated by depressive symptoms. To this end, we enrolled 100 participants in a two-week experience sampling protocol. Participants rated both their actual and ideal levels of happiness multiple times a day, and their life satisfaction at the end of each day. Multilevel modeling revealed that higher discrepancy reductions between actual and ideal happiness throughout the day (modelled as various day-specific slopes per participant) were associated with higher life satisfaction at the end of the day, above and beyond average levels of reported happiness. Interestingly, this relation was stronger for people with more depressive symptoms, suggesting these happiness discrepancy reductions play a more central role in life satisfaction for those higher in depression. An emotional reference value approach towards depression is able to explain the current findings.

Poster 4: Wanting to be Happy but not Knowing How: Poor Emotion-Regulation Skills Mediate the Link Between Valuing Happiness and Depression

Bahram Mahmoodi Kahriz[1], Joanne L. Bower[2], Francesca M. G. Q. Glover[1] & Julia Vogt[1]
[1]University of Reading, UK
[2]University of Houston, USA

Recent studies have suggested that valuing happiness is associated with negative psychological health outcomes, including increased depression in US samples. We aimed to replicate these associations in two British samples (N = 450). Importantly, we also investigated the role of various emotion regulation styles and abilities in the relationship between valuing happiness and depression. In both samples, we found that valuing happiness is related to increased depression, confirming the link between valuing happiness and depression in a Western country outside of the USA. Further, the ability to control attention in emotional situations, to savor positive

experiences, and the extent to which positive emotions feel intrusive, fully mediated the impact of valuing happiness on depression; with emotional attentional control being the strongest mediator. These results show that the impaired ability to respond adaptively to emotional situations and to enjoy positive events underlie the paradoxical relationship between valuing happiness and low well-being.

Poster 5: Temperament and Mood Regulation in Bipolar Disorder

Małgorzata Hanć
University of Social Sciences and Humanities in Warsaw, Poland

Effectivenes of stimulation processing is the crucial factor, determining adaptive functioning human in its environment. In spite of huge evidence proving connection between temperament and susceptibility to became bipolar and the intensively evolving knowledge about patients' positive affect regulation, there is no evidence applies a relationship between effectiveness of stimulation processing, affective regulation and aggravation of symptoms in bipolar disorder. The study surveyed 22 bipolar disorder patients with a battery of questionnaires: Formal Characteristics of Behavior – Temperament Inventory, Mood Regulation Practices, HCL-32, BDI-I. Quadratic regression analysis showed linear relationship between activity and the frequency of use positive mood up-regulation strategies, and non-linear connection between activity and the frequency of use negative mood up-regulation strategies. Emotional reactivity and an interaction effect between emotional reactivity and activity explained the variation in active/elated hypomanic symptoms. Irritable/risk taking hypomanic symptoms are linearly connected with emotional reactivity. The study throws a light on relationship between temperament in the regulative theory of temperament conceptualization and positive mood regulation in bipolar disorder. Nonetheless, this study had also limitations: sample size of examination, a questionary character of the research and heterogeneity in both presented depression symptoms and bipolar disorder type I and bipolar disorder type II diagnosis.

Poster 6: "Coming Out Proud": An Investigation of Self-Evaluation and Self-Stigma in Trichotillomania

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Aims: "Coming out proud" (COP) with one's mental health condition has indicated positive outcomes in terms of self-evaluation (Corrigan et al., 2010; Rusch et al., 2014). We aimed to investigate the effects of COP in trichotillomania (TTM, a hair-pulling disorder). We explored if a TTM group who are "out" would demonstrate higher positive self-evaluations and lower self-stigma compared to TTMs "in the closet". Method: Participants with TTM completed five questionnaires online: (1) Coming Out with Mental Illness Scale (to allocate them into 2 groups: "in" (n = 23), and "out" (n = 23); (2) Internalised Stigma of Mental Illness scale, (3) Brief Fear of Negative Evaluation Scale, (4) Recovery Assessment Scale, and (5) The Massachusetts General Hospital (MGH-HS) Hair pulling Scale. We predicted that the "out" group would show, relative to the "in" group: (1) lower internalised stigma/negative self-perceptions; (2) lower fear of negative evaluation; (3) higher scores on aspects that counteract self-stigma to aid recovery, and (4) lower discomfort about their hair-pulling (MGH-HPS: Q7). Results: On subscales of internalised stigma, the "out" group exhibited significantly lower scores on stereotype endorsement, alienation, and social withdrawal, compared to the "in" group, but showed no differences in discrimination experience. Recovery assessment subscale scores revealed that the "out" group had higher personal confidence and hope, willingness to ask for help, goal and success orientation, and less domination of symptoms compared with the "in" group, but no differences in reliance on others. No significant differences emerged for fear of negative evaluation and overall MGH-HS score, however pulling-related distress (MGH-HPS Q7) was significantly lower in the "out" group. Conclusions: TTM is difficult to treat and relapse is common. Our results demonstrate that COP is advantageous for reducing maladaptive cognitions in TTM. This informs TTM individuals and treatment providers about the benefits of disclosure of, and managing, TTM.

Poster 7: Real-Time Assessment of Intrusive Re-experiencing and Emotional Response in Traumatized Individuals

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Re-experiencing symptoms of posttraumatic stress disorder (PTSD) are often accompanied by distressing emotions, as fear, helplessness, and guilt. While traumatized individuals without PTSD also report intrusions of the trauma, they might experience less intense emotional responses and maybe differ in their emotional content from individuals with PTSD. It is therefore conceivable that certain emotions are specific for PTSD. Ecological momentary assessment (EMA) is a method that is well suited for the data collection of fluctuant symptoms, as intrusions and intrusion-accompanying emotions, for which retrospective reports can be biased or incomplete. We applied a smartphone application to assess intrusions and flashbacks, emotional responses, and level of

distress in real-time in 22 traumatized individuals without PTSD and 20 individuals with PTSD during four consecutive days. Both groups reported intrusions about the trauma, whereas flashbacks were almost exclusively experienced by the PTSD group. Individuals with PTSD reported higher numbers and intensities of intrusion-accompanying emotions and higher levels of distress. Moreover, patterns of emotions differed: individuals with PTSD reported the highest intensities for helplessness, whereas individuals without PTSD mainly suffered from sadness. Shame, self-contempt, and disgust were experienced in the PTSD group, but were never or almost never reported in the non-PTSD group. The present study contributes to a better understanding of PTSD-specific emotional responses in the context of intrusions and provides support for the use of a smartphone application in PTSD as an additional diagnostic tool.

Poster 8: Compassion-Based Imagery and Pain Coping

Frances A. Maratos & David Sheffield
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Background: Imagery is known to be a powerful means of stimulating various physiological processes and is increasingly used within psychological therapies. One specific form of imagery, compassion-focused imagery (CFI), has been used to stimulate affiliative emotion in people with mental health problems. Comparatively, affiliative processes are postulated to increase pain coping and tolerance. Thus, the purpose of the present research was to investigate if a short audio CFI could improve pain coping. Methods: 37 individuals took part in a repeated-measures experiment, in which they were subjected to pain (cold-pressor) following counter-balanced engagement with CFI or a neutral equivalent, seven days apart. Physiological measurements (salivary Alpha Amylase; sAA) as well as questionnaire measures of emotional responding were taken on entering the situation (baseline), following introduction to the imagery condition (anticipation), and immediately post the painful experience (actual). Results: Analyses revealed attenuating effects of CFI when subjected to painful stimuli; i.e. there was no increase in sAA responses to actual cold pressor pain in the CFI condition, whereas there was an increase in sAA responses to actual pain in the control imagery condition. Further analyses revealed that participants with larger anticipatory sAA responses were more likely to remove their hands from the water earlier regardless of condition, but that for actual pain, only those in the CFI condition who exhibited larger sAA responses were more likely to remove their hands earlier. Conclusions: Our data demonstrate that CFI provides a dampening of the stress response to actual painful stimuli. However, how CFI specifically affects the stress response (e.g. appraisal processes or up-regulation of the affiliative affect system) is yet to be explored, as is the relationship between sAA responses and CFI more generally.

Poster 9: Being Moved by Selflessness

Helen Landmann, Britta Holsten & Anette Rohmann
University of Hagen, Germany

People can be moved and overwhelmed by exceptional helpfulness. These feelings of being moved might be elicited by the helper's selflessness or by the fact that someone received help or by both. The present research focuses on the role of selflessness for the feeling of being moved. Participants (N = 146) responded to a newspaper article that told about a man who rescued another from the rails by pressing a button (low selflessness) or by jumping on the rails (high selflessness). Participants in the high selflessness condition were more intensely moved than those in the low selflessness condition. This effect was mediated by appraisals of selflessness and these appraisals explained variance in being moved in addition to the appraisals from the Geneva Appraisal Questionnaire (GAQ). Thus, selflessness increases feelings of being moved. We discuss whether this link between selflessness and being moved is relevant in radicalization processes.

Poster 10: Modeling Feeling Generation and Differentiation – An Evidence Accumulating Approach

Ayelet Itzhak Raz & Nachshon Meiran
Ben-Gurion University of the Negev, Israel

The ability of one to become aware of own emotions (i.e. to feel) is critical for decision making, interpersonal relations and communication and mental health. We propose that feeling generation is analogous to a perceptual act, in which the individual accumulates evidence (such as facial and bodily expressions, action-thought tendencies etc.) which finally make her/him become aware of (or feel) these emotions. This idea was tested in an experiment that compared an emotional task to a perceptual one. In the emotional task, participants had to indicate by a key press which emotion they feel most strongly when watching an emotion eliciting picture. In the perceptual task, they decided whether a face is of a male or a female. Results were analyzed using the linear ballistic accumulation (LBA) model. Preliminary results indicate that the two tasks are characterized by equal rate of evidence accumulation, though they differed in the starting point variability (greater in the emotional task, possibly reflecting greater carryover from the preceding trial), and the amount of evidence needed to reach a

decision (greater in the emotional task).

Poster 11: Feeling Generation – Modelling Valence Using Evidence Accumulation Approach

Ella Givon & Nachshon Meiran
Ben-Gurion University of the Negev, Israel

A highly important component of emotion is the conscious subjective experience, the feeling. Feeling indicates personal relevance, guides decision making, and helps in understanding the experience of others. Additionally, feeling is strongly related to emotion regulation, to psychopathology and to well-being. Despite of its importance, most of the research concerning feeling relies on raw self-report measures, and hence, remains narrow in scope. We propose that feeling resembles perceptual processes, such that one is "looking inward" and collecting emotional evidence from one's bodily sensations, cognitions, action drives, etc. When sufficient evidence has accumulated, a conscious feeling comes to be. We tested these ideas in experiments in which participants reported their feeling towards emotional stimuli, and the results were analyzed with the evidence accumulation model (EAM), typically used in analyzing cognitive choice reaction experiments. Preliminary results show that EAM is a suitable model for describing feeling generation.

Poster 12: Appraisal Theory and Virtual Reality as a Basis for Induction of Multi-Componential Emotions

Ben Meuleman & David Rudrauf
Swiss Center for Affective Sciences, University of Geneva, Swizerland

Psychological theories of emotion have often defined an emotion as simultaneous changes in several mental and bodily components. In addition, appraisal theories assume that an appraisal component elicits changes in the other emotion components (e.g. motivational, behavioural, experiential). Neither the componential definition of emotion nor appraisal theory have been systematically translated to paradigms for emotion induction, many of which rely on passive emotion induction without a clear theoretical framework. As a result, the observed emotions are often weak. This study explored the potential of virtual reality (VR) to evoke strong emotions in ecologically valid scenarios that fully engaged the mental and bodily components of the participant. Participants played several VR games and reported on their emotions. Multivariate analyses using hierarchical clustering and multilevel linear modelling showed that participants experienced intense, multi-componential emotions in VR.

We identified joy and fear clusters of responses, each involving changes in appraisal, motivation, physiology, feeling, and regulation. Appraisal variables were found to be the most predictive for fear and joy intensities, compared to other emotion components, and were found to explain individual differences in VR scenarios, as predicted by appraisal theory. The results advocate upgraded methodologies for the induction and analysis of emotion processes.

Poster 13: Interhemispheric Paired Associative Stimulation of the Prefrontal Cortex Jointly Modulates Frontal Asymmetry and Emotional Reactivity

Samuel Zibman, Edan Daniel, Uri Alyagon & Abraham Zangen
Ben Gurion University of the Negev, Israel

A major challenge in determining the role of frontal asymmetry in emotion is that while the correlation between deficits in lateralization and in cognitive functions has been established, a causal relationship has not been fully demonstrated. One technique that can be used to alter connectivity and establish causality in the brain is paired associative stimulation (PAS) which, through the coordinated stimulation of two regions by two TMS coils, targets the intervening connectivity. Twenty-seven healthy subjects were recruited for a three session, sham-controlled crossover study, receiving left to right PAS (LR-PAS), right to left PAS (RL-PAS) and sham during different weeks. The protocol consisted of 210 pulse pairs with an ISI of 8ms. Subjects performed the emotional Stroop task, assessed by measuring attentional bias, and brain activity was recording with EEG prior to and following the stimulation period. Our results reveal that LR PAS increases attentional bias while increasing right frontal asymmetry whereas RL PAS decreased the attentional bias while decreasing right frontal asymmetry ($F(2,24) = 3.266$, $p = 0.05$ and $F(2,27) = 5.936$, $p = 0.005$ for attentional bias and frontal asymmetry respectively). These results confirm a relationship between frontal alpha asymmetry and attentional bias. This is the first demonstration of PAS's effectiveness in inducing cognitive changes by targeting interhemispheric PFC connectivity in a directional manner. Furthermore, by combining TMS with EEG, we provide a toolbox for evaluating effectiveness of PAS protocols that may facilitate development of novel therapies.

Poster 14: From Admiration to Irritation: Conceptual Model of Compliment

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A compliment is a verbal act by which an individual attributes merit to another person. Observing others achieving high standards could create emotions such as admiration or jealousy. These emotions, often intense, motivate the observer to share their observation with the meritorious (the deserving person). Through the compliment, the complimenter (person who gives the compliment) provides the result of his assessment of merit to the complimented (person who receives the compliment). From this point of view, the compliment can facilitate social interactions. Through the transmission of a positive message, the complimenter hopes to induce positive emotions to the complimented. In this respect, the compliment fulfills essential functions at the individual, relational and cultural level. In some cases, the compliment may elicit negative emotions to the complimented such as discomfort or irritation. Once we accept that the compliment does not systematically produce the effects expected by the complimenter, we are able to investigate the potentially dysfunctional aspects of the compliment. In accordance with the proposed model, we expect that several individual and contextual characteristics will influence the sending and receiving of the compliment and its (dys)functionality. On the one hand, certain personality traits of the two protagonists (e. g., narcissism, altruism, perfectionism, etc.) would influence the course of the compliment. On the other hand, certain elements of the context (e. g., the presence of an audience, the professional or family nature of the relationship, etc.) should also have an influence on this interaction. In this presentation, we propose a conceptual and functional model that takes into account the antecedents and consequences of the compliment.

Poster 15: Importance of Considering Interoceptive Abilities in the Assessment of Alexithymia.

Alicia Fournier[1], Sonia Pellissier[2], Olivier Luminet[1], Michael Dambrun[3] & Laurie Mondillon[3]

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Recent studies show that high alexithymia scorers have deficits in their interoceptive abilities, which can then lead to psychological and physical disorders (Murphy, Brewer, Catmur, & Bird, 2017). This confirms early definitions of the construct Taylor, Ryan and Bagby (1985). However, factor analyses of the most currently used alexithymia scale, the Toronto Alexithymia Scale (TAS-20) (Bagby, Parker, & Taylor, 1994), display a three factors solution (difficulty identifying feelings, difficulty describing feelings, externally-oriented thinking) that does not involve interoceptive abilities. We expect that the remaining items assessing interoceptive abilities in

the TAS-20 should constitute an independent factor. Two online studies (N = 253 and N = 287) were performed. Participants completed the TAS-20 and a set of questionnaires (i.e. psychological and health measures). The structure of the TAS-20 was examined using exploratory factor analyses (EFA), followed by an investigation of the relationships between the resulting new factors and the other psychological and health assessments using regressions. In both studies, EFA revealed a new structure of the questionnaire including four dimensions: (1) difficulty in awareness of feelings, (2) difficulty to cope with difficult situations, (3) difficulty in interoceptive abilities, and (4) poor affective sharing. The first factor predicted all psychological issues while the third predicted somatic disorders and medication intake. Our results suggest that interoceptive abilities are a separate dimension of alexithymia. We suggest to develop items assessing this dimension, which seems to be central for the prediction of health-related issues.

Poster 16: Relationship Between Interoceptive Accuracy, Interoceptive Sensibility, and Alexithymia

Giorgia Zamariola, Elke Vlemincx, Olivier Luminet & Olivier Corneille
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Interoception is the ability to feel one's internal bodily sensations and it is related to emotional experience and the processing of emotional stimuli. Alexithymia is defined by difficulties in identifying and describing one's emotions and externally oriented thinking. Additionally, it is linked to impairments in emotional awareness and the regulation of emotions. It is largely assumed that alexithymia relates negatively both to subjective and objective measures of interoception. However, evidence is scarce for the latter relation. The relationship between Interoceptive Accuracy (IAcc), Interoceptive Sensibility (IS), and alexithymia (i.e. Toronto Alexithymia Scale) was examined across ten studies (total N = 998). IAcc was measured with the heartbeat tracking task, while IS, the self-report measure of interoception, was assessed via questionnaires such as the Body Awareness Questionnaire, the Multidimensional Assessment of Interoceptive Awareness, and the Interoceptive Awareness Questionnaire. Results showed a significant negative correlation between alexithymia and IS but not between alexithymia and IAcc. The present findings question the presence of a relationship between interoception and alexithymia, at least at the objective level. Even if at the theoretical level this association seem valid and plausible, the data collected so far are not able to totally support this assumption. Two explanations might be envisioned: first, interoception and alexithymia are actually dissociated, or, second, the methods used to assess these traits fail to uncover this link because they are not sophisticated enough. Future studies should answer to this question with experimental tasks to assess alexithymia and developing new measures of interoceptive

accuracy and sensibility involving different bodily parts (heartbeat, breathing, stomach functions, etc.).

Poster 17: Alexithymia, Emotion Perception Bias, and Quality in Dyadic Interactions: An Event Sampling Study

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The accurate perception of facial emotion expressions is paramount for the seamless functioning in dyadic interactions. Alexithymia, the difficulty in identifying and describing emotions has been found to contribute to problems in dyadic interactions and relationships. The ACE (Assessment of Contextualized Emotions-faces), a test of contextualized emotion perception has found accuracy and bias (perceiving additional emotions to those communicated), to constitute distinct facets of emotion decoding with unique effects for dyadic interaction outcomes. The present research tested for relationships between alexithymic tendencies in identifying emotions, bias and accuracy in the ACE-faces task, and the quality naturally occurring dyadic interactions. Method: 130 participants from Humboldt University Berlin, participated in the study. Participants completed the Toronto Alexithymia Scale and the Faces part of the Mayer Salovey and Caruso Emotional Intelligence Test, before participating in a lab session that included the Assessment of Contextualized Emotions Faces task (Hess et al., 2016). The following week participants took part took part in a 10-day social interaction diary study where they described facets of their quality within their naturally occurring social interactions. Results: The Difficulties in Identifying Emotion (DIE) part of the Toronto Alexithymia scale was positively and moderately strongly correlated with bias in emotion perception. DIE was negatively related to all indices of quality of social interaction in the event sampling task. Importantly, bias in emotion perception with the ACE-faces task mediated DIE effects on social interaction outcome and this was relationship was unaffected when controlling for the MSCEIT emotion perception. Conclusion: Perceiving additional emotions to those communicated as measured in the ACE task is an important aspect of alexithymic tendencies and their effects in dyadic interactions.

Poster 18: Is My Disgust Showing? – Self-other Agreement in Disgust Sensitivity

Annika K. Karinen, Joshua M. Tybur & Reinout E. de Vries
Vrije Universiteit Amsterdam, The Netherlands

People vary in how intensely they react to disgust-inducing stimuli, such as spoiled food, vomit on the pavement, or a cockroach scurrying toward the dark corners of one's apartment. These individual differences in disgust sensitivity relate to several social and political variables: higher disgust sensitivity is associated with greater conservatism, xenophobia, moral judgment, and low openness to experience. Although self-reported disgust sensitivity predicts avoidant behavior toward disgust-eliciting objects, and relates to social and political behavior, no direct evidence informs whether disgust sensitivity is an observable trait. The aim of this study was to examine the visibility of disgust sensitivity. We examined self-other agreement (SOA), a technique that allows for estimates of trait visibility. Romantic partners (N = 137), friends (N = 89) and acquaintances (N = 20) rated each other on pathogen, sexual, and moral disgust sensitivity and the HEXACO personality dimensions. The dyad members' ratings were then correlated to determine the level of SOA. We found significant SOA in all types of disgust sensitivity in partner and friend dyads, but in acquaintance dyads there was significant SOA only in sexual disgust sensitivity. The romantic partners' SOA correlations were $r = .61$ for pathogen, $r = .68$ for sexual, and $r = .43$ for moral disgust sensitivity. For comparison, the highest and lowest SOA's for HEXACO were emotionality ($r = .76$) and honesty-humility ($r = .49$), respectively. These results suggest that disgust sensitivity is visible to others, given sufficient acquaintanceship. In contrast to past research suggesting that affective traits are less visible to others than personality traits, our results suggest that trait-level disgust is visible to similar extent as personality. Further, the visibility of disgust sensitivity may make it a relevant trait for partner-selection in real-world contexts.

Poster 19: Coherence Between Facial Expression and Self-Report of Fear and Sadness

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Response coherence is a common basic requirement in emotion theories. Usually the coherence of these systems is zero to moderate (Duran et al., 2017). In opposite to that, the study of Mauss et al. (2005) delivered extremely high coherence scores using a rating-dial for measuring subjective emotional experience online and moment by moment with a female psychology students sample and subjective ratings of behavior by lay observers. We wanted to replicate this finding using the same subjective experience measurement method, the same film for induction of sadness, additional films for fear induction, a non-psychology-student sample and the Facial Action Coding System (FACS, Ekman et al., 2002) for measuring facial expressions. Facial data from 89 of originally

92 participants could be analyzed. Participants watched a compilation of two fearful, one sad, and one neutral film scene three times in a row, during continuously rating of fear or sadness experience occurred, alternating between the trials. Meanwhile, their facial expressions were recorded. Fear and sadness associated Action Units were analyzed separately and also summarized into groups of fear-indicators and sadness-indicators according to FACS investigators guide (Ekman et al., 2002). Fear and sadness summary-scores served for coherence computation with the self-report data. Fear associated Action Units (AUs) mostly were found to be occurring more frequently during fearful film scenes than during the sadness film. The results for sadness associated Action Units were ambiguous. The response coherence between self-reported emotion experience and facial expressions in fear and sadness was practically not existent for all emotional film scenes ($t <= .04$). Whereas facial expression data show that at least during fear films emotion induction worked, lacking correlations of online self-report and the number of facial expressions reinforce doubt about the validity of the affect program theory at least in the case of fear and sadness.

Poster 20: Emotions in Cross-Cultural Exchange: South East Europe

Mirko Sardelic
Croatian Academy of Sciences and Arts, Centre for the Study of Emotions in Cross-Cultural Exchange, ARC Centre for the History of Emotions, Croatia

Culture and emotion are so closely intertwined that a research network has been established specifically to study them in conjunction with each other. The Centre for the Study of Emotions in Cross-Cultural Exchange (Centre ECCE; based in Croatia), founded in late 2016, has gathered scholars dealing with the history of 'cultural filters' of emotion. South East Europe has been a region of peculiarly concentrated cross-cultural contact from antiquity to the present day: it is the crossroads of Europe, the Eurasian Steppe, and Mediterranean worlds. As spaces of cross-cultural encounter, contact zones are also sites of intense emotional exchange, and this relation is in the focus of this research group. This poster introduces the Centre ECCE and presents its main activities. Centre's research considers the spaces and media through which these various cultures communicated with each other in South East Europe, in terms of cultural, commercial, artistic, and emotional exchange; in periods of peace, and of confrontation. Several questions have become prominent: How is emotion used to calibrate cultural differences and exchanges between groups in the region? How are the historical geographies of encounter and exchange – with their attendant emotional entanglements – providing useful terms or models for the study of cultural experience and expression of emotion? How did different social groups produce different discourses of specific

emotions and how were they (re)used and (re)shaped in other historical periods, in ever-changing socio-political circumstances?

Poster 21: Expressing Emotions: The specificity of Posed and Spontaneous Facial Expressions Across Cultures

Xia Fang, Disa A. Sauter & Gerben A. van Kleef
University of Amsterdam, The Netherlands

Much more is known about how people from different cultures perceive others' expressions of emotion than about how the production of emotional expressions may vary across cultures. Research on communication styles suggests that Westerners (including Western Europeans and North Americans) are inclined towards a precise way of communication, whereas Easterners (including East Asians) tend to communicate more ambiguously. Building on this literature, we sought to test whether Westerners also produce more specific emotional facial expressions than do Easterners. We further sought to establish whether this specificity may vary depending on whether the expressions are posed or spontaneous. To test this hypothesis, Chinese and Dutch participants were instructed to either pose facial expressions of anger and disgust (posed expressions), or to share autobiographical events that elicited anger or disgust (spontaneous expressions). The Facial Action Coding System (FACS) was used to measure facial muscle movements. The pattern of facial muscle movements involved in the expressions of anger and disgust were different in all conditions. As predicted, posed expressions of anger and disgust were more overlapping in Chinese than in Dutch participants, indicating that Dutch produce more specific emotional expressions than do Chinese. However, this pattern was only found for posed, but not for spontaneous expressions. Together, these findings provide the first empirical demonstration that cultures influence the specificity of posed, but not spontaneous, facial expressions of emotions.

Poster 22: Movement Parameters to Distinguish Spontaneous and Posed Facial Expression

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The neuronal innervation of the facial muscles, and findings of the literature suggest that the facial expression of

emotions can be performed via a controlled, and an automatic pathway. In a Study (N = 113) we tracked accurately participants facial movements on video and investigated if the parameters speed, amplitude, onset-, apex-, and offset phases, symmetry and onset-lag between the activation of distinct facial muscles in the upper and lower face differ between posed and spontaneous facial expression. In the study, subjects were asked to pose joy, fear, distrust and a neutral face, and to view film clips, which induced the emotions joy, fear, disgust and no emotion, while being recorded on video. Video data was analyzed by the blenderFace open-source software procedure that allows a precise and continuous measurement of facial movements. Results show significant differences between the parameters of posed and spontaneous facial expression.

Poster 23: Bodily Cues of Children's Learning-Related Experiences During Mathematics Problem Solving

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We are developing technology under the weDraw project (https://www.wedraw.eu/) to support children's exploration of mathematical concepts. Based on understanding that body movement is critical in interactions in the classroom (Goldin-Meadow, 1999), we sought to understand movement cues that technology can leverage to enrich the learning experience, as humans naturally do. To investigate this, we analysed textual data in (Kim et al., 2010) based on classroom observation, and a new set of videos of children (N=13) during bodily exploration of angles with visual feedback of angle representations provided by technology. While Kim et al. examined how mathematics understanding develops in children in relation to their gestures use, our analysis focused on what any bodily expression may betray of critical learning-related moments and affective experiences. We found that their orientation showed the target of their attention, usually the teacher/instructor (for instruction or support) or the visual feedback (in solving given problems). Where there is a change in orientation, the parts of the anatomy involved provide cues about their cognitive processes and/or affective experiences. For example, turning all of the head, eyes, trunk, and limbs, suggests full and definite attention in the new target. In contrast, turning the eyes alone may indicate temporal and reluctant change, perhaps due to continued interest in the current target. The transition time between targets (instructor and visual feedback), different even within children, is additionally informative. Longer periods may indicate stronger reluctance to change targets. On the other hand, such moments may be buffer periods where the child is reflecting on new instruction (changing from instructor to visual feedback) or challenge faced in the current task (changing from visual feedback to instructor). Our

findings suggest that orientation behaviour in learning settings may betray critical moments that technology may need to be aware of and address.

Poster 24: Decoding of Dynamic Emotional Stimuli by Patients with Adjustment Disorders with Depressed Mood

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Difficulties in decoding emotions have been widely studied for Major Depressive Disorder patients. The reason is that incorrect decoding of other's emotions causes inappropriate behavioral and emotional responses. However, to the best of our knowledge, no major studies are available for patients affected by Adjustment Disorder (AD) with Depressed Mood (APA, 2000). This work tries to fill the gap, at least partially, by investigating emotion recognition in 16 AD patients. The experiments use short clips extracted from Italian movies and displaying both male and female actors. The clips have been administered as only audio (20 stimuli), only video (20 stimuli) or audio/video (20 stimuli). The average length is 2.5 seconds with 1-second standard deviation. The patients have rated the clips in terms happiness, fear, anger, surprise, sadness, a different emotion, or no emotion. The patients have been matched, for age and background, with 16 Healthy Control (HC) subjects with no history of psychiatric disorders. Mixed ANOVA shows that AD patients are significantly ($p < 0.01$) less accurate for all emotions, irrespectively of channel (audio, video or audio/video) and gender of the actors. In the audio case, both groups make more mistakes for male stimuli, and male fear is the least accurately recognized emotion. In the video case, both groups make more mistakes for male stimuli, with the exception of fear and anger; male surprise and sadness are the least recognized by AD patients, while male surprise is the least recognized by HC subjects. In the audio/video case, both groups make more mistakes for male stimuli, with the exception of happiness and surprise; both groups have an especially low accuracy for male sadness and fear, and for female surprise. Multiple linear regression shows that somatic-affective and cognitive symptoms (measured with the BDI-II) do not predict ($p > 0.05$) the performance of AD patients.

Poster 25: Categorization: Encoding of Emotional Expressions & Depressive Symptoms

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Social categorization is a processing strategy occurring during person perception that refers to the categorization of newly encountered people into social groups (e.g. Macrae & Bodenhausen, 2000). Gender, age, and race are examples of dimensions on which social categorization occurs. In the current study, a first question addresses whether emotional expressions are used as a dimension of categorization. A second question concerns whether depressive symptoms are positively correlated with encoding of angry emotional expressions, but not with happy emotional expressions. The Who Said What paradigm (Taylor, Fiske, Etcoff, & Ruderman, 1978) was used to answer these questions. In our version of the paradigm, participants were told a cover story and viewed excerpts from a fictional interview, i.e. pictures of people combined with statements they made. Afterwards, they received an unexpected recall task: they had to match each person with the correct statement. The kind of errors people made, revealed whether emotional expressions were encoded or not: confusing people with the same emotional expressions were within category errors, confusing people with different emotional expressions were between category errors. A difference score (within errors – between errors) greater than zero would indicate that emotional expressions were encoded. This study was preregistered on https://osf.io/bzqyj/register/5771ca429ad5a1020de2872e. The results regarding our first question showed that people implicitly encoded both angry and happy emotional expressions, $t(295) = 5.67$, $p < .001$, BF10 = 8903791. Regarding the second question, no correlation between encoding of happy expressions and depressive symptoms was observed ($r = .01$, $p = .89$, BF10 = 0.09). A correlation coefficient of .14 was observed between encoding of angry expressions and depressive symptoms, but this was not significantly different from 0 ($p = .06$, BF10 = 0.48). The results will be discussed by comparing them with results from related studies on emotional categorization.

Poster 26: Pupil Mimicry and Trust – Implications for Depression

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Individuals suffering from depression often have difficulty trusting others. Previous research has shown a relationship between trust formation and pupil mimicry, the synchronization of pupil sizes between individuals. The current study therefore examined whether pupil mimicry is weaker in depressed individuals and can possibly explain their low levels of trust. Forty-two patients with a major depressive disorder (MDD) and 40 healthy control subjects played trust games with virtual partners. Images of these partners' eye regions were presented to participants before they had to make a monetary investment decision. Partners' pupils either dilated, constricted or remained static over the course of 4-second interactions. During these, participants' pupil sizes were recorded with eye-tracking equipment to assess mimicry. The results confirm that patients with MDD were somewhat less trusting than controls and used another's pupillary cues differently when deciding to trust. Specifically, whereas healthy controls trusted partners with dilating pupils more than partners with constricting pupils, patients with MDD particularly trusted partners whose pupils changed in size less, regardless of whether partners' pupils were dilating or constricting. This difference in investment behavior was not related to differences in pupil mimicry, which was equally apparent in both groups and which fostered trust to the same extent. Whereas lower levels of trust observed in patients with MDD cannot be explained by differences in pupil mimicry, data show that pupil dilation mimicry might help people to trust. These findings provide further evidence for the important role of pupil size and pupil mimicry in interpersonal trust formation and shed light on the pathophysiology of clinically low trust in patients with MDD.

Poster 27: The Effects of Botox Injections on Facial Emotion Recognition

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The aim of the present study is to assess the effects of Botox injections (which paralyzes muscles, thus dampening the possibility of mimicry) on the recognition of spontaneous and idiosyncratic dynamic emotional facial expressions (EFE), from the DynEmo database. We also consider whether the motivation to understand others plays a role in emotional recognition. Forty-two female participants (Ten with Botox injections) rated twenty short video clips of stimulus female persons expressing Disgust, Happiness, Surprise, Fear (and neutral EFE) regarding the emotions expressed. They were either motivated to understand the stimulus persons' reaction or asked to pay attention to fashion accessories. Results show a detrimental effect of Botox injections on EFE recognition, in particular for neutral and disgusted EFE and to a lesser extent for surprised and fearful EFE. No effect of motivation is observed on recognition accuracy in the Control group (due to a too small number of participants, motivation is not tested in the Botox group). There is no effect of emotional contagion neither since

an unobtrusive measure of emotional feeling shows that the emotional state of all participants is not modified by the stimuli display. The effects of Botox injections are discernible when the observers' paralyzed muscles (corrugator + depressor, orbiculari oculi, frontalis) are the same than those of the rated EFE. Yet, when the EFE is obviously non-ambiguous, the effects disappear. The effects of Botox are also discernible for the neutral EFE, which are accurately recognised by the Control Group but not by the Botox group. The present results align more closely with accounts of emotional perception stressing the role of mimicking expressive muscles movements in emotional decoding.

Poster 28: The Role of Emotion Expression in Health Perception

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People often evaluate the health of others. Such evaluations serve crucial functions such as avoiding contagious diseases or finding fertile mates. Cues that can serve as indicators of a person's health are, for example, the color and texture of the face, body shape or the sound of the person's voice. The present research provides preliminary evidence that facial expressions of emotions can also serve as cues to health. This claim is based on the assumption that the perceived fundamental characteristic properties of emotions can reflect the health of the person expressing them. According to the circumplex model of affect, the fundamental characteristics underlying emotions are valance and arousal. Valance referees to the level of pleasure or displeasure reflected by the emotion. Arousal, which is sometimes also considered as alertness, refers to the level of physiological activity reflected by the emotion. Different emotions represent different combinations of these two fundamental properties. For example, whereas anger is considered as representing a high arousal, negatively valenced state, sadness is also considered as reflecting a negative state that is somewhat more negative than anger and lower in level of arousal. Happiness, by contrast, reflects a positively valenced state of an intermediate level of arousal. Because people experience negative emotions when they are in a bad health and positive emotions when they are in good health, the valance of the emotion can serve as a cue to a person's health. Similarly, arousal reflects the level of alertness or physical activity of a person. Thus, emotions reflecting high arousal are expected to reflect a higher level of health than emotions reflecting low arousal. Presented are results of a preliminary study showing that perceivers infer others' level of health based on facial expressions of emotions.

Poster 29: Perception of Emotional Chimeric Faces in People with Parkinson's Disease

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Objective: Although traditionally viewed as a movement disorder, Parkinson's Disease (PD) demonstrates a range of non-motor symptoms including impairment in the perception of facial expression of emotion. Here we investigated the sensitivity to expressions of emotions in chimeric faces in People with Parkinson's (PwP) and its link with the disease severity. Methods: Using psychophysical methodology we first assessed PwP and healthy control's (HC) sensitivity to facial expressions of happiness, surprise, disgust, anger, fear and sadness. Next, for each individual, we selected the expressions with best performance (most sensitive) and poorest performance (least sensitive) and tested them in a discrimination task using upright and inverted chimeric faces. In chimeric faces one side (left or right hemispace) contained the emotional expression in a range of intensities (0–100%) while the other side contained a neutral expression. Results: For all participants and all expressions, performance increased from chance (50%) to 100% correct as intensity of expression increases. Analyses of the threshold data derived from fitted functions showed that for upright chimeric faces, performance on the most sensitive emotion was significantly better than performance on least sensitive emotion. Performance of HC was on average better than performance of PwP across all tested conditions. PwP showed a trend towards right-hemispace bias, although this did not reach significance. For inverted chimeric faces, we only observed one effects where the performance on the most sensitive emotion was significantly better than performance on least significant emotion. Conclusions: PwP showed a reduced sensitivity to facial expressions of emotion tested in chimeric faces paradigm. We found no evidence for hemispace biases in PwP nor HC. Further research is required to identify whether the disease progression may be linked to the perceptual asymmetries in processing facial emotional expressions.

Poster 30: Divergent Effect of Exposure Duration on Affective and Semantic Modes of Valence

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This study aims to examine the potential dissociation between two modes of valence: affective valence (i.e. the valence of the emotional response) and semantic valence (i.e. stored knowledge about the valence of an object/event). We predict that exposure duration to stimuli has a divergent effect on the activation and sustainment functions of affective and semantic signals. Affective signal is cumulative and has a monotonic slope increasing with exposure duration, while semantic signal is predicted to have a stick function - reaching its peak with identification of the stimuli and changing less with exposure duration. In this study, we manipulate 5 exposure durations (from 50 to 1000 ms) to emotional stimuli and two types of self-reports instructions (feelings-focused and knowledge-focused). Results suggest that the two signals, affective and semantic, were divergently affected by the degree of exposure duration to emotional stimuli. The findings support the distinction between affective and semantic representations of valence.

Poster 31: Smelling an "Emotional Fingerprint": Fear Odors Facilitate Detection of Fear Expressions over other Negative Expressions

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The present study was designed to investigate the nature of individuals' affective processes when influenced by human body odors produced under specific emotional conditions. In an experiment in which participants were exposed to facial images of anger, disgust, fear and neutral expressions that change gradually from completely noisy to clear images, the participants' task was to indicate the valence of the gradually emerging facial image as soon as they could by pressing the corresponding button. This was a double-blind experiment, where the facial images were presented under fear and neutral odor conditions. Sweat pads from individuals induced to be in a fearful and neutral state served as olfactory stimuli. We tested between two alternative hypotheses: (1) if fear odor induces a general negative evaluative state, then all negative facial images were expected to be identified faster relative to the neutral odor condition; (2) if fear odor recruits a discrete emotional state, then only the facial images of fear and not the other negative images were expected to be identified faster. Results revealed that fearful faces were processed faster in the fear odor condition compared to the neutral odor condition, while the reaction times were not different for the other negative facial images across the two odor conditions. Our data suggest that the discrete emotion account provides the best model for facial affect perception primed with fear

odor. This study provides a first demonstration of perception of discrete negative facial expressions using olfactory priming.

Poster 32: The Role of Conceptual Stimulus Properties in Human Affective Habituation

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Habituation is perhaps the most pervasive and evolutionary ancient form of learning, defined as attenuation of response following repeated exposure to a stimulus. Understanding habituation is critical to the study of emotion. This is because many of our emotional responses are actually elicited by stimuli that already have been encountered before. Interestingly, exposure to stimuli does not always involve perceiving the same particular object (e.g. it is not always the same dog that barks) and sometimes the repeated events involve objects that share conceptual (but not perceptual) similarity. The question of this research is whether and to what extent human emotional response can habituate when the similarity between the stimuli is abstract and not based on perceptual feature. To investigate this question, participants were repeatedly presented with an affective image, followed by a set of test images that shared perceptual, conceptual or affective properties with the repeated stimulus, allowing comparing the degree to which habituation can generalize across different levels of stimulus abstraction. Results demonstrated that habituation across different components of the emotional response (self-reported feelings, facial expressions) generalized up to the conceptual level of the repeated stimulus.

Poster 33: Emotion Processing During Adolescence and Early Adulthood

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University of Glasgow, UK

The ability to decode emotion expressions from faces is crucial for psychological well-being. However, research into the normative development of this process, particularly during adolescence is sparse, findings are inconsistent and existing paradigms offer limited insight into the specific aspects of facial information processing that contribute to any observed developmental changes. To address these limitations, we employed a novel, psychophysical approach that takes into consideration the dynamic and complex nature of the face, and reverse correlation to determine the specific facial muscle groups used for the recognition of the six basic emotions in

adolescents (aged 12 - 17) and adults (aged 18 – 25). We show that facial information use during recognition of positive emotions is consistent across adolescents and adults, while that of negative emotions exhibits a more complex developmental trajectory. As a secondary goal, we also examined the relationship between facial information use during emotion recognition and age-related differences in self-reported emotion regulation, a mechanism undergoing profound changes during adolescence.

Poster 34: Emotion Recognition in Brain Injury Patients: A Pilot Study using the Bristol Emotion Recognition Task

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Objective: To assess the feasibility of using the Bristol Emotion Recognition Task (ERT) to investigate deficits and biases in emotion recognition after brain injury. Deficits in emotion recognition are commonly reported after brain injury, and this pilot study aimed to investigate use of the ERT in a brain injury population by replicating emotion recognition findings reported in the brain injury literature. Method: The ERT was used to assess the ability of sixteen neuropsychology patients at North Bristol NHS Trust to recognise six emotions from facial expressions. Patients were presented with 96 faces showing the emotions at varying levels of intensity. They had to label each one as presenting as “happy”, “sad”, “angry”, “fear”, “disgust”, or “surprise”. The primary outcome measure was the overall number of correct identification made, but emotion specific accuracy and the number of misidentifications made for each emotion were also recorded. In addition, information about patients’ cognitive ability and mood were collected from their medical files. Results: Brain injury patients were significantly worse than a control population at correctly identifying emotions on the ERT. The emotion specific analysis suggested that patients were worse at identifying negative emotions and were biased towards identifying facial expressions as fearful or surprised. Conclusions: As the results are in line with findings reported in the literature, the ERT seems to be a valid measure of emotion recognition after brain injury. A larger study investigating both investigate deficits and biases in emotion recognition after brain injury is appropriate, and a follow up study is currently being set up.

Poster 35: Perceived Appropriateness of Emotion Expressions and Inferences of Expresser's Skills

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Observers of emotions expressed by others use these expressions to draw inferences about the characteristics of the expressers. Such inferences are based both on the type of the emotion expressed as well as the circumstances in which the emotions were expressed. One important factor that combines these two sources of information and is expected to affect the inferences that observers extract from others emotions is the perceived appropriateness of the expression. Expressions of emotions can be perceived as appropriate or inappropriate in a certain context depending on the social norms relevant for this context. Such norms function as rules dictating which emotions can be expressed or even are expected to be expressed in a given context and which should not be expressed in that context. What we suggest in the present paper is that the perceived appropriateness of the expression of the emotions affects also the extent to which observers of the emotion take at face value the information suggested by the emotion expressed. In the present research observers were reading about a student who failed in an important task and was called for a meeting with the Professor who graded that task. They further learned that the professor expressed pity or anger ether in the presence of the student (inappropriate expression) or not in his presence. They then had to evaluate the appropriateness of the expressions and that Professor's ability to evaluate the student. Expressions of emotions in the presence of a student were perceived as less appropriate then expressions not in his presence. Also, anger was seen as less appropriate than pity. In concert with that, the professor was judged as less able to evaluate the student's abilities when he expressed the emotion in the presence of the student and when he expressed anger.

Poster 36: Can Reactive Emotions Diminish the Perceived Social Power of an Angry Person?

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Expressions of emotions inform observers' inferences of the social power of expressers. Research has shown that people expressing anger are perceived has having a higher level of power than people expressing sadness. Yet, expressions of emotions are perceived in a specific context. This context contributes significantly to observers'

inferences. One important context is the emotional reaction of the person who is the target for the initial expression. Indeed, the extent to which the person expressing anger is perceived as having high power depends on the reaction of the target of this reaction. When the target responds with neutrality or anger, the angry person seems somewhat less powerful than when the response is fear or sadness. Nevertheless, angry still leads to perceived high social power regardless of the type of reactive emotion shown by the target of this anger. Yet, previous research examined only the role of anger and neutrality as reactive emotions expected to diminish the power suggested by the first person's anger. The present research moved beyond this by examining the possibility that contempt and/or happiness as reactive emotions will have a more potent effect on perceived social power of a person expressing anger. This because, both emotions are expected to pose greater challenges to the claim of high social power suggested by anger. Reported are results of two studies. The first study, using still photos showed that happiness failed to decrease the perceived power of the angry person. By contrast, study 2 using videos of emotion expressions, found that happiness but not contempt decreased the perceived social power of the angry person. This furthers the understanding of the way reactive emotions affect inferences of social power from emotion expression. Also, it indicates the importance of using dynamic stimuli in studies of social perception of emotions.

Poster 37: Effects of Social Power on Women's Self-Concept and Self-Face Recognition

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Social power is a ubiquitous construct affecting individuals' cognition and behaviour. While previous work on social power has relied on explicit instructions to induce feelings of power (e.g. Duguid & Goncalo, 2011; Galinsky, Gruenfeld, & Magee, 2003), this research takes a novel approach to the study of social power by using state-of-the-art techniques in immersive virtual environments. Based on work demonstrating that body ownership can shape associations with higher-level concepts of the self (Banakou, Groten, & Slater, 2013), we explored whether power experiences in VR lead to changes in self-power associations and visual self-representation. To this end, 30 female participants became either a powerful (manager) or powerless (employee) figure, embodied through an avatar in an online virtual world. To create a sense of body-ownership, participants' physical head and body movements were tracked with motion capture and then mapped on the avatar in real time. Using an IAT, we measured implicit attitudes towards the self and power, before and after the virtual power experience. In line with predictions, powerful experiences led to stronger self-identification with high power, while associations between self and low power increased in the powerless condition. Interestingly, power affected self-face

recognition only in the low power condition, with women selecting more submissive images of themselves after embodying a powerless figure. The present research extends previous findings regarding power and women's self-concept and suggests that the effects of power may be subject to gender roles, leading to the activation and use of power-gender congruent face schemas.

Poster 38: Body Posture Modulates the Effects of Occupational Stereotypes on Attributions of Dominance and Empathy, but Only if the Target is Female!

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To what extent can body posture modulate the influence of stereotypes in first impressions? While research on 'power postures' (Carney, Cuddy, & Yap, 2011, 2015) has focused on openness and expansiveness, the effect of posture may change in concert with stereotypical knowledge about the gender and occupation of the target. We tested the impact of posture and stereotypes on perceptions of dominance, empathy, and competence. In Study 1 (N = 164), participants attributed more empathy to female avatars in stereotypically medical outfits than military or casual outfits. Study 2 (N = 312) introduced an expansive (arms open) versus constricted (crossed arms) posture. Results showed that expansively posed female avatars were judged to be less dominant and more empathic than avatars in a constricted posture. The constricted posture increased perceived dominance more in response to medical than military outfits, showing a modulation of occupational stereotypes by posture. Study 3 (N = 163) replicated the effects of reduced perceived empathy and increased perceived dominance of the constricted posture compared to the expansive posture. Again, the constricted posture amplified attributions of dominance more strongly for avatars wearing a medical versus a military outfit, but only if the target was female. Subsequent analyses showed that the effect of posture on competence ratings was mediated by perceived dominance and, to a significantly lesser extent, by empathy. This mediation was only observed for female targets. Overall, our results suggest that a) certain constricted postures may indeed be perceived as more dominant than expansive postures, b) posture can modulate perceptions of occupational stereotypes, and c) perception of females may be shaped more by an interaction between posture and stereotypes, whereas male perception is driven by independent effects of posture and outfit. These findings challenge established views on expressive 'power postures, 'especially for women in gender-stereotypic occupational roles.

Poster 39: The Impact of a Training Intervention on Emotional Intelligence, Leadership Styles, Self-Efficacy and Perception of Power in University Nursing Specia

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Objectives: This study was designed to determine the impact of emotional intelligence training on outcomes, including emotional intelligence (EI) scores, leadership style(s), self-efficacy and perception of power in university employees teaching nursing in Saudi Arabia. Method: A quasi-experimental design was used to test the effectiveness of a one-day emotional intelligence training intervention. The sample was recruited from nursing colleges across four different sites within the same university: two campuses served as control groups and two more as the intervention group. Training consisted of providing information about EI, as well as strategies for participants to practise a range of emotional competencies, based on Goleman's EI model. Both the intervention and control groups completed the Schutte Emotional Intelligence Self-Report Scale, the Multifactor Leadership Questionnaire, a general self-efficacy scale and perception of power measure, both immediately pre- and post- workshop (one day interval for the control group) and at one and three months follow up. Results: Findings indicate that participants attending the EI intervention – compared to their baseline pre-intervention scores - reported significantly improved emotional intelligence, transformational leadership style and self-efficacy one month after completing training. This increase was maintained at the three months follow-up. Over the same time period, a significant decrease was recorded in laissez-faire leadership, however no changes were observed after the training in transactional leadership style and perceptions of power. The overall efficacy of the EI training is supported by the significantly increased EI scores among participants in the intervention compared to the non-participating control group. Conclusion: This study sets out to add to the body of knowledge by assessing the impact of emotional intelligence training on EI level, leadership style, self-efficacy, and perception of power at work. As far as the authors are aware, this is the first study of its kind in Saudi Arabia.

Poster 40: Auditioning for Empathy: Dance, Acting, and Psychology Students' Empathic Abilities

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Dancers and actors communicate a remarkable range of emotions through their performances. In everyday social

interaction, the reception and transmission of affect, sympathy, and compassion are part of empathic processes (Lamm et al., 2017). It stands to reason that, through the physical and theatrical practice of their art, dancers and actors have trained their empathic abilities over and above a theoretical understanding of others' feelings. Empathy is a complex construct entailing cognitive, affective, and kinaesthetic components (Koehne et al., 2016). Several tests of empathic abilities with diverse theoretical underpinnings exist. To better capture empathy as a malleable multifaceted behavioural competency is thus important (Derntle et al., 2010). For instance, while dancers' have been found to show enhanced empathic abilities (Kohne et al., 2016), the findings of empathic abilities in actors (Nettle, 2006; Goldstein & Winner, 2011) and medical students (Ferreira-Valente, 2017) are inconsistent. Thus, is the relationship between different types of training and empathic abilities idiosyncratic? We targeted participants from different disciplines that undergo extensive emotional expressive or theoretical training. Through a longitudinal online study that employed a set of questionnaires (e.g. IRI, EQ, RME), we measured changes in empathic abilities in dance, acting, and psychology students from the start of their studies to the middle of their 1st year. We predict that actors perform better in the RME test, which is closely linked to their practice. Based on previous studies, we expect that dancers show the highest level of empathic abilities across all three groups in the IRI and the EQ. Overall; our data will allow us to better predict the effect of physical, emotional, and theoretical training on kinaesthetic, affective, and cognitive empathy. A better understanding of the association between empathic abilities and different types of training will allow more targeted interventions to support and promote prosocial behaviour.

Poster 41: Can Positive Thinking Help or Harm Negotiations? How Positive Thinking Causes Low Performance in Negotiations with No If-Then Plan

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A group of social psychologists argue that positive thinking about the future may trigger low efforts (e.g. Oettingen, 2012) and we examine whether this mechanism will apply to negotiation context too. In this research, we show that positive thinking about the future is detrimental to negotiator performance across four studies because of such low efforts. In our negotiation experiments, we induced positive thinking about the future and studied behaviors in negotiation and continuous shrinking-pie bargaining tasks. Compared to negotiators experiencing neutral thinking about the future, negotiators who think and feel positively about the future set higher expected outcomes and make higher first offers but respond more quickly to counterpart's offers, exit

earlier in bargaining situations, and ultimately obtain worse negotiation outcomes. The relationship between positive thinking about the future and negotiator behavior is moderated by negotiator's implementation intentions ("if-then plans"); high implementation intentions mitigates the harmful effects of positive thinking about the future. Results are interpreted in light of theory and research exploring the predictive power of positive thinking about the future (Sevincer, Wagner, Kalvelage, and Oettingen, 2014) and negotiation behavior.

Poster 42: Emotion Regulation Ability Predicts Experiences of Stress Early but not Later in the Careers of Professional Soldiers

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Military personnel face various stressors in their professional lives such as military deployments, employments abroad, or family moves. In the present work, we examined whether emotion-regulation ability assessed with the Mayer-Salovey-Caruso Emotional Intelligence Test would help to reduce the experience of stress among German soldiers (N = 486, 93% male). Although emotion-regulation ability is associated with various well-being outcomes, a recent study suggested that the benefits of emotion regulation depend on the context in which it is used (Troy, Shallcross, & Mauss, 2013). We predicted that higher emotion-regulation ability would be associated with a lower experience of stress as a result of a greater tendency to use effective strategies (i.e. more reappraisal and less suppression; Hypothesis 1). We further predicted that whether emotion-regulation ability would reduce stress experiences would depend on the stage of soldiers' careers because of the related challenges in their work and personal situations (Hypothesis 2). The results showed that a higher ability to regulate emotions was associated with a lower stress experience, which was partly due to the tendency to use reappraisal instead of suppression—but only among professional soldiers who were in the early stages of their careers (≤ 30 years old) and not among their colleagues in later career stages (> 30 years old). The results also showed that professional soldiers in early or later career stages differed in their stress experiences (job vs. family demands). We considered the context-dependency in interpreting these findings: Whereas in the early stages of their careers, soldiers are primarily stressed by emotionally demanding military deployments and benefit from high emotional competencies, the challenges of older professionals are less a matter of adaptation but are more likely to involve issues for which external resources are needed (e.g. combining one's career with one's family life).

Poster 43: Impact of Emotionally Negative Information on Engagement and Disengagement Processes in Aging: A Visual Search Paradigm in Eye-Tracking

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Socioemotional selectivity theory posits the existence of a motivational positivity bias in aging, leading to a facilitated engagement towards positive information in older adults. However, several studies suggest that an early engagement toward negative information might still be present in aging, whereas the disengagement from negative information might be more efficient in this population. Yet, we suggest that the influence of negative information on early disengagement processes was not accurately assessed in aging studies and requires further investigation. In this perspective, 24 young adults and 30 old adults were eye-tracked while they performed a visual search task on a computer screen: the target was a means of transport with implicit (negative or neutral) emotional content, presented concurrently with one, three or five non-means of transport neutral distractors. Once participants found the target, they had to identify whether a break in the target frame was on the left or right. Young adults and healthy old adults detected negative targets more efficiently than neutral targets, showing a facilitated engagement toward negative information. Furthermore, it took longer for both groups, and even more so for old adults, to answer about the frame break location for negative rather than neutral target content (after accounting for initial fixation delay), showing a more difficult disengagement from negative information. The present study is the first to highlight an influence of negative information on both engagement and disengagement processes in aging.

Poster 44: A Smile as Conflict: Positive Facial Expressions of Out-Group Members Represent Affective Conflict and Trigger Cognitive Control

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Affective responses to emotional expressions critically depend on the group membership of the expresser. Facial

expressions by in-group members elicit concordant behavior (i.e. joy—approach/fear—avoidance) whereas out-group expressions elicit discordant behavior (i.e. joy—avoidance/fear—approach). A prominent interpretation is that affective reactions are triggered by social intentions (social intention hypothesis): In-group members are imputed to pursue benevolent intentions thereby facilitating concordant responses. Out-group members are imputed to pursue malevolent intentions so that discordant behavior is triggered. In this study, we tested an alternative account, proposing that specific combinations of group membership and facial expressions result in affectively incompatible faces, e.g. positive expressions by negatively evaluated persons (out-group members) or negative expressions by positively evaluated persons (in-group members). We assume that these affectively incompatible faces represent an affective conflict. Because conflict processing entails an inherent aversive quality, it might be the affective conflict processing that triggers avoidance responses (processing conflict hypothesis). To test whether incompatibility between affective connotations of facial expressions and group membership would elicit affective conflict, White-Caucasian participants categorized the valence of the emotional expressions (joy vs. fear/anger) of Middle-Eastern (out-group) or White-Caucasian persons (in-group). Results showed a typical compatibility effect irrespective of the type of negative emotion presented. Responses were generally slower to affectively incompatible faces (i.e. joy—out-group or fear/anger—in-group) as compared to affectively compatible faces (i.e. joy—in-group or fear/anger—out-group). Moreover, incompatibility between facial expression and group membership in trial N-1 triggered processing adjustments in the subsequent trial (i.e. reduction of the affective conflict in trial N). This conflict-triggered recruitment of cognitive control was found irrespective of the type of conflict. More precisely, the fact that an affectively incompatible joyful face triggered control adjustment that facilitated processing of an affectively incompatible fearful/angry face, speaks in favor of the conflict instead of the social intention hypothesis.

Poster 45: Unemployed are Unhappy: Employment Status and Happiness in Slovakia

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Research in the sociology and psychology suggests that employment status considerably influences people´s well-being. This paper tests this hypothesis, when the main research question asks whether unemployment impacts person´s happiness. Data from the Slovak sample of International Social Survey Programme 2015 and 2016 (N = 2300) are used in the analysis, which confirms that unemployment is the strongest predictor of unhappiness. Also, the study shows that two other variables, which previous literature ties to well-being – single relationship status and worse self-assessed health status – are significant predictors of feeling unhappier. On the other hand, students and pensioners are more likely to be happier, as well as those with higher self-assessed

personal social status. Gender, education, and age of respondents do not seem to play a role.

Poster 46: Color-Emotion Mappings in Interface Systems

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According to previous research colour categorisation is variable and depends on factors such as object knowledge, seasons, and the age of subject (e.g. Palmer & Schloss, 2010). In our research, we wanted to explore colour categorisation depending on emotions in an interface environment. We also wanted to determine whether there are demographic factors determining colour assessment in interface systems. We have conducted an online survey with a quasi-experimental in-group design. Ten colour stimuli were randomised and displayed to subjects. Subjects (N = 261) were asked to rate the colours according to 12 pairs of opposite emotion dimensions on a Likert 5-point scale. Each end of the scale represented opposite emotion. The scales were adapted from the framework by Ou, Luo, Woodcock, & Wright, 2004. After the colour categorisation test, the survey contained questions regarding the habits of typical internet usage and an extended demographic part. Descriptive statistics, Kruskal-Wallis test and other statistical methods were applied to data analysis for detecting differences in colour assessment regarding emotions. Our overall results indicate that certain colours are mapped to relatively opposite emotions (e.g. black and white onto features 'light-heavy' or red and brown onto features 'active-passive'). However, there are also emotions that indicate relatively consistent mappings to different colours (e.g. 'secure-insecure' or 'harmonious-disharmonious'). Further, we can also distinguish groups of colours that are evaluated similar regarding certain emotions (e.g. black, white, brown as 'classic' or white, green, yellow, blue as 'fresh'). Additionally, we can observe differences in colour ratings regarding demographic factors such as age, place of residence. In concluding part of our paper, we discuss details of our findings, describe additional variables shaping the results (such as hobbies and places of residence). We also provide an overview on how different colours representing emotions can be used in interfaces for specific aims or target audience.

Poster 47: "Our Team Won!" – The Influence of Game Success and Failure on Emotions and Language Production

Nadine Braun, Martijn Goudbeek & Emiel Krahmer

Tilburg University, The Netherlands

Everyday situations can influence our moods and emotions, and this in turn influences way we communicate with each other. However, in many experimental studies, emotions are induced with means like cued recall or video clips, which are less natural than the everyday situations we actually encounter. In our recent experiment, we looked at how success and failure in an everyday competitive game change people's emotional states and the way they describe the game itself. Therefore, we let two teams consisting of two participants each play two rounds of foosball (table soccer) against each other. After each game, they wrote reports, filled in questionnaires about their emotional states and BIRGing (Basking In Reflected Glory) and CORFing (Cutting Off Reflected Failure) behaviour. BIRGing, the tendency to "bask" in (other people's) successes, and CORFing, the tendency to withdraw and distance oneself from failures, are self-preservation strategies that have been repeatedly demonstrated in fan and supporter behaviour for sports and elections, while little research has investigated natural situations on an interpersonal scale. First, we analysed the questionnaire data to determine the impact of game outcome on emotions and CORFing and BIRGing. In a next step, we analyse the linguistic properties of the match reports. Our preliminary results show that game outcome indeed changes participant's emotions and perspective. After a victory, participants report feeling significantly happier and more excited than after a defeat. They also feel less angry or dejected, bask more in the outcome, and feel more connected to their teammate. This might, in turn, also influence the language used by our participants in their reports. We discuss the impact of our findings with respect to ecologically valid approaches to emotion induction and on models of emotional language production.

Poster 48: The Effect of First and Second Language on Cognitive Processing and Emotions

Kimberley L Sorrie & Emma Clayes
University of Highlands and Islands, UK

The present work aims to assess whether emotional effect on memory is present in both first and second language by accessing recall and recognition in an online survey lasting approximately 30mins, where type of language, task and recall will be manipulated. Overall different tasks will be employed within the study to see if nationality of first language has an effect on whether emotional words are recalled more than neutral words in deep processing tasks compared to shallow processing tasks. The study will further existing research by looking at a minority language (Gaelic) and conducting quantitative methods of research, as previous research demonstrated that minority languages can be more emotional than majority languages through the use of

thematic analysis (Smith-Christmas 2015). A sample of 78 participant's, who are bilinguals within English and Gaelic will participate in the present study. Quota sampling was used to gather participants for the study from Gaelic Groups, Schools and Universities as the characteristic of knowing Gaelic was required. It is predicted that the results will show that type of word and first language will affect memory recall (regardless of processing task i.e. letter detection or emotional intensity rating) and that emotional words are recalled more than neutral words in a first language than in a second language. The results should also show that participants with Gaelic as a first language will have a higher recall and recognition of emotional words compared to participants whose first language is English. These results have implications for memory, language and emotion as will add to the continued wealth of research, by potentially emphasising that minority language can affect recall. In terms of minority languages being used to teach, this should be considered as children potentially could exceed more in tests etc. when work is produced and learned in the first language.

Poster 49: Causal Relations in Psychological Verbs in Hebrew

Elitzur Bar-Asher Siegal &Yael Gaulan
Hebrew University of Jerusalem, Israel

Psychological verbs, verbs denoting mental states, demonstrate unique syntactic features, which challenge existing linguistic theories. This paper deals with phenomena regarding the group of causative psychological verbs in Hebrew, those with the meaning of "sadden," "anger," "disappoint" etc., and explains their uniqueness by delving into their semantics. Data and research question: Only some of these verbs appear in sentences with prima facie two causes of the mental state: ha-marca hilxica otanu al ha-bxina. Literally: The professor stressed us on the exam. 'The professor made us stressed about the exam.' This seems to contradict the Diversity Principle, according to which participants of the same semantic type (causes, in this case) cannot occur in different syntactic positions (professor-subject; exam-indirect object). Most psychological-causative-verbs do not allow this structure. Two questions arise: 1. Why do two causes appear in the same clause? 2.Why do different psychological verbs behave differently in this manner? Proposal: The key for solving this puzzle relies on a recognition of different conceptualizations of causation of mental events, which, we argue, is reflected in the semantics of psychological-causative-verbs; similar to the one made as part of the familiar distinction between moods and emotions – events of the former group do not have an inherent object, and therefore their causes are only "stimulators"; events of the latter are intentional. Consequently, verbs denoting moods have subjects causatively related to the state indirectly, even in an associative manner, while subjects of verbs denoting emotions are only the object of the emotion or its direct cause. In defined syntactic environments verbs of the

second groups can appear in a sentence with both a "stimulator" and an "object", thus not violating the Diversity Principle. More broadly, this paper demonstrates how linguistic, psychological and philosophical theories on mental events can mutually enrich and inform each other.

Poster 50: Emotion and Lack of Expressed Emotion in Foreign Language Learning: Two Contrasting Case Studies of EFL Adolescent Students

Liana Maria Pavelescu
Guildford College, UK

Despite the vital role of emotions in language learning (Mercer, 2011, 2014; Gregersen & MacIntyre, 2014; MacIntyre & Gregersen, 2012; Kramsch, 2009; Arnold, 2011), there has not been much research on teenage students' language learning emotions as they emerge in their learning experience. Investigating language learning emotions in more depth would offer richer insight into the kinds of emotions experienced by adolescents and into the ways in which their emotions can enhance or hinder the learning process. This presentation will report on a study which explored the language learning emotions of two teenagers who were studying English as a Foreign Language in Romania. Various qualitative methods were used during a school semester: a written task, semi-structured interviews with the learners and their teachers, and lesson observations. The findings of the study offer a rich description of a strong positive emotion experienced in adolescents' language learning, and they also reveal the absence of an expressed prevalent emotion towards the foreign language studied. They show how the strong positive emotion of love of English is shaped by interactions with family members, teachers and experiences outside the classroom and how it enhances the language learning process. The results also provide insight into how the lack of an expressed dominant emotion towards the foreign language is linked to an unpleasant classroom learning experience and how it hinders learning. The intense positive emotion of love can broaden cognitive resources and fuel engagement in learning in the long term even where there are obstacles in learning, while the absence of a prevalent positive emotion is linked to a lack of engagement in learning.

Poster 51: Speech Context is Necessary for a Pitch Contour to Convey Affective Information

Pei Qi Lee, Fun Lau, Ka Lon Sou, Alice H.D. Chan & Hong Xu
Nanyang Technological University, Singapore

Affective information in speech can be conveyed by acoustic features. One of the features is the change in fundamental frequency across time, pitch contour. In this study, we examine if pitch contour alone is sufficient for emotion perception. We used cross-modal priming paradigm to study the influence of pitch contour on faces in emotion perception. Using a blocked design, we primed the subjects to sinuous pitch contour extracted from emotional speech (Experiment 1; n = 10), and low-pass filtered emotional speech (Experiment 2; n = 7) on subsequent judgment of facial expressions. As controls, we also primed them to the emotional speech and emotionless pitch. The emotional speech was either a happy prosody or an angry prosody. Subjects were asked to judge whether the face (morphed between angry and happy expressions) presented after the auditory prime was angry or happy. Results revealed significant cross-modal priming effects only in the Angry human speech conditions, but not in the Happy conditions (speech or its sinuous pitch contour). In the Angry condition, original angry speech produced significant priming effects in both Exp 1 (p = .004, d = 1.20), and Exp 2 (p = .025, d = 1.13). While angry low-pass filtered speech generated a significant priming effect (Exp 2: p = .012, d = 1.27), the sinuous pitch contour that was extracted from the original angry speech failed to generate any priming effect (Exp 1: p > .05). In contrast, none of the Happy speech conditions or its sinuous pitch contour condition generated significant priming effect (ps > .05). We therefore conclude that pitch contour, on its own, does not convey high-level affective information. The same pitch contour is only emotionally meaningful when it is embedded in a human vocal texture, and even when the speech is not semantically meaningful.

Poster 52: The Perception of Emotion in Non-Verbal Vocalisations

Caroline M. Whiting[1], Bruno L. Giordano[1,2], Sonja A. Kotz[3,4], Pascal Belin[1,2] & Joachim Gross[1,5]

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Affective vocalisations such as screams and laughs can convey strong emotional content without linguistic information. In this study, we use a set of morphed vocalisations between five emotions (anger, disgust, fear, pleasure and neutral) to assess the behavioural and neural responses in the context of perceived vocal emotion. We combined functional magnetic resonance imaging (fMRI) and magneto-encephalography (MEG) to measure with high spatiotemporal precision the neural dynamics while participants listened to voice stimuli expressing a

range of emotions. Participants also provided a detailed perceptual assessment of the stimuli, including speeded emotion categorisation and valence/arousal ratings. Firstly, in the behavioural data we show that caricatured expressions (e.g. 125% fear relative to the neutral emotion) produce emotions that are perceived as more intense and distinctive, with faster recognition relative to the original (100%) and anti-caricatured emotions (25%, 50%, 75%). These results showed a strongly linear effect of caricaturing – with 125% caricatures perceived as higher in emotion intensity and arousal – mirroring previous results from facial caricatures. Secondly, using representational similarity analysis (RSA), we show that the participants' perceptual representation of the stimuli was initially dominated by discrete categories and an early (< 200 ms) cerebral response. These responses showed significant associations between brain activity and the categorical model in the auditory cortex starting as early as 77ms. Furthermore, we observed strong associations between the arousal and valence dimensions and activity in several cortical and subcortical areas at later latencies (> 500 ms). Our results thus show that both categorical and dimensional models account for patterns of cerebral responses to emotions in voices but with a different timeline, and detail as to how these patterns evolve from discrete categories to progressively refined continuous dimensions.

Poster 53: An Exploration of Using Music in Religious Education Class as an Effective Tool for Values Education

Yusuf Ziya Ogretici
University of Glasgow, UK

This paper explores why music should be included in religious education (RE) classes for educational purposes. Within a philosophical/theological perspective, it is based on what is the relationship between religious values/emotions and music. By starting with the premises that music can express emotions/values; this study argues that, with the feeling element in religion, music has significance to express religious emotions through which values and knowledge might be transferred. Then, the question of how music can hold a value as being an emotional stimulant is evaluated in terms of its educational benefits. This paper approaches church musical experience as a case study through semi-structured interviews to understand what can be learned from its musical applications. In this way, the music in the church services is evaluated in terms of expectations relating to teaching religious concepts and expressed values through music. This study argues that RE can be enhanced by including music in teaching. Using educational insights through content analysis and semi-structured interviews, in order to implement the outcomes of the first two steps, the main aim is to show why RE should use music considering its emotional capacity. Drawing on literature focusing on the current situation for RE in theory and

state education, it is argued that not only RE is a suitable environment for applying music, but also music serves many opportunities for RE through emotions.

Poster 54: A Mixed Methods Investigation of the Emotional Effects of Music Listening for the Regulation of Sadness in Young Adults

Joel Larwood & Genevieve Dingle
School of Psychology, The University of Queensland, Australia

Music is often turned to as a way of managing negative emotions. However, debate exists regarding the conveyed emotion of music used and how it affects emotions and mood. Furthermore, rumination has been implicated in negative music listening consequences. In Study 1, a sad state was induced using a sad video in young adult participants (N = 128, M_{age} = 20.09) who then listened to sad music (experimenter selected), their own music (any expressed emotion), or no-music. Trait rumination was measured post-listening. Analyses revealed that listening to sad or self-selected music allowed for a decrease in sadness, although sadness remained comparatively elevated when sad music was listened to. This was consistent with past research demonstrating that sad music does not further induce sadness. However, rumination was not found to moderate the relationship between sad music and emotional outcome—a failure to conceptually replicate prior studies. This suggests that, for rumination to affect listening outcomes, self-selected sad music needed to be listened to, perhaps due to pre-existing associations. Study 2 aimed to conceptually replicate an established mediation pathway of listening to music for emotion regulation leading to decreased depression via emotion regulation in a young adult sample (N = 162, M_{age} = 21.52), adding rumination as a moderator. Analyses revealed no indirect or moderated effects, even when only considering those who listen to sad music to regulate sadness. These results again refute the notion that high ruminators should avoid listening to music when regulating emotions. Subsequently they allow for the possibility for music to be used as a tool to increase the emotion regulation repertoire of young adults at risk of depression.

Poster 55: Emotion-Related Vocal Cue Processing on Self and Other, an MMN Study

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Both emotion and speaker identity influence the way the brain processes vocal information. A recent study showed that self-other discrimination and semantic emotional valence modulate speech processing in an interactive manner (Pinheiro et al., 2016). However, it is not known whether this interaction extends to acoustic cues of emotional speech as well. For this purpose, we used a voice transformation tool to precisely control infra-segmental cues related to happiness and sadness, such as pitch inflections and spectral changes, onto speech stimuli and transformed self-produced speech and speech produced by others in the exact same manner. We present here results of an electroencephalography (EEG) study using an oddball paradigm to investigate how speaker identity and emotion-related acoustic cues interact during voice perception. EEG results showed that the same acoustic changes were processed earlier when perceived on the voice of an unknown speaker compared to the self-voice, as illustrated by a mismatch negativity (MMN) onset difference of ~30ms. At the source level, we found that this latency difference co-occurred with stronger activations in the left primary motor and somatosensory cortex and inferior parietal lobe, which are part of a larger speech perception network. Taken together, these results extend previous reports of integrated processing of self-produced speech and semantic emotions and show that the processing of emotion-related vocal cues is modulated by the identity of the speaker.

Poster 56: Shared States: Using MVPA to Test Neural Overlap Between Self-Focused Emotion Imagery and Other-Focused Emotion Understanding

Suzanne Oosterwijk[1], Lukas Snoek[1], Mark Rotteveel[1], Lisa Feldman Barrett[2] & Steven Scholte[1]
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[2]Northeastern University, USA

An important question in social neuroscience is how people understand the emotional state of others. The dominant view assumes that representations of other people's experiences are supported by the same neural systems as those that are involved in generating experience in the self. In the present fMRI study, we tested using multivoxel pattern analysis (MVPA) whether the neural patterns that support imagining "performing an action", "feeling a bodily sensation" or "being in a situation" are directly involved in understanding other people's actions, bodily sensations and situations. Unlike traditional fMRI analyses, our MVPA-approach allows us to directly test whether neural representations corresponding to self-focused imagery capitalize on the same brain networks representing other-focused emotion understanding. In the self-focused task, subjects imagined the content of short sentences describing emotional actions (e.g. "pushing someone away", "making a fist"),

interoceptive sensations (e.g. "being out of breath", "an increased heart rate"), and situations (e.g. "alone in a park at night", "being falsely accused"). In the other-focused task, subjects processed images of scenes and focused on how the target person was expressing an emotion, what this person was feeling, and why this person was feeling an emotion. Using a linear classifier, we accurately decoded each individual class in the self-focused task, which demonstrates that imagery of emotional actions, interoceptions, and situations have distinct neural signatures in the brain. When generalizing the classifier from the self-focused task to the other-focused task, we also accurately decoded whether subjects focused on the emotional actions, interoceptive sensations and situations of others. This accurate 'cross-classification' shows that the same neural patterns corresponding to self-focused imagery of emotion components are used in the process of understanding emotions of others. These results support the theoretical assumption that the basic components of emotion experience and emotion understanding share resources in the brain.

Poster 57: Reinvestigating Competing Motives in Self-Evaluation: A Pre-Registered Replication of Trope and Neter (1994)

Blair Saunders[1], Flávia Freitas Melcop[2] & Michael Inzlicht[2]
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Previous research has suggested that prior positive experiences enhance perceptions of the ability to cope with negative self-referential information, such as critical performance feedback (Trope & Neter, 1994, Journal of Personality and Social Psychology). In study 1 (N = 118) we tested if a positive experience (positive feedback on a mental rotation task) would both lead to increased interest in informative negative feedback and increased neural performance monitoring for self-control failures (i.e. mistakes). Indicating that our manipulation was successful, positive feedback on the mental rotation task led to large and robust increases in satisfaction relative to a no-feedback control condition. Contrary to our predictions, participants in the positive feedback condition did not show increased interest in informative feedback or increased neural reactivity to mistakes as assessed by electroencephalography. In study 2 (N = 422) we conducted a direct replication of experiment 1 from Trope and Neter (1994). Here, as in study 1, we found that increased satisfaction after positive feedback was not met with increased interest in subsequent informative negative feedback relative to our control groups. Together, the results from both studies did not support previous suggestions that positive experiences increase receptivity towards negative information and constructive criticism.

Poster 58: A Novel Affective Approach to Reduce the Dehumanization Bias

Tiarah Engels[1], Disa Sauter[1] & David Amodio[2]
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Dehumanization – the ubiquitous social bias of perceiving others as less human and, therefore, as less deserving of moral consideration – is widespread and has disastrous effects on human welfare. Existing methods of reducing dehumanization are cognitively based and require conscious effort. We argue that modifying dehumanization via emotion may be a more efficient method. Elevation – an emotion felt when witnessing exemplary acts of morality – is a strong candidate emotion for this novel affective approach to reducing dehumanization. This is thanks to its self-transcending, moral, and pro-social properties. This study sought to test the prediction that elevation would reduce dehumanization. To test this, we conducted two online between-subjects experiments (N = 155, N = 167, respectively) using emotion induction in the form of video clips that induced elevation, amusement, or neutral states. Two different dehumanization outcome measures were used, examining blatant, pictorial dehumanization (Experiments 1 and 2) and trait-based dehumanization (Experiment 2). Our results lend support to the prediction that incidental elevation – relative to general positive affect and neutral affect – reduces dehumanization. Due to its detrimental consequences, its pervasiveness across societies, and its persistence across history, finding novel ways to reduce dehumanization is of great societal, as well as scientific importance.

Poster 59: Sleep Deprivation and Its Impact on Interpersonal Conflict

Patricia Cernadas Curotto, David Sander, Nicolas Favez, Virginie Sterpenich, Ulrike Rimmele & Olga Klimecki
Swiss Center for Affective Sciences, University of Geneva, Switzerland

Previous studies have suggested that poor sleep quality has a negative influence on romantic relationship. However, no study has addressed whether there is a causal impact of sleep deprivation on interpersonal conflict. Here we aimed to test whether a single night of sleep deprivation impairs conflict resolution in couples. Additionally, our goal was to investigate the effects of sleep deprivation on the recognition of dynamic and multimodal emotional expressions. In this pilot study, 12 couples were randomly assigned either to a single night of total sleep deprivation for both couple members or to a night of normal sleep for both couple members. The

following morning, we induced a conflictual discussion using the well-established Conflict Discussion Task that emulate real life conflict. Baseline (before sleep deprivation), pre- and post-conflict measures of cortisol level, heart rate, emotional expressions, and felt emotions were collected in order to assess conflict's severity. We also measured emotion recognition with emotional dynamic stimuli using the Geneva Emotion Recognition Test (GERT; Schlegel, Grandjean, & Scherer, 2014) before and after the sleep deprivation. Our results provide initial evidence that the cortisol level during the conflict discussion task was higher in sleep-deprived couples compared to couples with normal sleep, whereas there was no difference in baseline cortisol. In addition, the self-reported ratio of positive to negative emotions was lower in sleep-deprived couples prior to the conflict discussion. Although there were no group differences in overall emotion recognition, sleep-deprived couples showed a decreased recognition of expressions of despair and a better recognition of sadness expressions compared to couples with normal sleep. Although this study is currently still ongoing, the current preliminary findings support the idea that a single night of sleep deprivation can affect stress levels, emotional states and the recognition of negative emotions.

Poster 60: Towards the Development of ICE (Interpersonal Coding of Empathy) Scheme

Christine Spencer[1], Alexandra Main[2], Gary McKeown[1]
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The measurement of empathic behaviour in a social interaction poses a complex challenge. Building on the recent argument that greater empirical focus should be placed on the inherently interpersonal nature of empathy (Main, Walle, Kho & Halpern, 2017), we present a coding approach for the examination of the dynamics of live, unfolding empathy in a social interaction. Empathic behaviour is operationalised in terms of empathic effort, which is the observable effort displayed by a person to align both cognitively and affectively with their partner. Instances where interactants are displaying equal levels of empathic effort are labelled as periods of dyadic empathic alignment. An extensive series of rating sessions were conducted to create the scheme. Lab assistants and online raters coded thin-slices of videotaped interactions for empathising behaviour, non-verbal cues and conversational tone. Several behaviours were consistently associated with high levels of perceived empathy. These were integrated into a coding scheme which raters then used to reliably code a new, and more diverse, set of dyadic interactions. Designed to be flexible, the scheme can be used in multiple ways to suit a research team's resources and time constraints. Coders rating longer durations of empathic behaviour can rate their general impressions of empathic effort per minute, for example. Alternatively, the scheme can be used to obtain

continuous empathy scores which are well-suited to regression analyses. By using the outlined scoring system, in conjunction with the online slider scale functionality, coders can provide precise continuous ratings for each of the specified categories, allowing for the computation of an overall score of empathic effort. Finally, researchers can perform temporal coding using annotation software, whereby the exact onset and offset times of low, moderate and high empathic effort, in addition to other micro-level non-verbal behaviours of interest, are labelled as they occur.

WEDNESDAY AFTERNOON SYMPOSIA

SYMPOSIUM 6: Culture and Emotion: Their Interplay at Different Levels of Analysis

Wednesday 4th April, 13:45pm – 15:45pm

Bute Hall

Convener: Jozefien De Leersnyder, University of Amsterdam, The Netherlands; University of Leuven, Belgium

There is increasing evidence for the idea that emotions differ across cultural contexts (De Leersnyder, Mesquita, & Boiger, 2018; Mesquita, De Leersnyder, & Boiger, 2016). Yet, it remains important to be precise when making this claim as both 'emotion' and 'cultural context' can be situated at different levels of analyses. For instance, emotions can be studied in terms of whether a certain emotion concept or component exists in a certain cultural context (i.e. emotion potential). Yet, we could also study whether there is cultural variation in the components that constitute a certain emotion concept (i.e. the component practice level), or in the frequency and intensity with which different emotion concepts are experienced (i.e. the daily practice level). Furthermore, culture manifests itself at different levels, ranging from the intrapersonal level at which internalized values and ideas shape experience, over the interpersonal level at which partners co-regulate experiences to meet (culturally defined) relationship goals, to the social network and broader societal levels that (structurally) reinforce certain experiences over others. The current symposium features 5 studies that each highlight the cultural constitution of emotion at the intersection of specific levels of 'culture' and 'emotion.'

In the first presentation, Prof. Johnny Fontaine (Ghent University) will share insights from a 20-culture study on the interplay between cultural values at the societal level (individualism-collectivism) and 99 components that may constitute the emotion concept of 'shame'. While the underlying structure of the components (i.e the factor structure) was stable across cultural contexts, the meaning of "shame" varied substantially, sometimes referring to embarrassment, negative self-evaluation, guilt, or a combination of the three.

Subsequently, Alexander Kirchner (University of Leuven) will show how emotions in interactions between romantic partners in Belgium versus in Japan reflect culturally defined relationship goals regarding positive and negative affect. Whereas Belgian 'happy couples' gear their interactions towards increasing positive affect while decreasing negative affect, Japanese 'happy couples' only avoided negative effect. These findings show that different emotional patterns reflect well-functioning relationships in different cultural contexts and can be understood as if partners jointly steer their interactions towards these cultural 'relationship ideals.'

Moving on to the cultural shaping of the frequency and intensity of emotions at the social network level, Alba Jasini (University of Leuven) will present a large-scale network study in which over 2000 minority and majority adolescents in Belgium reported their friendship network of classmates as well as their patterns of emotional experience in two types of situations. She found that minority students' emotional patterns were more similar to the typical majority patterns of emotion as they had more Belgian majority friends and as these friends occupied a more central position in the class's social network. People's emotional experiences are thus 'cultured' in a way that mirrors the ethnic majority/minority composition of their friendship network.

In the next presentation, Dr. Jozefien De Leersnyder (University of Amsterdam, University of Leuven) will expand this idea of emotional fit from general friendship networks to the immediate social environment. Concretely, she will present two social experiments on 'cultural frame switching' that show how Turkish Belgian biculturals respond with different emotions upon the same negative interpersonal situation depending on their context of interaction (Belgian vs. Turkish). This suggests that the cultural shaping of emotion is dynamic as different emotional patterns can be activated by the differential salience of (moral) cultural concerns.

Finally, Fulya Ozcanli (University of Leuven) will show how different moral emotions are associated with well-being and ill-being in non-clinical Belgian versus Turkish samples. Drawing upon large-scale survey research, she shows how obsessions (common in Obsessive Compulsive Disorder) are associated with anger among Belgian students but with shame and contempt among Turkish students. These results thus suggest that understanding the interplay between culture and emotion may be crucial for understanding the cultural manifestation of psychological disorders, such as OCD.

Taken together, the studies in this symposium will highlight how cultural ideas and practices constitute emotions in multiple ways. Cultural meanings situated at the intrapersonal, interpersonal and social network levels constitute the components associated with emotion concepts, the frequency and intensity with which emotion concepts are experienced, and the emotion concepts that are associated with well-being and ill-being.

13:45pm – 14:05pm **Paper 1: A Domain Representation Approach to Guilt and Shame across Cultural Groups**

Johnny Fontaine[1], Mia Silfver-Kuhalampi[2], Let Dillen[1], Klaus Scherer[3,4] Tima Al-Jamil[5], Bai Lin[6], et al.

[1]Ghent University, Belgium

[2]University of Helsinki, Finland

[3]University of Geneva, Switzerland

[4]University of Munich, Germany

[5]American University of Beirut, Lebanon

[6]Nanyang Technological University, Singapore

There are vigorous debates about how guilt and shame need to be differentiated, with different approaches leading to opposite predictions about cultural differences. For instance, one approach hypothesizes that guilt should be more salient in individualistic groups and another that it should be more salient in collectivistic groups. To empirically identify how guilt and shame are defined and differentiated an extensive cross-cultural research was set up based on the componential emotion approach. Participants from 20 samples stemming from 19 countries and representing 13 languages across the world (N = 3534) were asked to report the three last episodes in which they had experienced a self-conscious emotion and were asked to rate to which extent each of 99 emotion features described their experience. These 99 features operationalized the variability of appraisals, action tendencies, expressions, bodily reactions, and feelings that have been related to guilt and shame in the literature. In total 10602 episodes were reported. Five factors described the internal structure of the guilt and shame domain well: guilt, embarrassment, negative self-evaluation, anger, and general distress. This structure was comparable across the 20 countries (except India). While the underlying structure was stable across countries, the meaning of the term "shame" varied substantially. Depending on the country "shame" could refer to embarrassment, negative self-evaluation, guilt, or a combination of these three. It can be concluded that the confusion in cross-cultural research on guilt and shame has to be (at least partially) attributed to the varying meaning of the term "shame."

14:05pm – 14:25pm **Paper 2: "Relatively Happy": The Role of the Positive-to-Negative Affect Ratio During Conflict in Two Cultures**

Alexander Kirchner[1], Michael Boiger[1], Yukiko Uchida[2], Batja Mesquita[1]

[1]University of Leuven, Belgium
[2]Kyoto University, Japan

The way romantic partners respond to each other emotionally is related to their relationship satisfaction: Previous research has shown that couples who stay together show a distinct ratio of 5:1 of positive to negative affect during interactions with each other (Gottman, 1993). However, experiencing more positive relative to negative affect in romantic relationships may matter more in European than East-Asian contexts: In European cultures, positive affect supports culturally valued feelings of independence and self-esteem, while negative affect signals that individual relationship needs are not being met. A high ratio of positive to negative affect during interactions might therefore be reflective of more satisfied relationships in European cultures. Comparatively, positive affect may relatively be less preferred over negative affect in East-Asian contexts, where emotional moderation and affective balance help people prepare for unforeseen fluctuations in their relationships. In these contexts, interactions in satisfied relationships might be characterized by a relatively less lower proportion of positive over negative affect. In our study, 137 couples from Belgium and Japan discussed a conflict topic from their relationship in the lab. Participants then watched recordings of their interaction and continuously indicated how they felt using a scale ranging from very negative to very positive; relationship satisfaction was assessed prior to their visit. As predicted, we found that Belgian partners reported higher levels of positive affect compared to Japanese partners, but no difference was found for negative affect. Furthermore, higher levels of relationship satisfaction predicted higher affect ratios in both cultures, but this effect was significantly stronger for Belgian couples. Follow-up path analyses showed that the effect of satisfaction on ratios was driven differently in the two cultures: While for Belgian couples, higher ratios were related to experiencing more positive and less negative affect, for Japanese only a decrease in negative affect contributed to this effect.

14:25pm – 14:45pm **Paper 3: Show Me Your Friends, I'll Tell You Your Emotions: Emotional Acculturation of Immigrant Minority Youth in Cross-Cultural Friendship Networks**

Alba Jasini[1], Jozefien De Leersnyder[1,2], Judit Kende[1,2], Matteo Gagliolo[3], Karen Phalet[1], Batja Mesquita[1]
[1]University of Leuven, Belgium
[2]Univeristy of Amsterdam, The Netherlands
[3]Université libre de Bruxelles, Belgium

The more immigrant minorities have positive social contact with majority members, the more their patterns of emotion resemble those of the majority – their emotions thus acculturate (De Leersnyder, Mesquita, & Kim,2011; Jasini, De Leersnyder, Phalet, & Mesquita, 2016). In the present research, we aimed to shed light on the role of friendships with majority in the emotional acculturation of minority adolescents. These friendships may serve both as emotional socialization contexts and as gateways to the majority culture since they are relationships characterized by recurrent positive social contact. Since majority friends may be considered as proxy for the majority culture, we expected minorities' emotional fit with the majority culture to be contingent upon their friendships with majority. In addition, we expected their emotional fit to be particularly high when their majority friends are better proxies for majority culture than others, such as majority peers that are well-connected in the friendship network. In this study, 945 immigrant minority and 1256 majority adolescents in Belgium (nested in 184 classes and 37 schools) completed a sociometric questionnaire on their friendships in class and rated their emotional experiences in two situations. For each minority, we calculated i) the extent to which their emotional patterns were similar to the average emotional pattern of their majority classmates in comparable situations, ii) the number of their friendship ties with majority classmates, and iii) the degree to which minorities' majority friends were centrally positioned in the class network. Multilevel models indicated that the more majority friends minorities had, the more their emotional patterns resembled those of majority classmates. In addition, the more well-connected in the network their majority friends were, the higher minorities' emotional fit was. Friendships with majority may thus play an indispensable role in motivating minority to adopt the normative emotional patterns of the majority culture.

14:45pm – 15:05pm **Paper 4: Dynamic Cultural Construction of Emotion: Experimental Evidence from Turkish Belgians' Cultural Frame Switching**

Jozefien De Leersnyder[1,2] & Batja Mesquita[1]
[1]University of Leuven, Belguim
[2]Univeristy of Amsterdam, The Netherlands

The more immigrant minorities are exposed to a new culture, the more their emotional patterns fit those that are typical for that new/mainstream culture (De Leersnyder, Mesquita, & Kim, 2011). Yet, in daily life, minorities not only engage in the new/mainstream context, but also continue to engage in heritage cultural contexts (e.g. when interacting with family). This raises the question if minorities either apply a 'blended' way of emotional responding to both new and heritage cultural contexts, or if they switch back and forth between their newly acquired versus heritage cultural patterns, depending on the context of interaction. To test this, we conducted two

experiments. In Experiment 1, we randomly assigned 95 Turkish Belgians to either a Belgian (city office) or Turkish context (room next to mosque) where they reported on past emotional experiences. We found that biculturals' emotional patterns reported in the Belgian context fitted better with the typical Belgian patterns than those reported in the Turkish context. Yet, we found no contextual differences in the extent to which biculturals' patterns fitted to the typical Turkish emotional patterns. In Experiment 2, we standardized the emotional situations across contexts and measured participants expressed instead of self-reported emotions. Concretely, 57 Turkish Belgians interacted in either a Belgian (neighbourhood center) or Turkish context (room next to mosque) with a confederate who enacted three negative situations; for each situation, we SPAFF-coded biculturals' emotional expressions (Gottman et al., 1996). Our results showed that whereas biculturals in the Belgian context experienced more anger than contempt, those in the Turkish context experienced equal anger and contempt upon the same situations. These results show that biculturals switch cultural frames in the domain of emotion and thus that they construct their emotional patterns in a dynamic way, in line with the cultural context they are engaging in.

15:05pm – 15:25pm **Paper 5: Obsessions and Moral Emotions in Turkey and Belgium**

Fulya Ozcanli & Batja Mesquita
University of Leuven, Belgium

Obsessions are intrusive and recurrent thoughts, images, and impulses, and they form one of the two pillars of Obsessive Compulsive Disorder (OCD). OCD has been linked to excessive levels of guilt and disgust, emotions that are considered "moral." The current research focused on the link between obsessions and moral emotions from a cross-cultural perspective. Starting from work on cross-cultural differences in morality, we expected that cross-culturally different emotions are at the core of OCD. In order to be able to test this, we expanded the range of moral negative emotions considered. Our research included non-clinical samples, which was justified given the dimensional nature of OCD (Salkovskis & Harrison, 1984). We compared students in Belgian and Turkish contexts because these cultural contexts are characterized by different types of morality: personal responsibility morality in Belgium, and a relational morality in Turkey. We expected that the moral emotions associated with OCD would differ in ways understandable from the respective types of morality: anger and guilt (personal responsibility emotions) in the Belgian context, and shame and contempt (relational morality emotions) in the Turkish context. Both groups ($N_{Turkish}$ = 362 and $N_{Belgian}$ = 247) completed a cross-culturally validated questionnaire on obsessions. For each obsession, respondents rated the frequency of six moral emotions (anger, contempt, disgust, guilt, shame, and embarrassment) in response to the domain of obsession. To test our

hypotheses, we conducted multiple regression analyses. Partially consistent with our predictions, Belgian students reported more anger in response to obsessions than their Turkish counterpart. Fully consistent with our expectations, Turkish participants reported more shame and contempt in response to obsessions. The results indicate that different negative moral emotions may underlie OCD. This insight may have major implications for how we define, measure, and treat OCD across different cultural contexts.

15:25pm – 15:45pm **Discussion/Q&A**

15:45pm – 16:15pm **Coffee break** (Hunter Halls)

SYMPOSIUM 7: Facial Expression and Emotional Mimicry in Social Interaction

Wednesday 4th April, 13:45pm – 15:45pm

Senate Room

Convener: Michal Olszanowski, SWPS University of Social Sciences & Humanities, Poland

One of the major functions of emotional expression is to modify interindividual interactions in such a way that it aligns with the expressers' momentary goals (e.g. establishing or breaking contact, regulating the balance of power). In addition to signaling internal states and intentions to others through facial displays, people also tend to imitate observed emotional expressions. This kind of imitation (i.e. emotional mimicry) goes beyond matched motor behavior and is regulated by the affiliative stance towards the other. Emotional mimicry has been proposed to have two functions. First, an affiliative function that is based on the idea that people who synchronize their emotional displays will like each other more. In line with this proposed function it has been suggested that mimicry can affect the quality of the relationship by providing subtle signs of mutual empathy. A second function that has been proposed for emotional mimicry is the understanding of others' emotions. Mimicry influences the interpretation of perceived behavior as well as the recognition speed of subtle, less intense emotional expressions. Mimicry also seems to facilitate socio-cognitive processes which play an important role in the course of an interaction, like emotion contagion or prosocial behavior. Factors that affect such inter- and intrapersonal regulatory functions of emotional mimicry are still debated. The talks in this symposium present original data with theoretical implications for the role of emotional mimicry in a social context. The first talk will discuss to what extent crying elicits facial mimicry in contexts that are either appropriate or inappropriate. Results show that both the appropriateness of the context, as well as the presence of tears affected the nature of

emotional mimicry. The second and third talk will focus on how blocked mimicry could potentially disturb emotional display processing. The studies focus (1) on the links between the use of pacifiers in infants and emotion processing, and (2) on how different means of blocking mimicry affects facial display decoding. Results link pacifiers with decreased emotional mimicry and suggest that the use of dummies differentially affects infants' neural responses to happy and fearful faces. The third study found that mimicry is difficult to efficiently suppress. Yet, at the same time, facial expression processing seems affected by some forms of blocking. This may, however, be due to processes unrelated to mimicry. The fourth talk challenges Ekman's basic emotion theory by demonstrating that naturally occurring facial expressions differ from the proposed universal expressions of emotions. Using a data-driven approach to analyze facial expressions in a very large dataset of filmed facial expressions the authors recovered six facial displays that are largely different from the basic emotions. Crucially, the expressions that were recovered in this bottom-up approach were psychologically and socially meaningful in that these predicted cooperative and competitive behavior of both expressers and observers. The last talk will raise the question whether emotional mimicry varies as a function of facial physical resemblance and whether this resemblance can implicitly signal kinship. We present research that shows that levels of mimicry differ between unconsciously recognized in-group (i.e. resembling of own face) and out-group (different from own face) members, as physically similar faces were mimicked more. The general discussion of the symposium will focus on the importance of facial expressions and its influence on the processing of social information.

13:45pm – 14:05pm **Paper 1: Facial Mimicry of Crying**

Agneta Fischer[1], Ursula Hess[2]
[1]University of Amsterdam, The Netherlands
[2]Humbold University Berlin, Germany

In the social context account of mimicry (Hess & Fischer, 2014), we posit that mimicry depends on the social context. Indeed, several studies have shown that the type of relationship and the nature of the emotional intent can influence the amount of mimicry. Context can also refer to the reason for the emotion expression, and this is particularly relevant with strong emotion expressions, such as crying. We hypothesize that crying (esp. the presence of tears) is an affiliative emotion, and should therefore be mimicked, but that this is only the case when the crying is seen as appropriate. We report two new studies, in which we hypothesized that crying persons only elicited facial mimicry in an appropriateness context. Female participants viewed eight photos of sad looking men and women, either with or without tears. The photo was accompanied by reading an appropriate versus

inappropriate reason why the person in the video felt that way. We measured facial mimicry (cry face: activation of the AU6 and AU4, and relaxation of the AU12 muscle), and included several self-report questions. Results show that when an appropriate reason was provided, participants showed a neutral expression in reaction to the tear face, but a cry face in reaction to the no-tear face. On the other hand, when inappropriate reasons were provided, participants show a small smile (contracting AU12, relaxing AU4), and this was strongest in the no-tears face. Interestingly, the self-report questions on empathy and pity showed no differences across conditions: participants reported to feel equal empathy and pity in reaction to sad faces with or without tears and accounted for by appropriate and inappropriate reasons.

14:05pm – 14:25pm **Paper 2: Emotional Dummy? Implications of Pacifier Use for Emotion Processing**

Magdalena Rychlowska[1], Kelsey Frewin[2], Kaloyan Mitev[3], Paula Niedenthal[4], Ross Vanderwert[2]

[1]Queen's University Belfast, UK

[2]Cardiff University, UK

[3]University of Paris I, France

[4]University of Wisconsin-Madison, USA

Facial mimicry, or imitation of another person's facial movements, is a social behaviour relevant for emotion resonance and empathy. Research links this process with accurate decoding of emotional expressions and suggests that blocking face movements disrupts emotion recognition in adults. Pacifiers (or dummies), which engage babies' lower face muscles, may have similar effects. They are widely used by parents as an emotion regulation tool and their continued use extends into critical stages of infants' emotional development. Our research systematically explores the links between pacifier use and emotion processing. The first study revealed that 7-year-old boys show less spontaneous facial mimicry in reaction to emotional videos when they have extensively used dummies during their childhood. In two other studies, pacifier use was negatively associated with perspective taking and emotional intelligence in young male adults. A subsequent experiment revealed that the presence of a dummy obscures perceptual information from baby's face and disrupts adults' EMG responses to photographs of infant faces. Our current study extends this evidence and manipulates the pacifier use to establish a causal link with emotion processing. Specifically, we examine how dummies affect 7-month-old infants' neural activity in reaction to images of happy and fearful expressions. We predicted that pacifier use will decrease the amplitude of the N290 and P400 event-related potentials in response to emotional faces. Findings replicate previous evidence by showing larger N290 amplitudes to fearful than to happy faces and suggest that the effects of pacifiers differ between ERP responses to happy and fearful faces. Together, our research sheds

light on the functions and consequences of the pacifier use and links this behavior with facial mimicry and emotion processing.

14:25pm – 14:45pm **Paper 3: Blocking Mimicry? The Effects of Blocking Facial Movement on Decoding Accuracy**

Ursula Hess, Christophe Blaison, Judith Hosemann & Nina Niebrügge
Humboldt-University of Berlin, Germany

From a simulation view of emotion understanding, it has been proposed that blocking mimicry reduces decoding accuracy. Evidence for this effect is weak but nonetheless suggestive of the notion that difficult decoding tasks can be facilitated by mimicry (Hess and Fischer, 2016). However, these studies did not assess whether mimicry was in fact blocked. Two studies will be presented in which we blocked mimicry using different means and assessed the effects of blocking on emotion processing. In study 1, which used an affective priming design, no effect of blocking was observed and facial EMG taken during the task, suggested that mimicry was not efficiently blocked. In study 2, participants completed an emotion recognition task with low intensity facial expressions and a smile authenticity task. In both tasks, effects on ratings were congruent with the notion that blocking mimicry has a small negative effect on accuracy ratings. However, facial EMG showed again that mimicry was not efficiently blocked. The findings suggest that a) facial mimicry is an automatic reaction which is hard to suppress by external means and b) that facial manipulations can have an effect on decoding performance but that this effect may be driven by processes different from mimicry such as inner speech.

14:45pm – 15:05pm **Paper 4: Facial Expressions of Basic Emotions revisited: Automatic Analysis of Natural Occurring Facial Expressions**

Job van der Schalk[1], Giota Stratou[2], Rens Hoegen[2], Gale Lucas[2], and Jon Gratch[2]
[1]Cardiff University, UK
[2]Institute for Creative Technologies, University of Southern California, USA

Basic emotion theory proposes that there are five (or six) universal facial expressions that convey emotion (e.g. Ekman, 1992). In line with the universality thesis, research has demonstrated that these expressions are indeed recognized across a wide variety of cultures (e.g. Ekman & Friesen, 1986), and that they have very high

recognition rates in emotion labeling tasks (e.g. van der Schalk et al., 2011). However, scholars have challenged the universality thesis (Crivelli et al., 2016; Jack et al., 2012; Russell, 1994). In addition, studies supporting universal facial expressions often rely on top-down data – like recognition of posed expressions or facial displays that were captured in highly controlled settings (e.g. Matsumoto & Hwang, 2017; Scherer & Ellgring, 2007). To address this problem, the current research used a bottom-up data-driven approach to investigate spontaneous facial expressions occurring in three relatively uncontrolled social settings (clinical interviews, a dyadic negotiation simulation, and a dyadic iterative prisoner's dilemma): We performed factor analysis on automatically detected facial expressions (in terms of action units or AUs) in a large dataset of around 10m frames. We recovered six factors of facial displays that are mostly different from Ekman's proposed expressions (Enjoyment smile, Eyebrows up, Open mouth, Mouth tightening, Eye tightening, and Mouth frown). We further demonstrated the external validity of these factors by showing that these predicted cooperative and competitive behavior in the iterated prisoner's dilemma with more precision than individual AUs. The findings have important implications for research on facial expressions and facial mimicry as these reveal that facial expressions and their social meaning involve a complex interplay of constituting AUs rather than their sum; that the newly recovered facial expressions are robust social signals that are psychologically meaningful; and that naturally occurring facial expressions differ from the proposed basic emotions.

15:05pm – 15:25pm **Paper 5: Mimicry of Self-Resembling Faces. Is Mimicry a Marker of Unconsciously Perceived Familiarity?**

Michal Olszanowski[1], Sylwia Hyniewska[2]
[1]SWPS University of Social Sciences & Humanities, Warsaw, Poland
[2]Bioimaging Research Center, Institute of Physiology and Pathology of Hearing, Poland

Theories of facial mimicry state that people ("observers") are more likely to imitate emotional signals of liked others or in-group/family members. Interestingly, similarity to familiar faces or resemblance to observers' faces is one of the characteristics that affect the social evaluation of faces. For example, self-resembling faces are judged as more trustworthy but not necessarily as more attractive. This effect has been noted for observers who are not aware of this resemblance as well as when they are presented with subliminally displayed faces. This might suggest specialized adaptations for recognizing kin which is important for mate choice and prosocial behavior. The question arises, whether physical similarity to one's face would also elicit greater mimicry. To address this issue, we blended a participant face (or an averaged/prototype face in the control condition) with an unknown face in two experiments. Further, we morphed pictures with joyful or angry expression. During the

experimental procedure, participants watched pictures (Experiment 1) or short movies (Experiment 2) of smiling or frowning faces, while their zygomaticus and corrugator muscle activity was measured with EMG. Participants judged the trustworthiness and attractiveness of the faces. Results suggest that self-resembling faces elicited facial mimicry, while prototype-blended control faces were more likely to evoke smiles as a response to frowning and frowns as a response to smiling. Only in Experiment 1 did we observe that similarity increased trust ratings and even then, only slightly. Furthermore, we found that smiles increase evaluations of trust and attractiveness in both face conditions. Taking together we found support for the hypothesis that humans use facial resemblance as a cue to kinship. Moreover, we showed that mimicry is differentiated during social interaction with implicitly recognized in-group and out-group members.

15:25pm – 15:45pm **Discussion/Q&A**

15:45pm – 16:15pm **Coffee break** (Hunter Halls)

SYMPOSIUM 8: Relations between Emotion, Attention, Psychopathology and the Brain

Wednesday 4th April, 13:45am – 15:45pm

Gilbert Scott Conference Suite (Room 253)

Convener: Frances A. Maratos, University of Derby, UK

Literature suggests that stimuli of an emotive nature are more effective in their capture of attention than non-emotive stimuli. Indeed, when there is competition for resources, a plethora of behavioural data utilizing varied paradigms (e.g. Stroop, visual search, visual probe, rapid serial visual presentation etc.) reliably demonstrates threatening information is prioritized. This is consistent with models of fear and threat processing, in which specialised neural mechanisms responsible for the enhanced processing of threat-related information are proposed. However, research demonstrating the prioritisation of threat in the study of emotion processing is somewhat equivocal. For example, consistent with arousal/relevance theories of emotion, a number of recent studies have demonstrated attentional biases toward positive stimuli that occur both rapidly and independently of voluntary processes. Additionally, research suggesting a limited number of specialised brain structures subserve emotional responding is debated. In this symposium the presentation of data from a range of behavioural paradigms, and disorders, as well as eye-tracking methodology and functional fMRI studies will be used to explore: i) Emotion processing/prioritisation across spatial and temporal domains; ii) Emotion processing/prioritisation as a consequence of individual differences; and iii) Advances in emotion processing within the brain.

Considering first prioritisation of emotional stimuli at the level of attentional orienting, a number of speakers will discuss factors influencing attentional orienting and/or capture. In the first paper, presented by Dr Nick Hedger, spatial attentional capture will be explored with data presented from both masked visual probe and flash suppression paradigms. Here it will be discussed whether threatening stimuli automatically capture attention, irrespective of conscious awareness, or whether spatial attentional capture is dependent, upon conscious awareness and visual stimulus properties. Building on this, in the second paper temporal attentional capture will be explored. Utilising rapid serial visual processing paradigms and methodology, Professor Narayanan Srinivasan, will present research demonstrating that efficient processing of emotional stimuli is potentially driven by its saliency. Investigating the processing of a range of different emotional expressions, it will be demonstrated that positive emotional stimuli receive prioritised processing, consistent with theory that positive emotions broaden attention (whereas negative emotions restrict attention).

In the third and fourth papers, our focus will turn to emotion processing in (affective) disorders. In the third paper, Dr Nathan Ridout will consider emotional face processing in depressive disorders. Using evidence garnered from an emotional Stroop style paradigm, this research will demonstrate impaired inhibition (i.e. prioritised capture) of sad emotional stimuli in those with major depression. That is, prioritised attentional capture by disorder-relevant stimuli. Consistent with this, in the fourth paper, Dr Frances Maratos will present evidence of disorder-relevant stimulus capture in those with a tendency towards anxiety (angry faces) and eating disorders (particular foods). Utilising data from a number of paradigms and eye-tracking technology, this presentation will consider how stimulus ambiguity, salience and relevance are key factors in stimulus prioritisation, questioning how 'threat' is conceptualised.

In the final paper of the symposium, Dr Luiz Pessoa will present evidence from a series of functional MRI studies considering how our knowledge of the neurophysiological basis of emotion processing is advancing. In this talk, the importance of embracing a network approach will be discussed, including how large-scale brain networks are recruited as a function of threat duration and self-reported anxiety.

Notably, therefore, the symposium will allow delegates to consider (and question) how our understanding of emotion processing is advancing as a consequence of utilising a broader range of behavioural paradigms, advances in neuroimaging techniques and the inclusion of individuals from varied populations.

13:45pm – 14:05pm **Paper 1: Emotion and Implicit Attention: Insights from a Meta-Analysis and**

Attentional Cueing Experiment

Nicholas Hedger[1], Katie Gray[1], Wendy Adams[1], Matthew Garner[2]
[1]University of Reading, UK
[2]University of Southampton, UK

Studies using the masked visual probe (MVP) paradigm suggest that threatening stimuli rendered invisible by backward masking can nonetheless capture spatial attention. Versions of this task have been employed to investigate maladaptive perceptual biases in anxiety disorders. We provide a meta-analysis of the evidence for a threat-related bias provided by this paradigm. The overall effect size from the MVP paradigm was small (d = 0.28), with substantial heterogeneity explained by stimulus presentation time. Moreover, this dependency (possibly reflecting residual stimulus visibility) was larger when the study failed to objectively measure stimulus awareness. This suggests that inadequate awareness measures and partial stimulus visibility may have contributed to the reported threat-related biases. Critically, due to a lack of adequate controls, it also remains unclear whether the threat bias in this paradigm is driven by the affective content of stimuli, or by their low-level image properties (e.g. patches of increased luminance contrast). To investigate these issues, we conducted a well-powered visual probe study (N = 41) with emotional face stimuli presented under masked, continuous flash suppression (CFS) and normal viewing conditions, with awareness assessed according to signal detection criteria. In line with previous literature, more attention was allocated to emotional than neutral face stimuli under standard (aware) viewing conditions. However, this effect was best explained by low-level stimulus properties, rather than recognisable emotional content. When stimuli were presented outside of awareness (via CFS or masking), we found no evidence for increased attentional allocation to emotional face stimuli. Moreover, an observer's awareness of the stimuli (as assessed by d prime) predicted the magnitude of attentional cueing effects. Together, the data suggest that the prioritised processing of emotional face stimuli is restricted to conditions of awareness and may be parsimoniously explained by simple low-level variability between emotional and neutral face stimuli.

14:05pm – 14:25pm **Paper 2: Emotion Perception in the Context of Temporal Attention**

Narayanan Srinivasan, Sonia Baloni Ray & Maruti V. Mishra
University of Allahabad, India

Background: Recent research has emphasized emotion-attention interactions using multiple attentional paradigms and emotional stimuli. Temporal attention has been studied using RSVP (rapid serial visual presentation) paradigms, which have shown that when two targets are presented close in time, the identification of a second target (T2) is significantly reduced. However, this 'attentional blink' is reduced when T2 is an emotional stimulus. Very few studies have manipulated emotional content of both the first (T1) and second targets. We investigated emotion perception with different emotional stimuli as the T1 and T2 in the context of temporal attention using RSVP. Method: Three experiments were conducted with stimuli taken from the Radboud face database, with models posing 'Happy', 'Angry', 'Surprise' and 'Neutral' expressions. In each trial, neutral expressions were presented as distractors and emotional faces (Exp 1: Happy-Angry; Exp 2: Happy-Surprise; Exp 3: Angry-Surprise) as targets. There could be one or two targets in a given trial. For trials with two targets,T2 was presented at one of four lags – one, two, three and five. The two targets could either have the same emotional expression (Congruent-pair) or different expressions (Incongruent-pair). At the end of each trial, participants were asked to report the target(s) in the RSVP stream in the order of their presentation. Results: We observed a typical attentional blink, that is a significant deterioration in T2 performance provided T1 was correctly identified. However, the magnitude of deterioration in T2 performance, and backward masking in T1, was dependent on the nature of the expression. Happy expressions were identified better as the T2 than any other expression especially at shorter lags. Happy expressions also showed larger backward masking. Conclusion: Our results suggest that faster and efficient processing of emotional stimuli is possibly driven by its saliency and also relationships with the scope of attention.

14:25pm – 14:45pm **Paper 3: Inhibition of Emotional Faces in Major Depression**

Nathan Ridout[1], Barbara Dritschel[2], Keith Matthews[3] & Ronan O' Carroll[4]

[1]Aston University, UK

[2]University of St Andrews, UK

[3]University of Dundee, UK

[4]University of Stirling, UK

Objectives: The aim was to determine if patients with depression would exhibit deficits in inhibiting distracting emotional faces, specifically we examined if the deficit would be greater for sad faces. Methods: thirty-two patients with major depression (MD) and 32 matched healthy controls were presented with positive and negative words superimposed across happy, neutral and sad facial expressions. Participants were asked to ignore the face and to categorise the words as positive or negative (as quickly and accurately as possible). Interference scores

were calculated by subtracting response times (RTs) for words paired with happy and sad faces from RTs when words were paired with neutral expressions. Results: RTs to categorise negative words significantly increased in the presence of incongruent happy faces and decreased slightly when presented with sad faces. This pattern did not differ as a function of group. However, although RTs to categorise positive words significantly increased in the presence of incongruent sad faces, this increase was only observed in the patients with MD. Conclusions: Major depression is associated with impaired inhibition of emotional faces and this deficit is greater for disorder-relevant sad faces.

14:45pm – 15:05pm **Paper 4: What is Threat? Exploring Visual Saliency and Ambiguity Across Different Populations/Disorders**

Frances A. Maratos
University of Derby, UK

A plethora of research now demonstrates that anxious individuals display hypersensitivity in recognising, processing and responding to visual cues representative of threat. Importantly, whilst a number of ubiquitous factors can give rise to fear and anxiety disorders, a common tenant is that processes of visual attention influence potential vulnerability to, and the maintenance of, such disorders. In this oral paper I will present evidence as to the role of visual attention (e.g. facilitated engagement, delayed disengagement and/or avoidance) in those with a tendency toward anxiety as well as disordered eating. Considering first anxiety, I will present evidence from both child and adult populations, using a range of different paradigms, demonstrating heightened attentional capture (and storage) of stimuli that represent mild threat. These paradigms reveal that whereas anxious adults demonstrate prioritised capture of threatening (i.e. angry) faces, anxious children demonstrate prioritised capture of both threatening and neutral (i.e. ambiguous) faces. I will then present evidence from child populations with a tendency towards disordered eating. Here I will overview evidence from both a visual probe study and eye-tracking research demonstrating that unfamiliar and/or novel foods (i.e. foods that are ambiguous) receive prioritised processing. From reviewing the findings of these different studies in different age groups and populations, I will argue that stimulus ambiguity and salience are key factors in stimulus prioritization, questioning how 'threat' is conceptualized. Indeed, to better understand the role of visual attention in emotion processing and psychopathology, a return to arousal theory, in part dictated by stimulus relevance, may be a useful framework.

15:05pm – 15:25pm **Paper 5: Large-Scale Brain Networks and Dynamic Threat Processing**

Luiz Pessoa
University of Maryland, USA

The processing of threat is frequently studied by focusing on the role of a few brain regions, including the amygdala and anterior insula. In this presentation, I will describe a series of functional MRI studies that try to understand threat processing from the standpoint of large-scale brain networks. The studies employ graph-theory/network methods to characterize the patterns of functional connectivity between regions. In Study 1, we investigated relatively short threat periods (~10 seconds). We found that, during threat periods, network modularity decreased such that processing became less segregated. Specific brain regions were particularly important in signal communication between subnetworks, including the bed nucleus of the stria terminalis (BNST), anterior insula, and thalamus. The results revealed that threat processing affects brain responses by enhancing signal communication between regions, especially between cortical and subcortical ones. Study 2 investigated threat processing during longer periods of threat (~1 minute). An instructed threat of shock paradigm was used to characterize changes over time across the salience, executive, and task-negative networks. Network measures were computed, revealing changes to network organization. For example, the salience network exhibited a transient increase in network efficiency followed by a period of sustained decreased efficiency. The amygdala became more central to network function (as assessed via between-ness centrality) during threat across all participants, and the extent to which the BNST became more central during threat depended on self-reported anxiety. Overall, the study unraveled a progression of network-level changes due to sustained threat and revealed how network organization unfolds with time during periods of anxious anticipation. To conclude the presentation, I will discuss implications of these and other studies for a dynamic, network-level of how threat impacts processing in the brain. I will also briefly discuss a proposal for a network model of the emotional brain.

15:25pm – 15:45pm **Discussion/Q&A**

15:45pm – 16:15pm **Coffee break** (Hunter Halls)

SYMPOSIUM 9: New Insights into Disgust Sensitivity

Wednesday 4th April, 13:45am – 15:45pm
Lecture Theatre G466
Convener: Joshua Tybur, Vrije Universiteit Amsterdam, The Netherlands

Disgust has been described as a universal and "basic" emotion, and certain stimuli can be thought of as universal in their capacity to elicit disgust. Yet people also vary in the degree to which they experience disgust toward such stimuli. The literature is replete with examples of how this variation – sometimes referred to as disgust sensitivity, and sometimes referred to as disgust propensity – relates to other variables, which range from political ideology to personality to preferences for mates to prejudicial attitudes. But what gives rise to variability in disgust sensitivity in the first place? This symposium will explore this question by presenting new endocrinological, genetic, perceptual, and cross-cultural data. In doing so, it will introduce cutting-edge research detailing the differential roots of disgust toward pathogen cues versus injuries, it will show how disgust affects sensory perception (here, tactile sensitivity), and it will describe how disgust sensitivity varies across sexual subgroups.

Joshua Tybur will discuss the role of genetic versus environmental factors in shaping individual differences in disgust. A sample of over a thousand twins suggests that disgust sensitivity has both strong genetic and environmental components. A cross-cultural study of over 11,000 individuals across 30 nations suggests that parasite stress – the prevalence of infectious disease within nations – is not one of these environmental factors. Results will be interpreted in light of functional perspectives on disgust and disgust sensitivity.

Ben Jones will discuss how hormones influence disgust sensitivity. Existing work suggests that pathogen disgust sensitivity varies as a function of progesterone, which putatively affects immune responses to pathogens. The current study measures disgust sensitivity and steroid hormones (via saliva samples) in a large longitudinal study. Results challenge the claim that steroid hormones contribute to variability in disgust sensitivity.

Diana Fleischman will discuss how disgust might influence sexual motivation and how individual differences in disgust sensitivity vary across people with different sexual orientations. In doing so, she will compare different types of disgust sensitivity across heterosexuals, gay men, lesbian women, and asexual individuals, who lack sexual attraction to others and compose as much as 1% of the population. She will present a recent collaboration comparing asexual participants and homosexual and heterosexual participants in disgust sensitivity in the sexual, pathogen and moral domain.

David Francis Hunt will discuss the role of tactile sensitivity in disease avoidance. Drawing from the animal literature, he proposes that human tactile sensitivity will increase when parasites are perceived to be present. Across two studies, he finds that images and videos of maggots increase tactile sensitivity, as measured using monofilaments. Other negative images and videos (e.g. of violent riots) did not produce the same effects on tactile sensitivity.

Tom Kupfer will discuss the nature of disgust towards injuries. He will present evidence suggesting that disgust reported towards injuries is based on vicarious pain and horror arising from an empathic response. Variability in disgust reported towards injuries may therefore depend on people's tendency to empathise with others' bodily experiences, rather than on sensitivity to pathogen cues. This perspective has implications for increasing our understanding of the role of disgust in certain psychopathologies, such as Blood-Injection-Injury Phobia.

13:45pm – 14:05pm **Paper 1: Why do People Vary in Disgust? Exploring Genetic and Environmental Influences**

Joshua Tybur
Department of Experimental and Applied Psychology, Vrije Universiteit Amsterdam, The Netherlands

People vary in the degree to which they experience disgust toward – and, consequently, avoid – cues to pathogens. Prodigious work has measured this variation and tested how it relates to numerous other variables, including personality, psychopathological tendencies, and moral and political values. Less work has sought to generate hypotheses that can explain why such this variation exists in the first place, and even less work has evaluated such hypotheses. I will present evidence that can be used to evaluate three proposals that have appeared in the literature. First, researchers have suggested that variability reflects with a more general tendency to experience anxiety or emotional distress. Second, researchers have suggested that variability arises from parental modelling, with offspring learning calibrating disgust sensitivity based on their parents' expressed disgust. Third, researchers have suggested that disgust sensitivity is calibrated to the parasite stress of the ecology in which individuals develop. A review of the personality literature does not support the first proposal. A study of over 1000 twins suggests that both environmental and genetic factors shape disgust sensitivity, but parental modeling is probably not one of these environmental factors. Further, a study of over 11,000 individuals across 30 nations suggests that parasite stress is also not one of the environmental factors shaping disgust sensitivity. Implications for functional perspectives on disgust are discussed.

14:05pm – 14:25pm **Paper 2: Hormonal Correlates of Pathogen Disgust: Testing the Compensatory Prophylaxis Hypothesis**

Ben C Jones
Institute of Neuroscience & Psychology, University of Glasgow, UK

Raised progesterone across the menstrual cycle is associated with suppressed physiological immune responses, reducing the probability that the immune system will compromise the blastocyst's development. The Compensatory Prophylaxis Hypothesis proposes that this progesterone-linked immunosuppression triggers increased disgust responses to pathogen cues, compensating for the reduction in physiological immune responses by minimizing contact with pathogens. Although a popular and influential hypothesis, there have been no direct, within-subject tests for correlated changes in progesterone and pathogen disgust. To address this issue, we used a longitudinal design to test for correlated changes in salivary progesterone and pathogen disgust (measured using the pathogen disgust subscale of the Three Domain Disgust Scale) in a large sample of women (N = 375). Our analyses showed no evidence that pathogen disgust tracked changes in progesterone, estradiol, testosterone, or cortisol. Thus, our results provide no support for the Compensatory Prophylaxis Hypothesis of variation in pathogen disgust.

14:25pm – 14:45pm **Paper 3: The Role of Tactile Sensitivity in Disease Avoidance**

David Hunt
School of Experimental Psychology, Bristol University, UK

Converging lines of evidence that demonstrate how animals, including humans, have evolved disease avoidance mechanisms, designed to detect and avoid perceptual cues associated with disease threat. Among disgust elicitors are those specific to skin-transmitted disease threat. Unlike the predation associated with physical threats (i.e. aggressive humans or animals), disease threats are typically associated with predation from parasites or pathogens that infiltrate the body. As such, the skin plays an important role in avoidance of disease threat, forming an anatomical barrier and deploying specific immunological functions designed to minimise parasite and pathogen loads. As there are relationships between immunology and the skin, it is anticipated that there would be complementary behavioural responses that have the same purposes. Indeed, previous evidence has demonstrated that evoking disgust increases self-grooming. The aim of the two studies discussed was to investigate whether

evoking disgust increased tactile sensitivity (TS), a precursor to self-grooming. Both studies (Study 1, N = 81; Study 2, N = 218) employed a pre-/post-manipulation between-subjects design. TS was measured using monofilaments and a standardised process was followed, and pre-manipulation tactile sensitivity measures were taken to control for individual differences. Results from study 1 revealed that participants in the disgust condition (live maggots) had heightened TS, when compared to controls (basmati rice). Building on these findings, results from study 2 revealed that participants in the disgust condition (video of maggots) had heightened TS, when compared to neutral (looking at a wall) and threat (video of the Baltimore riots) controls. These findings support the disease avoidance account, demonstrating that evoking disgust aids for the quicker detection of potential threats that may come in contact with the skin.

14:45pm – 15:05pm **Paper 4: Why are Injures Disgusting? Comparing Pathogen Avoidance and Automatic Empathy Accounts**

Tom Kupfer
School of Psychology, Kent University, UK

According to pathogen avoidance perspectives, injuries elicit disgust because they have infectious potential. Here an alternative explanation is proposed: People simulate an observed injury, leading to unpleasant vicarious feelings and, for lack of a more accurate word, they describe these feelings as disgust. Factor analysis of disgust responses revealed injury items as a separate factor from pathogen items. A behavioural avoidance experiment showed that injury stimuli were appraised as less contaminating than infection stimuli. Open ended responses showed that injury stimuli were predominantly associated with feelings of empathy and vicarious pain. Disgust reported toward injury images was predominantly predicted by perceived level of pain, rather than perceived infectiousness. Together these findings support the hypothesis that disgust reported towards injury stimuli describes an unpleasant vicarious experience based on empathy, which is not the same affective response as the prototypical disgust elicited by pathogen cues. Variability in disgust reported towards injuries may therefore depend on people's tendency to empathise with others' bodily experiences, rather than on sensitivity to pathogen cues. This perspective has implications for understanding the role of disgust in certain psychopathologies, such as Blood-Injection-Injury Phobia

15:05pm – 15:25pm **Paper 5: Comparing Disgust Sensitivity across Sexual Subgroups**

Diana Fleischman
Department of Psychology, University of Portsmouth, UK

Disgust sensitivity has been implicated in disorders of sexual arousal (de Jong, 2010) and there is a consistent sex difference in disgust sensitivity, especially in the sexual domain (Tybur, 2010). Sexual orientation research has found more gender nonconformity (e.g. more masculinization in lesbians) in gay men, lesbian women, and bisexuals (e.g. Rieger, 2008). Asexuality has been considered both a type of sexual dysfunction and a sexual orientation and is defined as a complete lack of sexual interest in others, accounting for possibly as much as 1% of the population (Brotto, Yule 2017). The aim of the current study is to investigate differences in disgust sensitivity, especially in the sexual domain among self-identified asexual, homosexual, and bisexual participants. We administered the Three Domains Disgust Scale (Tybur 2009) to 642 participants, 284 in a Dutch sample and 358 in an English sample. Excluding participants who indicated their gender or sexuality as "other" (n = 59) the sample consisted of 145 Heterosexual men, 66 Heterosexual women, 100 Gay men, 78 Lesbian women, 20 bisexual men and women, 175 asexual participants (34 men and 141 women). As expected, asexual participants showed the highest sexual disgust and significantly more sexual disgust than any other sexual orientation. Gay men showed lower sexual disgust than heterosexual men but lesbian women and heterosexual women did not differ in any disgust domain. However, contrary to predictions, asexual participants showed significantly lower pathogen disgust than any other sexual orientation other than bisexual participants. Implications for sexual dysfunction and sex differences in disgust will be discussed.

15:25pm – 15:45pm **Discussion/Q&A**

15:45pm – 16:15pm **Coffee break** (Hunter Halls)

SYMPOSIUM 10: New Insights into the Interplay between Emotion and Motivation: How Emotions and Affect Impact and Reflect Motivation

Wednesday 4th April, 13:45am – 15:45pm
East Quadrant Lecture Theatre
Convener: Julia Vogt, University of Reading, UK

Emotions and affect almost always occur in interplay with motivational processes. For instance, goals and motives impact which emotions people experience (e.g. Frijda, 1986; Moors, 2017), and, in turn, emotions and

affect shape the direction and success of motivational processes (e.g. Carver, 2003). This symposium aims to discuss new insights into how emotions and affect interact with various motivational processes by highlighting diverse perspectives on the emotion and motivation interface. Specifically, the talks will show how motivational processes impact whether and how people experience and react to emotions and affect, whether they share others' feelings, and how successful they regulate emotional states. Further, the talks will discuss how state and trait affect and emotions boost or impair motivational processes.

First, Nick Berggren will explore how trait anxiety impacts the attentional processing of motivationally salient information. Previous research has suggested that anxiety is related to enhanced attention allocation to threatening events. In the current study, Berggren shows how trait anxiety is related to an attentional bias to motivationally relevant information that is not threatening. This finding challenges dominant accounts of anxiety-linked attentional bias by revealing that anxiety impacts the processing of motivationally salient information in general and not only the processing of threatening information.

Following up on this, Grol, Twivy, and Fox investigate the role of affective flexibility in predicting anxiety and worry. The ability to flexibly switch between various thoughts and behaviours has been described as a hallmark of efficient self-regulation and goal pursuit. Grol and colleagues demonstrate that the impaired ability to switch towards positive information predicts symptoms of anxiety and worry. Importantly, enhanced flexibility to switch away from negative materials is also related to symptoms of worry and anxiety. These findings suggest that both too much and too little affective flexibility can be detrimental for people's affective state and well-being.

Hereafter, Webb and colleagues will examine how the experience of positive and negative affect lowers or boosts people's efforts during the pursuit of health-related goals such as eating healthily or exercising. Common theories suggest that feeling bad about perceived goal progress increases motivation and causes people to take action. In order to test this assumption, Webb and colleagues measured people's affect towards goal progress or induced a focus on positive or negative aspects of progress. The results reveal that positive affect towards goal progress enhances commitment to health goals. This has important implications for understanding the role of emotions and affect in successful goal striving and for the design of health interventions.

Then, Koole and colleagues investigate whether inducing avoidance motivations will lower the expression of anger and aggression. Because approach motivation is dampened by avoidance motivation, activating avoidance motivation should down-regulate anger. In line with this assumption, Koole and colleagues show that inducing or training cues associated with avoidance motivation (such as avoidance movements or darkness) reduces the

experience and expression of anger and aggressive impulses for people high in trait anger. This research highlights how motivational manipulations can tackle problematic emotional behaviour such as chronic anger management problems.

Following up on this, Daryl Cameron and colleagues discuss how motivation determines whether people empathically share the feelings of others and show compassion. In multiple experiments, participants avoided to feel empathy for both negative and positive situations because empathy is experienced as effortful, aversive, and inefficacious costly. However, people will feel empathy when it is sufficiently incentivized. These results challenge views of empathy as a default and suggest instead that empathy is a choice and depends on people's motivation.

Finally, Julia Vogt will discuss how a person's current motivation determines which emotional events in their environment will attract attention. Previous work has suggested that people automatically attend to threatening people such as angry faces or members of outgroup associated with threat. In contrast, people expressing the need for help (e.g. sad faces) appear to evoke attentional avoidance in healthy samples. In her talk, Vogt will demonstrate how goals can override attentional bias to people perceived as threatening and induce attention to people in need. These findings underline the importance of the motivational context in automatic emotional and affective processes.

13:45pm – 14:05pm **Paper 1: Attentional Capture and Disengagement of Motivationally-Salient Information in Anxiety**

Nick Berggren
Birkbeck, University of London, UK

A hallmark of trait vulnerability to anxiety is the finding that anxious individuals perform poorly in selective attention tasks when threat-laden distractions are presented (e.g. fearful faces). Some suggest that this reflects a heightened motivational bias in anxiety to involuntarily allocate attention to threat (enhanced capture), while others posit that all individuals allocate attention to threat but high anxiety impairs the subsequent withdrawal of attention from the distraction (delayed disengagement). Here, we examined whether or not theories of capture/disengagement in anxiety translate beyond threat to non-emotional stimuli that nevertheless hold motivational salience. Participants completed visual search tasks involving locating target objects defined by particular colour combinations (e.g. red and green rectangle). Prior to displays, small colour cues biased attention

to particular locations within search arrays. Across experiments, we found that trait anxiety was associated by increased spatial biasing by cues that matched the colour participants were currently trying to search for, suggesting greater distractor processing. To disentangle capture/disengagement accounts, we varied the stimulus onset asynchrony (SOA) time between cues and search displays. At short SOAs where disengagement was not possible, spatial biasing was generally high and did not differ as a function of anxiety. As SOA increased however and disengagement of attention was possible, anxious individuals showed less reduction in their biases. These results strongly support a delayed disengagement of attention account of distractibility in trait anxiety. Moreover, they extend the principle to stimuli that are in themselves not emotionally threatening, demonstrating that delayed disengagement of salient information is a broad phenomenon in anxiety that may be unrelated to threat biases.

14:05pm – 14:25pm **Paper 2: Individual Differences in Affective Flexibility Predict Anxiety and Worry**

Maud Grol, Eve Twivy & Elaine Fox
Department of Experimental Psychology, University of Oxford, UK

Cognitive flexibility is the ability to shift thoughts and behaviour according to changing situational demands. It is considered important for adaptive behaviour as it enables one to flexibly respond and update goals to adapt to changes in the environment. Deficits in cognitive flexibility have been associated with anxiety and worry. However, few studies have assessed cognitive flexibility in the context of emotional material – affective flexibility – while anxiety and worry are associated with biased processing of emotional information. Using a prospective design (n = 79), we investigated whether individual differences in affective flexibility predict self-reported anxiety and worry seven weeks later and moderate the relationship between experienced daily stressors and future anxiety or worry. Affective flexibility was measured using a switching task requiring individuals to shift between categorising emotional stimuli according to an affective rule (valence) or a non-affective rule (number of humans depicted). Poorer flexibility when shifting attention towards processing affective aspects of positive stimuli predicted higher anxiety. Additionally, greater flexibility when shifting away from processing affective aspects of negative stimuli predicted higher anxiety and worry over time. However, affective flexibility did not moderate the relationship between experienced stress and anxiety or worry. Although previous research mostly focused on biased processing of negative material, the results show that inflexible processing of positive material also plays a role in anxiety. Moreover, the results are in line with models associating anxiety and worry with avoidance of threatening material. Whilst flexibility is typically viewed as crucial for well-being, greater flexibility may not always be beneficial and this could depend on the emotional context.

14:25pm – 14:45pm **Paper 3: Feeling Good, Rather than Bad, about Progress Motivates Further Action**

Thomas L. Webb[1], James P. Reynolds[2], Yael Benn[3], Betty P.I. Chang[4], & Paschal Sheeran[5]
[1]Department of Psychology, University of Sheffield, UK
[2]Department of Public Health and Primary Care, University of Cambridge, UK
[3]Manchester Metropolitan University, UK
[4]Social Psychology Unit, Université Libre de Bruxelles, Belgium
[5]Department of Psychology and Neuroscience, University of North Carolina at Chapel Hill, USA

Theory and pragmatic considerations suggest that people should take action when they feel bad about their progress, because such feelings indicate that action is needed. For example, Control Theory (Carver, 2003) suggests that negative affect signals a discrepancy between current and desired (rates of) goal progress and so motivates the person to address that discrepancy. However, the impact of progress-related affect on goal striving has rarely been investigated. Study 1 (N = 744) adopted a cross-sectional design and examined the extent to which measures of progress-related affect were correlated with intentions to take action. Study 2 (N = 409) adopted an experimental design in which progress-related affect was manipulated by asking participants who reported that they were currently trying to eat healthily to reflect on aspects of their eating behaviour about which they either felt positive and proud or negative and guilty. Study 1 found that, while engaging in health behaviours had the expected affective consequences (e.g. people felt bad when they were not eating healthily, exercising regularly or limiting their alcohol consumption), it was feeling good, rather than bad, about progress that was associated with stronger intentions. Study 2 replicated these findings. Participants induced to feel good about their eating behaviour had marginally stronger intentions to eat healthily than participants led to feel bad about their eating behaviour. Taken together, the findings suggest that feeling good, rather than bad, about progress is motivating. This finding has implications for interventions designed to promote changes in health behaviour, as well as theoretical frameworks for understanding self-regulation.

14:45pm – 15:05pm **Paper 4: Motivational Affordances for Anger Management: Activating Avoidance Motivation Lowers Anger and Aggression among People with High Trait Anger**

Sander L. Koole[1], Lotte Veenstra[1], Iris Schneider[1], Brad Bushman[2], & Irena Domachowska[3]
[1]VU University Amsterdam, The Netherlands

[2]Ohio State University, USA
[3]TU Dresden, Germany

Anger is linked to approach motivation (Carver & Harmon-Jones, 2008). Because approach motivation is dampened by avoidance motivation, activating avoidance motivation may down-regulate anger. Such motivational anger management might be especially helpful for individuals with chronic anger management problems. In Studies 1-3, we manipulated cues associated with approach and avoidance while participants were reading a potentially anger-evoking scenario. As expected, participants high in trait anger responded with less anger to a provocation when making avoidance movements (Study 1), in a dark environment (Study 2), leaning backwards (Study 3) compared to when trait-angry participants made approach movements, were in a well-lit environment, sat straight, or leaned forwards. In Study 4, avoidance cues reduced behavioral aggression among high trait-anger participants, an effect that was most pronounced under high cognitive load. In Study 5, training participants to make avoidance movements to angry faces reduced aggressive inclinations among high-trait anger participants. No such effects were observed among participants low in trait anger. Taken together, these findings suggest that motivational processes may play a key role in regulating anger and aggression.

15:05pm – 15:25pm **Paper 5: Empathy is Hard Work: Insights from the Empathy Selection Task**

C. Daryl Cameron[1], Cendri Hutcherson[2], Amanda M. Ferguson[3], Julian A. Scheffer[1], Eliana Hadjiandreou[1], & Michael Inzlicht[2]
[1]Department of Psychology, The Pennsylvania State University, USA
[2] Department of Psychology, University of Toronto, Canada
[3] Department of Psychological Clinical Science, University of Toronto, Canada

In a science with very few principles and laws, psychology has offered the principle of least effort: Given a choice between similarly rewarding options, organisms avoid options that require more work or effort. Simply put, effort is costly, and organisms will devalue rewards because of it. Here, we ask whether a basic facet of social cognition—namely empathically feeling what others feel—is effortful and whether people generally avoid it (all else being equal). We develop a new measure of empathy choice called the Empathy Selection Task, where participants make a series of binary choices between engaging in situations that involve active empathy or some alternative course of action. The task allows participants to make free choices about which kinds of situations (i.e. those requiring empathy or not) they prefer. Across many studies (N = 2,374) and a meta-analysis, we found a robust preference to avoid empathy, which was associated with perceptions of empathy as effortful, aversive,

and inefficacious. Further, people avoid empathy for negative and positive states, and this effect is not reducible to emotion avoidance more generally. Experimentally increasing empathy efficacy eliminates empathy avoidance, suggesting that cognitive costs associated with empathy directly cause empathy choice. Empathy avoidance is moderated by the identity of the empathy target (i.e. stranger vs. loved one) and the presence of external reward (i.e. payment for empathizing), consistent with the notion that people will empathize when sufficiently incentivized. These results qualify strong claims that empathy is a default and suggest that when given the choice to feel empathy, people often prefer not to.

15:25pm – 15:45pm **Paper 6: Seeing What You Want to See: Motivation Determines Attention Allocation to Emotional Information**

Julia Vogt
University of Reading, UK

Numerous studies suggest that people automatically attend to other people associated with threat like angry faces or racial outgroups that are perceived as threatening. In contrast, others in need for help (e.g. sad faces) appear to evoke attentional avoidance in healthy samples. Importantly, many accounts characterize attention to threat as hard-wired, unconditional, and automatic whereas attention to sad faces has been described as a characteristic of sad emotional states and in particular of depression only. In this talk, I will propose that people's current goals shape attention to emotional information. Specifically, I will explore the hypothesis that threatening events and people in need will attract attention when they are relevant to people's current goal but not when they are goal irrelevant. In order to test this hypothesis, I combined visual cueing tasks with separate tasks that induced temporary goals. In two experiments, I found that the pursuit of threat-unrelated goals attenuates attention to threatening facial expressions and racial outgroups that are perceived as threatening. Study 3 demonstrated that activating prosocial motivations induced attention to people in need. These findings suggest that automatic affective processes are flexible and serve the pursuit of the current goal.

15:45pm – 16:15pm **Coffee break** (Hunter Halls)

WEDNESDAY AFTERNOON OPEN PAPER SESSIONS

OPEN PAPER SESSION 1: RECOGNITION

Wednesday 4th April, 16:15pm – 17:45pm

Bute Hall

Chair: Ruud Hortensius, University of Glasgow, UK

16:15pm – 16:30pm **Paper 1: Emotion Processing in Homo and Pan**

Mariska E. Kret

Cognitive Psychology Unit, Leiden University, The Netherlands

Evolution prepared group-living species, (non)human primates included, to quickly recognize and adequately respond to conspecifics' emotional expressions. Different theories propose that mimicry of emotional expressions facilitates these swift adaptive reactions. When species unconsciously mimic their companions' expressions of emotion, they come to feel reflections of their emotions that influence emotional and empathic behavior. The majority of emotion research has focused on full-blown facial expressions of emotion in humans. However, facial muscles can sometimes be controlled; humans know when to smile, and when not to. Moreover, the fact that emotions are not just expressed by the face alone but by the whole body is often still ignored. In this talk, I therefore argue for a broader exploration of emotion signals from sources beyond the face or face muscles that are more difficult to control. More specifically, I will argue that implicit sources including the whole body and subtle autonomic responses including pupil-dilation are picked up by observers and influence subsequent behavior. Across different primate species, seeing a conspecific being emotional and expressing that in one way or another, immediately and automatically attracts attention, yields mimicry and triggers action tendencies in observers. In my research, I take a comparative approach and investigate similarities and differences in the perception of emotions between humans, chimpanzees (Pan troglodytes) and bonobos (Pan Paniscus). I will here discuss new, recently collected data and suggest avenues for future research that will hopefully eventually lead to a better comprehension of emotional expressions and how we come to understand each other's emotions.

16:30pm – 16:45pm **Paper 2: Differential Recognition and Reactivity to Joy Across Visual and Auditory Modalities in Parkinson's Disease**

Zahra Zargol Moradi, Patricia Lockwood, Molly Crockett[1] & Masud Husain

Department of Experimental Psychology, University of Oxford, UK

Parkinson's Disease (PD) is the second most common neurodegenerative disease in the US. The primary pathology involves degeneration of dopaminergic neurons in the substantia nigra, resulting in motor slowness and lack of motor control. However, circuits important for cognition and emotion are also variably disrupted. Neuropsychological and neuroimaging studies of emotional dysfunction in PD patients suggest abnormalities involving mesolimbic and mesocortical dopaminergic pathways. As a result, PD patients have problems in various aspects of emotional communication, including understanding others' emotion. The nature of such emotional deficits in the PD patients is yet to be understood. The current study investigated emotional processing across visual and auditory modalities in PD patients (ON medication) in comparison to healthy older adults (HOA). Participants completed three tasks on emotion perception in faces, bodies and voices across four domains including recognition, valence and intensity ratings as well as reactivity to others' emotions. Our results showed that in PD patients, the recognition and reactivity to joy was heighted for faces but diminished for voices. An extra auditory pleasure rating scale for emotional bursts confirmed this finding in PD patients. We did not find any correlations between the dosage of medication or the severity of motor disability and the deficit of auditory pleasure processing in these patients. Our findings are in line with previous studies showing that although the emotional deficits in PD patients appear to be cross-model, they are more severe for recognition of emotion from voices than from facial displays. The mesolimbic and mesocortical dopaminergic pathways might play a more substantial role in prosodic emotion recognition, as has been suggested.

16:45pm – 17:00pm **Paper 3: What are You Looking at? Eye-Tracking Dog and Human Gaze on Emotional Cues**

Catia Correia Caeiro, Kun Guo & Daniel Mills
University of Lincoln, UK

One way of investigating emotional cognition in animals is by applying comparative methodologies and looking at either closely-related species (e.g. chimpanzees – humans) or phylogenetically distant species sharing similar ecological niches (e.g. dogs – humans). Dogs are unique in being a socially complex species which has shared the same social environment and so faced similar challenges as humans with regards to co-operation for more than 10,000 years. Dogs distinguish and respond to facial expressions of humans, and are experts at reading referential body cues, such as pointing. However, we still do not fully understand its underlying mechanisms. Humans are experts at detecting faces, but processing emotional cues is, in general, a demanding cognitive process, which seems to be particularly hard when reading other species emotions. We investigated emotion perception mechanisms using an eye-tracker to record and compare eye movements. Human and dog participants

were presented with videos of unfamiliar humans' and dogs' face and body cues during different classes of emotional contexts. These video stimuli contained responses related to fear, frustration, happiness, positive anticipation or no emotion in both species. We sampled a large and varied population of 131 humans and 96 dogs, collecting spontaneous eye movements and other relevant variables (e.g. age, breed, experience with dogs). For the first time in any study, dogs were eye-tracked without any kind of training or restraint. We applied GLMM to model our data in order to understand the relevance of emotional cues from the face vs body for both species. Our results demonstrated that humans and dogs vary in their gaze strategies when observing emotional cues and that emotion other factors affect the behavioural basis to emotion perception. These results will be discussed in light of current research in the area since they have important theoretical and practical implications for the comparative cognition of emotional processes.

17:00pm – 17:15pm **Paper 4: A Virtue Reliabilist Theory of Justified Emotions**

Chun-Nam (Emile) Chan
University of Manchester, UK

The question of what it is for an emotional state to be justified is a hotly debated issue in the philosophy of emotion, more precisely, the epistemology of emotion. In the last decade, some epistemologists of emotion have attempted to analyse emotional justification in an evidentialist manner. They maintain that emotional states are epistemically justified only when the agent is aware of the relevant evidence, such as the object's evaluative properties, or those non-evaluative properties that constitute its possessing such evaluative properties. However, since these evidentialist epistemologists of emotion require the agent to possess evaluative concepts , they have difficulty explaining (1) how cognitively unsophisticated beings, such as animals and infants, can have justified emotions, (2) how professional hunches are justified when produced under disturbing, stressful, or subtle environmental conditions that prevent the agent from being aware of the relevant evidence, and (3) why justified (or unjustified) emotions should be thought of as praiseworthy (or blameworthy). In this paper, I shall propose a virtue reliabilist theory of justified emotions (VRJE), according to which a particular emotion E is epistemically justified if and only if E is reliably produced by the agent's intellectual virtues, her cognitive abilities that have a high probability of producing correct emotions. As VRJE does not require that the agent possess evaluative concepts, it is able to take the aforesaid phenomena regarding justified emotions into account.

17:15pm – 17:30pm **Paper 5: Identifying Emotion from Whole Body Expression**

Rebecca Smith[1], Frank Pollick[1], & Julia Christensen[2]
[1]University of Glasgow, UK
[2]University College London, UK

From previous research, it has been observed that dance experience influences the ability to discriminate the emotional quality of dance movements. Additionally, this experience has been found to drive eye-fixation patterns when observing dance. Studies have yet to explore whether these outcomes are related and little research has been conducted to explore the behavioural effects of amateur dance training. This study aims to address these gaps in the literature by exploring whether those with amateur dance training are more accurate in identifying the emotional content of dance than novices. The research also explores whether, and to what degree, experience-driven eye-fixations are responsible for any differences observed. 7 novices and 7 amateur ballet dancers watched a series of short dance clips and were asked to indicate the perceived emotional valence of the movements. Eye-tracking data was also collected during trials. Support for the first experimental hypothesis was found, as the amateur dancers were significantly more accurate in their emotion judgements than the novices. The results of eye-tracking were inconclusive; no significant differences were observed between novices and amateurs. However, general trends indicated that novices fixate on the torsos of dancers while amateurs focus on the arms, head, and legs. These results suggest that even amateur dance training can lead to enhanced emotion recognition capabilities. This may provide further support for the efficacy of dance movement therapy (DMT) in management of social difficulties faced by those with Autism Spectrum Disorder. Future research in this area could improve the direction of DMT practices and may contribute to understanding of the embodied root of emotional expression from whole body movements.

17:30pm – 17:45pm **Discussion/Q&A**

17:45pm – 18:00pm **COLLECT POSTERS**

19:00pm – 20:00pm **DRINKS RECEPTION** (City Chambers)

OPEN PAPER SESSION 2: PERCEPTION

Wednesday 4th April, 16:15pm – 17:45pm

Senate Room

Chair: Marwa El Zein, University College London, UK

16:15pm – 16:30pm **Paper 1: The Interplay Between Mimicry and Social Context in Smile Perception**

Anna B. Orlowska[1], Eva G. Krumhuber[2], Magdalena Rychlowska[3], & Piotr Szarota[1]

[1]Institute of Psychology Polish Academy of Sciences, Poland

[2]University College London, UK

[3]Queen's University Belfast, UK

According to the Contextual Model of Emotional Mimicry (Fisher & Hess, 2017) the occurrence of facial mimicry depends on the social setting and the type of emotional expression. The aim of the present research was to test the interplay with mimicry and social context in the perception of functional smiles. In Study 1, participants (N = 176) were presented with static or dynamic versions of reward, affiliation, and dominance smiles. Participants' mimicry was either free or inhibited while classifying the smile stimuli. The identification and differentiation between the three smile types was significantly above chance level. However, no effects of mimicry occurred in expression recognition. In the second study (N = 160), we focused on the influence of mimicry and social context on the interpretational meaning of smile expressions. For this, images of affiliative smiles were presented either in a positive context in which happiness would be expected, or in a context that was ambiguous with respect to the likelihood of a positive emotion. In line with predictions, the results confirmed a significant interaction between mimicry and social context information. Specifically, smiles were perceived as more affiliative when the social context was ambiguous than when it was positive, with social context effects being significantly stronger among participants who could not freely mimic the facial expressions. Together, the findings suggest that mimicry may not be necessary for basic smile classification but plays an important role in the interpretation of smiles in social situations.

16:30pm – 16:45pm **Paper 2: Holistic and Analytic Processing of Dynamic Facial Expressions**

Rafal M. Skiba & Patrik Vuilleumier

University of Geneva, Switzerland

Although much behavioral research documents existence of two cognitive processes in decoding faces: one based on the features of the face, and the other focused on grouping those features into holistic representation their neural mechanisms are still debated. Previous fMRI results from our laboratory showed distinct networks recruited by these processes when observing static happy and angry faces (Meaux and Vuilleumier, 2016). However, in real life, expression features are not only seen together but also move together, hence their grouping might also depend on temporal synchrony. Building on those results we investigated brain systems for analytic and holistic processing of dynamic facial expressions where eye and mouth features could move at the same or different points in time. 24 participants in our study viewed dynamically changing facial stimuli with different emotions (angry, happy, joy or sad) expressed either in both parts together (full condition) or in one part (upper or lower) before the other (feature condition). The analysis revealed that both right and left Inferior Occipital Gyrus, bilateral Fusiform Gyrus, right Anterior Cingulate Cortex and bilateral Inferior Frontal Gyrus are involved in processing holistic dynamic facial expressions, that is, full faces. Whereas seeing expressions in which one part of the face unfolded before the other (e.g. eye then mouth) activated Superior Temporal Sulcus. Moreover, STS activity was also enhanced when fixation predominated on the eye regions for both angry and happy expressions. Overall, these results highlight a distinctive role for STS in analytic processing of dynamic expression features, while more ventral occipito-temporal areas in the face processing network are sensitive to holistic synchronous features.

16:45pm – 17:00pm **Paper 3: Observer Reactions to Emotional Victims of Serious Crimes: Stereotypes and Expectancy Violations**

Eva Mulder, Alice Bosma, Antony Pemberton & Ad Vingerhoets
Tilburg University, The Netherlands

Secondary victimization, consisting of negative reactions by third parties towards a victim, is thought to be strongly related to the expectations people have of the characteristics and demeanor of an ideal victim. In this study, the authors examine how expressed emotion, victim sex, and type of victimization influence observers' perceptions of victim credibility and victim character. The authors hypothesized that angry victims, male victims, and victims of sexual violence are perceived less positively than sad victims, female victims, and victims of physical violence. Additionally, it was hypothesized that expectancy violations following the expressed emotions of the victim lead to negative reactions. Participants (N = 335) completed an online vignette study during which they read a written victim impact statement by a male or female victim of sexual or physical assault in which anger or sadness was expressed. In an innovative addition to existing studies, the occurrence of an emotional

expectancy violation was explicitly measured. Results show that observers generally respond more negatively to male victims than to female victims, and to victims expressing anger rather than sadness. However, a two-way interaction between expressed emotion and type of crime indicates that expressed emotion only significantly influences character derogation and victim credibility in cases of physical violence. Finally, explicit emotion expectancy violations lead to derogation and diminished credibility. The article concludes with a discussion of how emotion expectancy violations seem intimately tied to stereotype-ridden features of victimization. Suggestions include the notion that similar emotions may be interpreted differently by observers, depending on who expresses those emotions (e.g. a male or female victim) under what circumstances (e.g. following sexual victimization or physical victimization). On the basis of our findings, we suggest that future research could focus on strengthening awareness of these stereotypes as a fruitful pathway to reduce negative responses to victims.

17:00pm – 17:15pm **Paper 4: Pre-verbal Infants Perceive Emotional Facial Expressions Categorically**

YongQi Cong[1], Caroline Junge[2], Evin Aktar[3], Maartje Raijmakers[1,3] , Anna Franklin[4], Disa Sauter[1]

[1]University of Amsterdam, The Netherlands

[2]Utrecht University, The Netherlands

[3]Leiden University, The Netherlands

[4]Sussex University, UK

Adults perceive emotional expressions categorically, with discrimination being faster and more accurate for expressions from different emotion categories (i.e. blends with two different predominant emotions) than from the same category (i.e. blends with the same predominant emotion). The current study sought to test whether facial expressions of happiness and fear are perceived categorically by pre-verbal infants, using a new stimulus set that was shown to yield categorical perception in adult observers (Experiments 1 and 2). These stimuli were then used with 7-month-old infants (N = 34) using a habituation and visual preference paradigm (Experiment 3). Infants were first habituated to an expression of one emotion, then presented with the same expression paired with a novel expression either from the same emotion category or from a different emotion category. After habituation to fear, infants displayed a novelty preference for pairs of between-category expressions, but not within-category ones, showing categorical perception. However, infants showed no novelty preference when they were habituated to happiness. Our findings provide evidence for categorical perception of emotional expressions in pre-verbal infants, while the asymmetrical effect challenges the notion of a bias towards negative information in this age group.

17:15pm – 17:30pm **Paper 5: Spatio-Temporal Pattern of Appraising Social and Emotional Relevance: Evidence from Event-Related Brain Potentials**

Annekathrin Schacht[1] & Pascal Vrticka[2]
[1]University of Goettingen, Germany
[2]Max Planck Institute for Human Cognitive and Brain Sciences, Germany

Appraisal theory of emotion suggests that information processing occurs as a sequence of appraisal checks that coordinate a range of responses to a particular event. Within this approach, relevance detection is considered to be a first selective filter through which a stimulus needs to pass to merit further processing. Previous neuroimaging research on the spatio-temporal unfolding of stimulus appraisal has mainly concentrated on relevance checks regarding novelty and emotional valence (i.e. intrinsic pleasantness). In so doing, the social (versus nonsocial) content of processed information has been largely ignored despite extant functional magnetic resonance imaging (fMRI) data suggesting that social content may form a unique and highly relevant stimulus dimension. To close this gap, we presented complex visual scenes differing in both social (versus nonsocial) and emotional (positive, negative, neutral) content intermixed with scrambled versions of these pictures to N = 24 healthy young adults and recorded event-related brain potentials (ERPs) to intact pictures. Our main finding is an early interaction between social and emotional content processing due to enhanced amplitudes of early ERP components to emotionally positive pictures of social compared to nonsocial content, presumably reflecting rapid allocation of attention and counteracting an overall negativity bias. Importantly, our ERP data show high similarity with previously observed fMRI data using the same stimuli, and source estimations located the ERP effects in overlapping occipito-temporal brain areas. Our new findings suggest that relevance detection may occur already as early as around 100 ms after stimulus onset and may combine relevance checks not only examining emotional valence (i.e. intrinsic pleasantness), but also social content as a unique, highly relevant stimulus dimension. Within the context of appraisal theory of emotion, our data therefore indicate that early relevance detection may comprise an additional relevance check, and that relevance detection may occur interactively from the very start.

17:30pm – 17:45pm **Discussion/Q&A**

17:45pm – 18:00pm **COLLECT POSTERS**

19:00pm – 20:00pm **DRINKS RECEPTION** (City Chambers)

OPEN PAPER SESSION 3: EXPRESSION

Wednesday 4th April, 16:15pm – 17:45pm

Gilbert Scott Conference Suite (Room 253)

Chair: Shlomo Hareli, University of Haifa, Israel

16:15pm – 16:30pm **Paper 1: How do Babies Laugh?**

Disa Sauter[1], Dianne Venneker[2] & Mariska Kret[2]

[1]University of Amsterdam, The Netherlands

[2]Leiden University, The Netherlands

Some socio-emotional expressions in humans have deep ancestral roots. One example is laughter, which occurs across all great ape species. Comparative research has established phylogenetic continuity in the laughter signal, suggesting that these emotional expressions are homologies across great apes. Yet human laughter differs from that of other primates: In non-human apes, laughter is typically produced in the context of tickling or rough-and-tumble play. This is true also of human infants, but not of human adults, where laughter occurs across many different kinds of social interactions. Human laughter is also unique in that it is primarily produced on the exhale, whereas other primates laugh on both the inhale and exhale. In the current study, we asked whether human infants laugh in a similar manner to apes. Specifically, we examined whether human infant laughter is acoustically more similar to non-human apes' laughter, or whether human infant laughter resembles the laughter of human adults from the outset. Laughter clips (N = 44) from infants aged 3 - 18 months were used in a perception study (N = 102), in which naive listeners judged the degree to which each laugh was produced during exhalation or inhalation. The results show that the proportion of infants' laughter produced on the exhale increases with age, with a positive relationship between a child's age and exhalation (r = .338, p = .025). This result suggests that human laughter gradually develops into the style of human adults (i.e. primarily laughing on the exhale), and at younger ages, thus, human infants' laughter is similar to that of other great apes. These results are discussed in the context of vocal control maturation and social learning.

16:30pm – 16:45pm **Paper 2: Emotional Labour and Workplace Aggression: a Systematic Review**

Milda Perminiene[1], Asta Medisauskaite[2]
[1]University of East London, UK
[2]University of London, UK

Objectives. Emotional labour was introduced by Hochschild (1983), who argued that people manage their emotional displays via two strategies: deep and surface acting. Sustaining and developing good relationships is one of the major goals of emotional labour (Strazdins, 2000). However, it seems that emotional labour may not achieve its expected outcomes. Previous empirical studies and theoretical speculations, suggest that emotional labour can add to the impediment of work relationships. The aim of the current study is to explore the link between emotional labour strategies and dysfunctional work relationships through the systematic review and meta-analysis. Methods. The PRISMA guidelines were used to perform the current systematic review in the Scopus database. Eligible studies analysed the link between emotional labour and dysfunctional work relationships (e.g. workplace bullying, harassment, interpersonal counterproductive work behaviour) directed towards customer, colleague, subordinate(s) or supervisor. Out of 4025 initial hits, 12 studies fit the eligibility criteria for qualitative data synthesis. The random effect model was used to perform the meta-analysis of 9 quantitative studies in the MetaXL software. Results. The meta-analysis demonstrated that surface acting had a positive, but weak correlation of $r = 0.11$ (95% CI 0.02-0.20; n = 3093), while deep acting was linked to aggressive behaviour towards others at $r = -0.01$ (95% CI -0.09-0.07; n = 2353). Heterogeneity ($p < 0.0001$; Q = 62.07 and Q = 22.13) with inconsistency (84% and 68%) was observed. A qualitative investigation of the more complex links between surface, deep acting and aggressive behavior at work allowed designing a model with mediating (e.g. emotional exhaustion, self-control) and moderating (e.g. self-regulation, co-worker support,) factors. Conclusions. Relationships between deep, surface acting and workplace aggression need further consideration. An analysis of mediating and moderating mechanisms as well as qualitative studies that help identifying peculiarities of deep and surface acting strategies would be useful to better understand the underlying dynamics of the phenomena.

16:45pm – 17:00pm **Paper 3: When Emotions Run High: a Critical Role for Context in the Unfolding of Dynamic, Real-Life Facial Affect**

Jacob Israelashvili[1], Ran. R. Hassin[2], Hillel Aviezer[2]
[1]University of Amsterdam, The Netherlands

[2]Hebrew University of Jerusalem, Israel

Although positive and negative affect are assumed to be highly distinct dimensions, recent work has shown that facial valence of positive and negative situations is highly confusable, especially when the emotions are intense. However, previous work has relied exclusively on static images, portraying a single peak frame of the emotional display. Dynamic expressions on the other hand, convey a far broader representation of the emotional reaction, but are they diagnostic of the situational valence? In order to examine this question participants (N = 245) watched videos that portray reactions to real-life highly positive situations and evaluated the affective valence of the target person in the video. We controlled the information in the videos in two ways: A) by truncating the movies after 5, 10, or 20 seconds from the start, and B) by digitally manipulating the videos such that only the face was visible with no context, only the context was visible with no face, or the face appeared in context. Results indicate that during real-life intense positive situations, facial expressions alone were rated as negative and failed to convey diagnostic information about the situational valence even at the most extended presentation durations. By contrast, when contextual information appeared alone, or with the face, participants rated the target as feeling positive, and this positivity increased with extended viewing duration. These findings suggest poor coupling between facial valence and felt emotions, supporting the notion that when emotions run high the diagnostic power of facial expressions is lost. Conversely, the findings demonstrate an inherent role for contextual information in the recognition of real-life intense faces.

17:00pm – 17:15pm **Paper 4: Seeing Beyond Cross-Talk: Automated Facial Image Analysis may Complement Facial Electromyography**

Aleksandra Świderska[1] & Dennis Küster[2]
[1]Warsaw University, Poland
[2]Bremen University, Germany

For decades, facial electromyography (fEMG) has been the gold standard as a measure of subtle facial activity (Fridlund & Cacioppo, 1986). However, while fEMG is known to provide excellent temporal resolution, its spatial resolution is limited, and it is subject to cross-talk. Automated facial image analysis software (e.g. FACET, iMOTIONS) promises to complement fEMG in psychological research (Kappas et al., 2016). Specifically, it might help disambiguate expressions and thus aid in the interpretation of fEMG results. In the current study, participants (N = 33) read offensive comments, retrieved from Internet forums, about members of minority groups in Poland. We measured activity of facial muscles at the sites of Corrugator Supercilii,

Zygomaticus Major, and Levator Labii, and filmed the testing sessions. Overall, participants were expected to react negatively, i.e. with anger or disgust, to the stimuli. The fEMG results indeed showed evidence for the activity of Corrugator and, to a lower extent, of Levator. In line with fEMG, FACET results indicated more ongoing negatively valenced activity, and more anger than joy expressions. However, FACET results additionally revealed more sadness than disgust expressions. This suggests that, contrary to what we predicted, the Levator activity obtained via fEMG did not correspond to disgust expressions. Rather, it may partially be explained by cross-talk from other facial behavior. While the combined use of automated facial image processing and fEMG still requires additional validation efforts, our results show how video recordings of participants in fEMG experiments come to play an increasingly important role for subsequent data analyses. They also suggest that, in fact, FACET is able to contribute to the disambiguation of apparent fEMG cross-talk under typical recording conditions in the laboratory. We will discuss future possibilities and challenges of its usage.

17:15pm – 17:30pm **Paper 5: Towards the Analysis of Movement Variability for Facial Expressions with Nonlinear Dynamics**

Miguel P Xochicale & Chris Baber
University of Birmingham, UK

Movement variability is an inherent feature within and between persons. Research on measurement and understanding of movement variability has been well established in the previous three decades in areas such as biomechanics, sport science, psychology, cognitive science, neuroscience and robotics. With that in mind, we hypothesise that the subtle variations of face emotions can be described and quantified in a similar fashion as with the methodologies of movement variability. Such methodologies are based on nonlinear dynamics, particularly with the use of the state space reconstruction theorem where dynamics of an unknown system can be reconstructed using one dimensional time series. For this work, we explain how the state space reconstruction theorem works and present preliminary results of the use of the state reconstruction to understand the relationship between the variability of arm movements, head pose estimation and face emotion of 18 participants. The results of the state space reconstruction in the context of face emotions lead us to conclude that not only the variability of upper body movement can be analysed and quantified but also the subtle variability of face emotion transitions across time (e.g. from excitement to neutral to boredom, etc.) can be understood and measured using nonlinear dynamics.

17:30pm – 17:45pm **Discussion/Q&A**

17:45pm – 18:00pm **COLLECT POSTERS**

19:00pm – 20:00pm **DRINKS RECEPTION** (City Chambers)

OPEN PAPER SESSION 4: REGULATION 1

Wednesday 4th April, 16:15pm – 17:45pm

Lecture Theatre G466

Chair: Giorgia Zamariola, Université catholique de Louvain, Belgium

16:15pm – 16:30pm **Paper 1: Mindfulness and Envy**

Kristina Eichel[1] & Jan Crusius[2]

[1]Brown University, USA

[2]University of Cologne, Germany

Objectives: Mindfulness has been linked to lower levels of negative affect. Nevertheless, the mediators of this link and motivational consequences are poorly understood. Both components of mindfulness, emotional acceptance and awareness, have been hypothesized to decrease negative affect because they shape how elicitors of emotions are processed. An important elicitor of emotions are comparisons with other people. Being outperformed by others can lead to the negative affect and hostility that characterizes malicious envy. It can also lead to the equally painful emotion of benign envy, which motivates to strive for the better. We investigated the relationship between mindfulness and envy within three studies, both on trait and state level and lastly, with a mindfulness induction and an envy reaction towards a comparison standard. Methods: We correlated mindfulness facets with envy facets at the trait level (Study 1; N = 649) and at the state level in reaction to an upward comparison standard (Study 2; N = 575). In Study 3 (N = 491), participants took part and lost in an apparent competitive situation against another participant. Before their results were presented, a short mindfulness induction versus active control condition was given; then they had the chance to show higher motivation and a possibility to punish the other participant in a second round. Results: Trait mindful emotional

acceptance was related with less malicious, awareness was related with more benign and less malicious state and trait envy (Study 1 and 2). The mindfulness induction (Study 3) did not influence the envious reaction, but trait emotional acceptance was related to more striving and less punishment towards the other. Conclusion: There is a relationship with mindfulness and comparison-based emotions, but we have to differentiate between the two components awareness and acceptance and between benign and malicious envy to dismantle those relations.

16:30pm – 16:45pm **Paper 2: Solitude as an Approach to Affective Self-Regulation**

Thuy-vy Nguyen[1], Richard Ryan[2] & Edward Deci[3]
[1]University of Rochester, USA
[2]Australian Catholic University, Australia
[3]University College of Southeast Norway, Norway

Past research showed that solitude decreased positive affect, but they included only items that pertain to positive affect that is high on arousal and negative affect that is low on arousal. In this research we captured people's affective experiences at high and low levels of arousal for both positive and negative affect. Convergent findings showed that solitude generally has a deactivation effect on people's affective experiences, decreasing both positive and negative high-arousal affects. In Study 1 (N = 114), we found that the deactivation effect occurred when people were alone, but not when they were with another person. Study 2 (N = 108) showed that this deactivation effect did not depend on whether or not the person was engaged in an activity, such as a reading, while alone. In Study 3 (N = 343), high-arousal positive affect did not drop in a solitude condition in which participants specifically engaged in positive thinking or when they actively chose what to think about. Finally, in Study 4 (N = 173), over the course of 2 weeks, half of the participants spent 15 minutes in solitude each day only on the first week, and the other half only on the second week. This switching-replications experimental design allowed us to observe the within-person effect of solitude on individuals' affective experience using linear modeling. Again, we found the deactivation effect of spending time in solitude: both positive and negative high-arousal affect were decreased during the week participants spent time in solitude, but not during the week that they did not. Additionally, we also found that solitude could lead to relaxation and reduced stress when individuals actively chose to be alone. This research sheds light on the effects of solitude in past literature, and on people's affective experiences when alone.

16:45pm – 17:00pm **Paper 3: Mindful Social Inferences: The Influence of a Decentering Instruction on**

Hostile Attributions of Ambiguous Social Situations in a Lab Study

Kim Lien van der Schans, Johan Karremans & Rob Holland
Behavioural Science Institute, Radboud University, The Netherlands

Mindfulness is a hot topic of scientific inquiry and accumulating evidence indicates that it may help individuals regulate their emotions and behavior. In the current project, we build on a growing body of research investigating the interpersonal effects of mindfulness. Specifically, we examined whether an element of mindfulness "decentering" decreases hostile attributions of ambiguous social situations. Based on related research in the domain of eating behaviour (Papies, Custers & Barsalou, 2012; Papies et al., 2015), we hypothesized that decentering from experiences " seeing them as mental events that arise and disappear" hampers the development of full blown hostile attributions and urges. Previous research has already indicated that trait mindfulness is negatively related to hostile attributions of ambiguous social situations (Heppner et al., 2008). In the current project, we examined whether a short state decentering instruction in a laboratory setting decreases hostile attributions of ambiguous social situations as presented with vignettes in comparison to an immersion control instruction. Results from a pilot study and a high-powered pre-registered study suggest a strong effect of the experimental instruction on hostile attributions; participants in the decentering condition score lower on hostile attribution as compared to the immersion control condition while controlling for the individual baselines of hostile attribution. Moreover, the effect of condition was moderated by ruminative disposition; there was a positive correlation between ruminative disposition and hostile attribution in the control condition but not in the decentering condition. These studies suggest that decentering can decrease hostile attribution in response to ambiguous social vignettes. Furthermore, decentering may buffer the relation between ruminative disposition and hostile attributions. Yet, caution is warranted due to possible demand effects. Theoretical implications and next steps will be discussed.

17:00pm – 17:15pm **Paper 4: Biological Antecedents of Mimicry: Differential Effects of Oxytocin on Affiliative and Agonistic Emotional Mimicry**

Rui Sun[1], Gabriela Pavarini[2] & Aleksandr Kogan[3]
[1]University of Amsterdam, The Netherlands
[2]University of Oxford, UK
[3]University of Cambridge, UK

Even though there has been a wealth of studies investigating emotional mimicry, its biological underpinnings remain unclear. The present study builds upon a growing body of work documenting the role oxytocin plays in social functioning to test whether this hormone modulates spontaneous mimicry of others' emotion expressions. Caucasian male participants (n = 145) received a nasal spray of oxytocin (or placebo) before watching videos in which individuals expressed different emotional states, while having their facial expressions unwittingly video recorded. Oxytocin increased spontaneous mimicry of sadness, a reaction that facilitates social bonding, and reduced mimicry of anger, a reaction that precedes agonistic interactions. These results point to a possible pathway through which oxytocin modulates complex prosocial and affiliative behaviour. Oxytocin's differential effect on sadness and anger mimicry also echoes recent theoretical accounts of emotional mimicry as fundamentally dependent on context and the social significance of the emotion displayed.

17:15pm – 17:45pm **Discussion/Q&A**

17:45pm – 18:00pm **COLLECT POSTERS**

19:00pm – 20:00pm **DRINKS RECEPTION** (City Chambers)

OPEN PAPER SESSION 5: INTERGROUP & INTERPERSONAL 1

Wednesday 4th April, 16:15pm – 17:45pm

East Quadrant Lecture Theatre

Chair: Suzanne Oosterwijk, University of Amsterdam, The Netherlands; Amsterdam Brain and Cognition Centre, The Netherlands

16:15pm – 16:30pm **Paper 1: An Emotional Route to Increasing Out-group Humanization**

Johanna Katarina Blomster[1] & Beate Seibt[1,2]

[1]University of Oslo, Norway

[2]Instituto Universitário de Lisboa (ISCTE-IUL), Portugal

Watching outgroup members interact can evoke emotions. Here, we are interested in how such emotions might impact perceptions of these members and their groups. We conducted three studies assessing the effect of kama muta on humanization of out-group members and groups. The emotion kama muta, a concept introduced by our group, is often labelled by English speakers as "moved", "touched", and "heartwarming". It is evoked by perceiving or experiencing a sudden intensification of communal sharing relationships (Fiske, 1991), characterized by unity and equivalence. We hypothesized that watching videos of out-group members that evoke kama muta would make these out-group members, and their respective groups, appear more human, because kama muta makes one feel communal towards them. In our first study (N = 313), we explored the possible mediators and types of humanization, which are affected by kama muta. The variable reduction method Random Forest, and structural equation modelling showed that both kama muta and how human the protagonist appeared predicted warmer feelings towards the out-group as a whole, and motivation to develop communal relationships with the protagonist. Generalization of humanization to the whole group was most strongly mediated through warm feelings towards the group. This model was replicated in our second study (N = 394). In our third study (N = 221) we again replicated our model and contrasted kama muta with amusement. In addition, we assessed the causality of kama muta and protagonist humanization through a pre- and post-test longitudinal study where we found that the protagonist must be seen as human in order to feel kama muta, and kama muta increases protagonist humanization, suggesting a bidirectional link. Therefore, our results show the importance of positive social emotions in reducing out-group dehumanization: kama muta alters the affect felt toward out-groups, which then reduces out-group dehumanization.

16:30pm – 16:45pm **Paper 2: The Effects of Expressing Guilt, Shame, and Pride on Intergroup Cooperation and Competition in the Centipede Game**

Sam Nunney & Tony Manstead
Cardiff University, UK

Research using economic games demonstrates the importance of communication in promoting cooperation and repairing damaged interpersonal relationships, but few studies have used these games to study such issues in an intergroup context. What evidence there is suggests that there are important differences between interpersonal and intergroup reconciliation, with the latter being harder to achieve. In the present studies we use the Centipede Game, a sequential economic game in which each player has to trust the other player not to be exploitative. The game was used in an intergroup context with the added feature of communication between groups. In Study 1 (n = 78) we explored what happens when the game is played in two phases, with groups sharing their spontaneous

feelings of pride, guilt, and shame between the phases. Communicating these emotions significantly affected behaviour in phase 2, with expressions of pride increasing competition between the groups and expressions of guilt and shame increasing cooperation. In Study 2 (n = 144) we explored this further by exposing groups of participants to an exploitative group in phase 1 and then varying whether the exploitative group expressed pride, shame, or no emotion before the second phase. Expressions of shame led to greater cooperation between groups, by comparison with expressions of pride or no emotion. Although expressions of pride did not increase competition in the second phase, it did give rise to stronger motivations to punish the exploitative group. These results highlight the benefits of expressing guilt and shame as ways of repairing intergroup relations, as well as the negative effects on intergroup relations that expressing pride can have. The implications of these results for understanding intergroup reconciliation processes will be discussed.

16:45pm – 17:00pm **Paper 3: Physiological Synchrony Across People: a Mechanism for the Social Spread of Emotions**

Golland Yulia[1] & Nava Levit-Binnun[1]

[1]Baruch Ivcher School of Psychology, Interdisciplinary Center Herzliya, Israel

In many social contexts human beings act as social chameleons, automatically adjusting their responses to inputs from others. These contagious effects are especially prominent in the field of emotions, with numerous studies showing that emotions spread beyond individual, leading to convergent affective states across people. In a series of studies, conducted in our lab, we asked whether non-verbal emotion propagation across individuals is conveyed via interpersonal synchrony in their emotion-related response systems. Focusing on physiological and expressive components of emotion, we assessed synchronization of autonomic and facial signals in dyads of participants who co-viewed movies together. We found that co-viewing participants exhibited robust and idiosyncratic synchronization of their cardiovascular and autonomic responses. This synchrony was dyad-specific and was closely associated with emotional convergence among dyad members (Golland et al., 2016). In two follow-up studies, we studied facial synchrony by measuring shared dynamics in moment-to-moment changes of co-viewers' facial electromyography. Robust facial synchrony was observed among dyad members. The degree of facial synchrony predicted affiliative feelings. Introducing an opaque divider between the co-viewers eliminated dyad-specific synchrony, thus, providing a conclusive evidence that physiological synchrony relies on the transmission of non-verbal emotional signals among dyad members (Golland et al., under review). Tapping into the neural mechanisms of emotional transmissions, we examined synchronization of brain responses with a dynamic emotional input coming from another individual. We found that neural

synchronization with the emotions of another person was found both in the core affective regions, such as amygdala and insula, and in the medial prefrontal regions associated with broader conceptual processes (Golland et al., 2017). Taken together, these studies suggest that in social context individuals continuously exchange emotional signals with others. In this process they become synchronized in their neural, physiological and facial responses, share emotional states and form affiliative social connections.

17:00pm – 17:15pm **Paper 4: Emotional Interdependence in Close Relationships**

Laura Sels[1], Eva Ceulemans[1], Jed Cabrieto[1], Harry Reis[2], Emily Butler[3], Peter Kuppens[1]

[1]KU Leuven, Belgium

[2]University of Rochester, USA

[3]University of Arizona, USA

Interdependence, including emotional interdependence, is widely considered to be a cornerstone of close relationships. Romantic partners' are thought to influence each other often, which would lead their emotions to become interconnected over time. However, existing empirical evidence for emotional interdependence in romantic relationships is surprisingly scattered and sketchy. We therefore aimed to verify the existence and possible boundary conditions of emotional interdependence in romantic couples by drawing on multiple methods and concepts from basic emotion dynamics research. To this aim, we investigated whether (and to what extent) couples indeed show interpersonal emotional connections, at least more than random people do, and this both in daily life (Study 1 and Study 3) and in standardized lab contexts (Study 2 and Study 3). Second, we inspected potential factors that could facilitate or impede emotional interdependence in close relationships, both on individual and contextual levels, by examining emotional interdependence across different interpersonal linkages (concurrent vs. temporal), types of emotions (negative vs. positive vs. emotional extremity), time-scales (second-to-second vs. daily life), and situational contexts (positive vs. negative), and by inspecting associations with indicators for closeness of the relationship (relationship longevity, cohabitation status, commitment, and closeness in terms of including the other in the self). Three different studies showed that, overall, couples did evidence (some) emotional interdependence, but also that only a minority of the couples demonstrated emotional interdependence to a greater extent than pseudo-couples (as shown by permutation tests). The degree to which couples exhibited emotional interdependence was generalizable across type of emotion, but generalized only in some cases across context, and did not generalize across time-scale. Additionally, emotional interdependence was not associated with closeness of the relationship. These results indicate that emotional interdependence

actually might not be an intrinsic characteristic of close, romantic relationships, but most likely is a much more context-dependent characteristic.

17:15pm – 17:30pm **Paper 5: Pupillometry Reveals Reduced Emotional Resonance in Bilinguals' Second Language**

Wilhelmiina Toivo & Christoph Scheepers
University of Glasgow, UK

A number of behavioural and physiological studies suggest that bilinguals 'feel less' in their second (L2) as opposed to their first language (L1). This is called reduced emotional resonance in L2 (e.g. Pavlenko, 2006). However, few studies to date have controlled for participants' proficiency in L2, or variables affecting word recognition (e.g. length, frequency). The present experiments were designed to address these shortcomings and to test a new methodology of measuring reduced emotional resonance: pupillometry. In Experiment 1, 32 Finnish-English and 32 German-English late bilinguals were tested both in their L1 and L2 (English). A control group (32 English monolinguals) was tested only in English. In each language version of the experiment, we presented 30 high-arousal and 30 low-arousal words, alongside 30 emotionally neutral distractors. Word length, frequency, valence, and abstractness were controlled for, by design and analytically. Participants were shown the stimuli while their pupillary responses were monitored (eye-tracking). Enhanced pupil-dilation was found in response to high- vs. low- emotional arousal words when participants were tested in their L1. There was no effect of word type in L2, suggesting reduced emotional resonance. In Experiment 2, 240 English words (80 high-, 80 low-arousal, and 80 distractors, matched on a number of lexical variables) were presented to 116 participants from various language backgrounds (92 bilinguals, and 24 English monolinguals, all assessed for English proficiency) while their pupillary responses were monitored. There was no difference in pupillary responses to high- vs. low-arousal words in bilinguals (English L2), but clear effects were found in English monolinguals (English L1). Importantly, word type*group interaction remained significant even when English proficiency was analytically controlled for. We conclude that reduced emotional resonance of language in bilinguals can be measured with pupillometry, and that it is a real phenomenon, not due to word recognition difficulties or language proficiency.

17:30pm – 17:45pm **Discussion/Q&A**

17:45pm – 18:00pm **COLLECT POSTERS**

19:00pm – 20:00pm **DRINKS RECEPTION** (City Chambers)

DAY 2 THURSDAY 5th APRIL 2018

08:00am – 08:30am **Registration, poster set up, coffee** (Hunter Halls)

8:30am – 9:30am **KEYNOTE TALK** (Bute Hall)

PROF. STACY MARSELLA, Northeastern University, USA; University of Glasgow, UK

Affective Computing and its Consumer and Producer Relationship to Emotion Research

Affective Computing is a branch of computer science that explores technologies related to emotion, including how to recognize, simulate, influence and express human emotion and related affective phenomena. Research in affective computing is making systems capable of adapting to and influencing a human user's emotional state, including user interfaces, games, health interventions and tutoring systems. At a more ambitious extreme, the research has also led to virtual humans, human facsimiles of people, capable of inferring a user's emotion, influencing it as well as expressing its own simulated emotion. As major corporations have significantly increased expenditures on these technologies, they will likely have an increasingly powerful impact on our everyday lives.

Throughout its short history, affective computing research has leveraged psychological theories, methods and results. Theories about the expression of emotion have informed the design of technologies to recognize emotions from facial expressions. Theories about the causes of emotion have influenced the design of computational models that simulate emotion processes. Conversely, psychology is increasingly leveraging technologies coming out of affective computing. Notably, software to recognize facial actions has been applied to facial expression research and virtual humans have been used in experiments as confederates whose behavior is both contingent while still being highly controllable.

At the same time, this relation between psychology and affective computing has raised not only interesting opportunities to leverage each other but also challenges for both fields. When the assumptions of a theory form the basis of a technology, its resulting performance becomes one way to explore those assumptions. When multiple theories are brought together to build the components of a complex technology like a virtual human, spanning perception, cognition, emotion and behavior, questions need to be addressed as to how the components interact, questions not frequently addressed in psychology.

In this talk, I will give an overview of affective computing by touching on a few key examples of the research being conducted. In the process, I will highlight how the work has leveraged psychology as well as the psychological issues and questions the research raises.

9:30am – 10am **COFFEE BREAK** (Hunter Halls)

THURSDAY MORNING SYMPOSIA

SYMPOSIUM 11: Facial Displays and Their Challenge to Basic Emotion Theories
Thursday 5th April, 10am – 12noon
Bute Hall
Convener: Carlos Crivelli, De Montfort University, Leicester, UK

In the present symposium, we will focus on methodological and theoretical advances to consider when testing the link between emotions and facial displays. According to one survey of some of the most productive emotion researchers (Ekman, 2016), most endorse the proposition that humans signal their emotions by making specific, universally produced and understood facial displays. Our symposium brings together some of the many researchers who challenge that consensus.

First is the production question: to what extent do specific emotions "produce" the hypothesized facial displays? We present a meta-analysis of the available data, summarizing evidence about the strength of the emotion-face link, assessing the heterogeneity among the studies, and isolating any moderators that could potentially explain any observed links, such as variations in eliciting events or measurement methods. We also take into account any possible systematic bias that could over- or under-estimate mean effect sizes.

Second, we detail the application of Social Network Analysis to the study of facial displays. Most studies designed to study the perception of emotion from facial displays have relied on dependent data that, when pooled and analyzed using general linear models, often violate the assumption of independence prerequisite for these models. Social Network Analysis (SNA) permits an analysis of multiple dependent measures combining quantitative, qualitative, and graphical approaches, and thus allowing a strong descriptive and explanatory analytic framework. In particular, SNA is especially suited to the study of developmental changes in emotions, and any relations between the two, because it stipulates specific procedures for discerning differences among subgroups along a longitudinal timeline.

Third, we counter the usual treatment of cultural differences in facial displays and the attribution to specific emotions to them. Against the received wisdom provided mostly by 50-year–old cross-cultural studies intended to validate presumptions of Western researchers using Procrustean methods, we discuss current controversies surrounding recent evidence gathered in small-scale societies in Africa and Papua New Guinea. Happiness is routinely attributed to smiles, particularly the so-called Duchenne variants, the relationship of other emotions to their prescribed facial displays is less reliable. We focus on sociality as a key intermediating variable.

Fourth, we question default assumptions about the evolutionary origin of facial displays. Specifically, we explain how modern evolutionary theory and findings undercut the dated and simplistic but widely accepted dictum about facial displays that phylogenesis implies uniformity but "culture" creates diversity. We outline the contemporary approach to biological and cultural phylogenies, operating in parallel, in which both can create either display uniformity or diversity. We emphasize an approach that focuses on how displays function in everyday interaction, rather than the mental or emotional states that both laypeople and researchers ascribe to them.

10:00am – 10:20am **Paper 1: The Coherence between Emotion and Facial Expression: A Meta-Analysis**

Juan I. Durán[1], Rainer Reisenzein[2] & José Miguel Fernández-Dols[3]

[1]Centro Universitario Cardenal Cisneros, Spain

[2]University of Greifswald, Germany

[3]Universidad Autónoma de Madrid, Spain

Conventional wisdom holds that expressions of basic emotions are universal biological signals that are uniformly recognized and produced. Surprisingly, whereas there are a large number of studies on recognition, scientific

evidence about the production of expressions of basic emotion is scant. We carried out a meta-analysis of published findings on the statistical covariation between reports of basic emotions and the occurrence of their predicted expressions. There was considerable heterogeneity between studies reports (e.g. due to potential moderators such as the emotion studied and the method employed for eliciting it, facial behavior measurement methods, and analytic strategy). Nonetheless, the consistent finding was that coherence between facial expression and reports of six commonly-identified basic emotions (happiness, amusement, fear, anger, surprise, sadness, disgust) was low to modest. Interestingly, the coherence between facial expressions and reports of amusement was considerably higher even though amusement is not traditionally considered a basic emotion. We discuss potential explanations for this low coherence.

10:20am – 10:40am **Paper 2: Development of Children's Understanding of Facial Expressions of Emotion: A Network Analysis**

Mónica Terrazo-Felipe[1], José Miguel Fernández-Dols[2] & James A. Russell[3]

[1]Universidad Pontificia de Comillas, Spain

[2]Universidad Autónoma de Madrid, Spain

[3]Boston College, MA, USA

The dominant account of children's understanding of emotion is that they arrive in the world prepared to recognize a small number of basic emotions from a set of universal facial expressions. An alternative account is that children, at a very early age, divide facial expressions into positive and negative, but then slowly differentiate within those two categories until discrete emotion categories are acquired and matched to faces. Although considerable data support this alternative developmental account, most studies relied on general linear models upon dependent data. The present study relies on a powerful analytic tool that allows descriptive and inferential analyses of dependent multivariate data: Social Network Analysis. We carried out a fine-grained analysis of age differences (1-year interval) from 5 to 10 years in 426 Spanish children by examining separately (1) similarity data obtained without labels (i.e. children will simply make piles of faces of people who feel alike) and (2) the labels produced when free labeling the facial expressions (i.e. children are asked to name the emotion "expressed in the faces" shown one by one).

10:40am – 11:00am **Paper 3: The Smiling Face: Is it Happiness, Play and Affiliation, or "Magic of Attraction"?**

Carlos Crivelli[1] & Sergio Jarillo[2]
[1]De Montfort University, Leicester, UK
[2]American Museum of Natural History, NY, USA

Proposals of a privileged link between joy/happiness and smiling have been explored in production and recognition studies, and early supporting evidence was among the strongest arguments for the Universality Thesis (UT). Over the last 25 years, tests have focused on the so-called Duchenne smile—i.e. the co-contraction of the zygomaticus major and orbicularis oculi, pars orbitalis facial muscles—as the signifier of happiness and joy. Recent tests in small-scale societies with limited contact to Western media suggest only a weak link between joy/happiness and Duchenne smiles, and provide evidence that they are related more to sociality and affiliation (Crivelli, Russell, Jarillo, & Fernández-Dols, 2016). Here, we present two recognition studies conducted in Kiriwina Island (Papua New Guinea) aimed at testing the joy/happiness–Duchenne smile link. In study 1 (N = 40), young Trobriand adults from Kiriwina Island were asked to free-label the emotions expressed on several facial displays posed by one Trobriander from a different island. In study 2 (N = 60), a different group of young Trobriand adults was randomly assigned to select which Trobriand facial displays were (A) expressing joy/happiness vs. play and affiliation vs. the "magic of attraction" (i.e. kaimwasila; a Trobriand indication of radiance when magic is applied to obtain favorable outcomes during interactions); and (B) with vs. without contextual cues. Together, these studies further weaken the already tenuous link between joy/happiness and Duchenne smiles.

11:00am – 11:20am **Paper 4: What Can Audience Effects Teach Us about Facial Displays?**

Alan J. Fridlund
University of California–Santa Barbara, USA

Audience effects, or changes in behavior caused by "being observed by another person, or the belief that one is being observed by another person," were among the oldest phenomena in scientific psychology, going back to Triplett's 1898 studies of bicyclists, who pedaled faster when competing with each other rather than against the clock. Early explanations turned to mentalistic constructs such as self-presentation and reputation management, or to physiological ones like social facilitation. These proved unable to account for findings of audience effects in displays by creatures like domestic chickens, who are not known to be concerned about either their self-presentation or their reputations, and who showed effects too specific and context-dependent for the arousal

augmentation key to social facilitation. Audience effects with both explicit and implicit audiences have been pivotal in altering our understandings of human facial displays. Findings of implicit audience effects in facial displays forced unappreciated theoretical reversals by proponents of Ekman's Neurocultural Theory (NT) which vitiate the logic of display rules and call into question NT's claims regarding the respective roles of biology and culture in the origins of our facial displays. Contemporary treatments of biological and cultural phylogenies reveal how each can contribute to both uniformities and diversities in facial displays, and audience effects writ large suggest functionalist rather than essentialist accounts of how our displays are deployed in everyday social interaction.

11:20am – 11:40am **Discussant: Facial Displays and Their Challenge to Basic Emotion Theories**

José Miguel Fernández-Dols
Universidad Autónoma de Madrid, Spain

11:40am – 12 noon **Discussion/Q&A**

12 noon – 13:30pm **LUNCH & POSTERS** (Hunter Halls)

SYMPOSIUM 12: Emotions and Emerging Technologies: Internet-of-Things, Virtual Reality, Robots and More

Thursday 5th April, 10am – 12noon
Senate Room
Convener: Etienne Roesch, University of Reading, UK

The recent pace of technological advances we are witnessing, shows signs that we may be on the brink of a sudden push for the integration of technologies that have the potential to alter our lives considerably and irrevocably—if it hasn't happened yet. The landscape of such technologies includes devices to read from and interact with our environment, augment our perception, track and analyse ourselves, refactor and immerse ourselves inside virtual worlds, and so on. As we are introducing this technology in the intimacy of our lives, emotional consequences cannot be under-estimated.

The proposed symposium reviews the use of selected emerging technologies, and related emotional experiences. We ambition to scaffold a discussion towards an extended psychology of emotion focused on future and emerging technologies. Particularly, we have as a starting point the challenges that may arise. In our interaction with this technology, whether it goes well and is conducive to our goals, or it goes awry and we have to adjust, what is at stake is the emotional engagement and the recovery we will have to deploy.

The complexity of this interaction, and the difficult to foresee how it will evolve and integrate with other aspects of our lives—such as other services, professional commitments, social relationships, etc.—creates new opportunities to frame our understanding of emotions. This understanding should be the backbone to any engineering efforts, and we aim to fill the gap left by manufacturers, which themselves are merely starting to grapple with the technology and typically do not prioritise users.

The talks we are proposing focus on the perception of the risks associated with the use of emerging technology, the emotional experience of internet-of-things users who are victims of cyber-crime, the use of virtual reality to demonstrate and train emotional resilience, and the challenges that pertain to emotion-laden interaction with robots and machines. We posit that these technologies in particular, and most future and emerging technologies, have in common that they place the users at the centre of a fragile ecosystem that link together experience, privacy and personal integrity.

Because of the interconnectedness of the technology and the many facets of our lives, the ripples produced by our interaction with the technology will be far-reaching and long-lasting. Emotional consequences are likely to be felt and re-lived over significant periods of times, over months or years, as the user progressively acquires the full understanding of the consequences of the interaction. A successful psychology of emotion will thus not only take into account the antecedents of the experience, against defined appraisals, but will also build a wider perspective that includes the entirety of the user's wellbeing, the recovery process and offers coping strategies.

Whereas there is no comprehensive theoretical framework that fully describes the emotional engagement of users, a significant understanding, we posit, can be gained by drawing inspiration from emotional psychology. An emotional experience can be measured and compared and serve in the elaboration of user models and the prediction of behaviour. Communities, comprising cyber-security specialists, industrial interests and policy makers, can benefit from this information to delineate features and courses of conduct that will place the user's well-being at the centre of the design of future and emerging technology.

10:00am – 10:20am **Paper 1: How do Users Perceive the Risks Associated with Emerging Technology?**

Antal Haans[1], Sanja Budimir[2], Johnny R. J. Fontaine[2], Etienne Roesch[3]
[1]Department of Industrial Engineering & Innovation Sciences, Eindhoven University of Technology, The Netherlands
[2]Personnel Management, Work and Organizational Psychology, Ghent University, Belgium
[3]School of Psychology & Centre for Integrative Neuroscience and Neurodynamics, University of Reading, UK

As users install new technological devices into their homes, they are also quite literally subjecting themselves to a whole new range of risks. Of course, these risks depend highly on their level of technological proficiency and skills, which will not only allow them to predict and prevent adversarial consequences, but also support a swift and effective response when things go wrong. In this study, we thus aimed to study participants' perception of risks about 10 smart home technologies, including smart TV, network cameras, Bluetooth beacon, etc., along with 3 benchmark technologies, such as online banking services. A sample of 106 participants responded to an online questionnaire to rate risks against several dimensions. Interestingly, although levels of risks for smart home technolHaogy generally was perceived as unacceptably high, they are still perceived as less risky than services that are more common, such as online banking. This finding makes a lot of sense, given the self-reported low level of knowledge about IoT technology, yet it is alarming: Risks associated to what might be perceived as mundane appliances, like a smart plug or a smart TV, is real and part of a wider network that relies on the integrity of the entire set of devices to ensure an acceptable level of security.

10:20am – 10:40am **Paper 2: Emotion Psychology Meets Cyber-Security: A Qualitative Study of Emotional Experiences When Being Hacked**

Sanja Budimir[1], Johnny R. J. Fontaine[1], Antal Haans[2], Etienne Roesch[3],
[1]Personnel Management, Work and Organizational Psychology, Ghent University, Belgium
[2]Department of Industrial Engineering & Innovation Sciences, Eindhoven University of Technology, The Netherlands
[3]School of Psychology & Centre for Integrative Neuroscience and Neurodynamics, University of Reading, UK

Internet connection has made life easier and more convenient. It increased availability, sharing and trading of information and products. Apart from benefits, anonymity made new form of crime easier: cyber-crime. Understanding risks and consequences of the cyber-crime from the user's perspective is neglected in the

literature, but is very much needed to improve user's wellbeing and security when using Internet services. The current study forms a part of a larger research project on emotion psychology meets cyber security. This study focuses on identifying the emotion processes that users experience during cyber-attacks on their connected devices. The participants were 214 students and professionals from different backgrounds, who filled in an online questionnaire. They were asked to describe a cyber-attack on Internet of Things devices, computer, smartphone, email, or social network account they experienced themselves or heard about from friends or the media. Subsequently they were asked to report qualitatively their real or imagined emotional experiences in that situation. Questions were formulated according to the Component Process Model (Scherer, 2001). Qualitative data about appraisals, action tendencies, bodily reactions, expressions and subjective feelings are being analysed within the GRID framework (Fontaine, Scherer, Soriano, 2013) using the QSR International's NVivo 11 Software. Participants mainly reported cyber-attacks they heard about from friends, acquaintances, or media. Preliminary results show that the most prevalent subjective feelings are fear, anger, sadness, and surprise. Appraisals include novelty, being confused about what is happening, privacy intrusion, absence of coping skills, loss of control, as well as anticipation of the threat and danger that can come through hacking. Action tendencies include both a need to change the event as well as a tendency to withdraw upon the realization one lacks the skills to cope with it. The final results of the qualitative analysis will be presented at the conference.

10:40am – 11:00am **Paper 3: Virtual Moral Actions, Emotional Resilience, and Regret in the Emergency Services**

Kathryn B Francis[1], Michaela Gummerum[2], Giorgio Ganis[2], Ian S Howard[2], & Sylvia Terbeck[2]
[1]University of Reading, UK
[2]University of Plymouth, UK

Recent advances in virtual technologies have allowed the investigation of moral actions in trolley-type problems. Previous studies have utilised diverse populations to explore these simulated actions, but little research has considered the relevance of professional occupation on moral decision-making and on moral emotions following action. In the present research, we explore simulated moral actions in virtual reality made by paramedics in-training and fully trained fire incident commanders, who are frequently exposed to real-life moral dilemmas. Specially trained individuals demonstrated distinct empathic (and related) traits and these declined with years of experience working in the emergency professions. Supporting a theory of increased emotional resilience, trained professionals expressed less regret following the simulation of a moral action in virtual reality and also exhibited reduced emotional arousal during the virtual simulation. Contrary to previous research, trained professionals

made the same moral judgments and moral actions as untrained individuals despite displaying distinct moral emotion and arousal profiles. With increasing concerns regarding empathy decline in healthcare professionals, this research demonstrates that the nature of this decline is complex and likely derives from the development of emotional resilience in the face of distressing events. Investigating simulated moral actions and emotional responses in virtual dilemmas is particularly significant for helping professions who begin to use virtual reality for training and assessment.

11:00am – 11:20am **Paper 4: Reverse Engineering Psychologically Valid Facial Expressions of Emotion Into Social Robots**

Chaona Chen[1], Oliver G.B. Garrod[1], Jiayu Zhan[2], Jonas Beskow[3], Philippe G. Schyns[1,2] and Rachael E. Jack[1,2]

[1]Institute of Neuroscience and Psychology, University of Glasgow, UK

[2]School of Psychology, University of Glasgow, UK

[3]Furhat Robotics, Sweden

Social robots are now part of human society, destined for schools, hospitals, and homes to perform a variety of tasks (e.g. Breazeal, 2003; Foster et al., 2012). To engage their human users, social robots must be equipped with the essential social skill of facial expression communication (e.g. Berns & Hirth, 2006; Lucey et al., 2010; Ochs, Niewiadomski, & Pelachaud, 2015). Yet, even state-of-the-art social robots are limited in this ability because they often rely on a restricted set of facial expressions derived from theory with well-known limitations such as lacking naturalistic dynamics (see Jack & Schyns, 2017 for a review). With no agreed methodology to objectively engineer a broader variance of more psychologically impactful facial expressions into the social robots' repertoire, human-robot interactions remain restricted. Here, we address this generic challenge with new methodologies that can objectively reverse-engineer dynamic facial expressions into a social robot head. Our data-driven approach, which combines human perception with psychophysical methods (e.g. Jack, et al., 2012; Jack, et al., 2016; Rychlowska et al., 2017), produced highly recognizable and human-like dynamic facial expressions of the six classic emotions – 'happy,' 'surprise,' 'fear,' 'disgust,' 'anger' and 'sadness,' which generally outperformed state-of-art facial expressions. Our data demonstrates the feasibility of our method applied to social robotics and highlights the benefits of using a data-driven approach that puts human users as central to deriving facial expressions for social robots. We also discuss future work to reverse-engineer a wider range of socially relevant facial expressions including conversational messages (e.g. interest, confusion) and personality traits (e.g. trustworthiness, attractiveness). Together, our results highlight the key role that psychology must continue to play in the design of social robots.

11:20am – 11:40pm **Paper 5: Robots, Humans and Emotions Challenges in Developing Emotionally Intelligent Robots to Interact with Humans**

Eduard Fosch-Villaronga[1] and Aviva de Groot[2]
[1]University of Twente, The Netherlands
[2]University of Amsterdam, The Netherlands

The development of robots in healthcare settings, including rehabilitation, therapy, and education, is accelerating. In such sensitive contexts, the performance of both technical tasks and social awareness navigation is important. Robots that fail to integrate a social dimension when performing tasks in interaction with humans in this context risk not being fully adopted. At the same time, robot technology may cause moral implications (Salem et al. 2015) that can impact the life of the user in unexpected ways. Our paper explores the legal and ethical implications of the use of emotions in human-robot interactions (HRI), and how this is likely to impact humans. First, we will draw attention to disparities found in literature concerning the appropriateness of the use of emotions in HRI: while some researchers argue that by allowing the robot to show attention, care and concern for the user (Tucker 2006) as well as to being able to engage in genuine meaningful interactions, socially assistive robots can be useful as therapeutic tools (Shukla et al. 2015); other studies suggest that, actually, the emotional sharing from the robot to the user does not necessarily imply feeling closer to the robot (Petisca et al. 2015). Building on recent behavioural studies on millennials, and the latest European regulatory initiatives, we'll highlight the challenges of the use of emotions in HRI in the legal and ethical domain. We'll delve into the privacy, responsibility and the human-human interaction dimension. We will also consider the feasibility of emerging concepts that aim at mitigating risks relating to robot technologies including the concept of reversibility, the protective stop (kill switch), and the responsibility of the trainer of the system. We will argue that disregarding the reciprocal risk transfer between the physical and the digital may imply irreparable consequences in the society in terms of social interactions.

11:40am – 12 noon **Discussion/Q&A**

12 noon – 13:30pm **LUNCH & POSTERS** (Hunter Halls)

SYMPOSIUM 13: New Directions on Moral Emotions: Their Expression, Interpretation, and Significance

Thursday 5th April, 10am – 12noon

Gilbert Scott Conference Suite (Room 253)

Convener: Jared Piazza, Lancaster University, UK

This symposium will explore new directions on the complex relationship between moral judgment and emotion. Our four talks consider the inferences people draw about a person's moral orientation based on the nature of the emotions they express within diverse moral contexts. We consider how different emotion expressions, such as disgust, anger, pride, and joy, can communicate different motivational orientations. We start first with other-condemning emotions (e.g. anger) and finish with self-appraising emotions (e.g. pride). The first talk by Roger Giner-Sorolla will argue that disgust functions as a different sort of moral expression compared to expressions of anger. In contrast to anger, it is argued based on four studies that disgust is a more dispassionate moral emotion that communicates strong disapproval grounded in moral principle, as opposed to personal offense, which is the jurisdiction of anger. The second half of the talk asks whether the use of disgust to dissociate or distance one's self from moral reprobates is related more to physical contagion or reputation management. In the second talk Heather Rolfe turns to an unchartered domain of moral judgment—people's moralised opinions about music. Heather asks whether emotional expressions of anger versus disgust over musical content might serve distinct functions. Consistent with the logic of the first talk it is argued that disgust might involve a more moralized, less personal offense at the content of musical pieces than anger. In cross-talk with the preceding perspectives, Jared Piazza will next raise the question of whether disgust should really be classified as a "moral emotion" at all. The argument here is that people perceive the relationship disgust has with moral judgment to be either largely incidental or mediated through perceptions of anger. Four studies will be presented showing that people draw very distinct inferences about the relationship between anger and moral disapproval than between disgust and disapproval. While anger is perceived to be inextricably bound up with moral disapproval of actions or character, this is not the case for disgust. People perceive expressions of disgust to be quite separable from disapproval. Two further studies show that when disgust is associated with moral disapproval (e.g. a person making a "sick" face in response to wrongdoing) this is because such expressions are construed as anger. In other words, people can't help but perceive disgust expressions as angry expressions in immoral contexts. The final talk by Neil McLatchie explores the complexities of expressing pride in one's moral accomplishments. He considers whether there are any benefits to expressing pride in the moral domain given the benefits of pride in non-moral domains. Neil will report on two studies that suggest expressions of pride create problems for moral actors by overturning impressions that one's moral actions are driven by selfless concern for others. In contrast to pride, expressions of joy about one's good deeds seem to enhance the impression that one is truly oriented towards others. Likewise, it

is argued that vicarious expressions of pride (e.g. a friend expressing pride in one's good deeds) may be a more favourable route to avoiding the problems created when expressing pride in one's own moral achievements.

10:00am – 10:20am **Paper 1: Disgust and Avoidance as Moral Reputational Signals**

Roger Giner-Sorolla[1] & Tom Kupfer[1]
[1]University of Kent, UK

Based on theoretical functional views of disgust as an expressive social coordination emotion, we propose that expressions of disgust and related action tendencies, such as fastidiously avoiding contagion with "evil" objects, may be better understood as communications of moral nature than as appraisals of contaminating potential. First, I summarize four studies (Kupfer & Giner-Sorolla, 2016) showing how disgusted expressions at moral violations may be a way to show disinterested motives, as opposed to the ambiguous self-interest in anger. Two of these studies asked participants to infer the motivations of people expressing anger versus disgust at an unspecified other person. Disgust expressions were rated as more motivated by morality, rather than self-interest. Two more studies reversed direction of inference and showed that people who wanted to be seen as moral strategically planned to express more disgust, even when they would otherwise feel mainly anger at being victimized by unfairness. Second, I present a line of research examining reasons why participants avoid contact with evil objects such as Nazi regalia (Kupfer & Giner-Sorolla, unpublished). In three studies uncoupling contact and display, both hypothetical and actual behavior responses show that avoiding the reputation of association with Nazis, rather than concern about actual contact with evil essences, best explains such fastidiousness. In fact, disgust in these cases was largely explained by reputational rather than contamination concerns. These findings underscore the need to consider the communication function of emotion as a reason why morally related emotions might be expressed, even if they are not necessarily felt in the same way.

10:20am – 10:40am **Paper 2: Anger and Disgust at Music: Moral or Non-Moral?**

Heather Rolfe[1] & Roger Giner-Sorolla[1]
[1]University of Kent, UK

Historical and recent examples of media output have consistently demonstrated that anger and disgust can be used to condemn controversial music. Potential explanations for this include moral (e.g. reacting to harmful or

impure content within the music), social (e.g. protection of music central to one's identity) and/or personal (e.g. aesthetic responses or associations with previous negative experiences) processes. This paper presents empirical work designed to determine which, if any, of these processes explain anger and disgust at controversial music. Two experiments (N = 90, 94) found that participant-generated reasons for disgust at music were primarily associated with perceptions of immoral content, where anger at music was associated more with personal processes such as reminding the listener of previous negative experiences. Two follow-up experiments (N = 106, 85) found that music eliciting disgust (as compared to anger-eliciting music) resulted in social approach tendencies designed to remove the music from society (such as supporting banning the music or signing a petition against it). These approach tendencies may support the idea of a "social cleansing" desire resulting from the perception of disgusting music as having immoral content. By removing this music from society, further spread of these immoral values can be prevented. These results, despite making sense intuitively, are in opposition to traditional models of the relationship between the moral emotions and action tendencies. This has implications for the wider field of moral psychology and opens up a number of options for further study.

10:40am – 11:00am **Paper 3: What Makes a Moral Emotion? Expressions of Anger, but Not Disgust, are Seen as Inextricably Linked to Moral Disapproval**

Jared Piazza[1] & Justin Landy[2]
[1]Lancaster University, UK
[2]University of Chicago, USA

Morally condemning emotions should at minimum be understood to coincide with moral disapproval. Six studies (N = 828) show that while anger is seen as inextricably connected with moral disapproval, disgust is not (Studies 1-4), and, when disgust is seen as signaling disapproval, it is because it is construed as anger (Studies 5-6). In Study 1, participants learned that an actor (Joe) felt anger or disgust ("grossed out") about two men holding hands and kissing. Participants found it implausible that Joe felt angry yet approved of such behaviour, but they found it plausible that Joe felt disgust and approved the behaviour. Study 2 replicated these results using judgments of the plausibility that Joe thinks the men have good character, while expressing anger or disgust. In Study 3, participants learned that one actor responded with anger, disgust, anger and disgust, or no emotion, in response to another actor. Anger was perceived as very likely caused by immorality, and the presence of disgust did not increase such perceptions. By contrast, disgust was perceived as much less likely to be caused by immorality, and the presence of anger highly increased such perceptions. In Study 4, participants learned that an actor expressed anger or disgust at a video of cows being slaughtered. Participants found it quite plausible that he

approved slaughter when he expressed disgust, but unlikely when he expressed anger. Study 5 manipulated whether actors expressed disgust or anger at moral transgressions free of pathogenic content, pathogenic non-transgressions, or mixed. In transgression contexts, both expressions were perceived predominantly as anger. In Study 6 mediation analyses revealed that it is inferred anger, not disgust, that mediates the effect of disgust expressions on judgments of disapproval. These studies highlight how disgust fails to behave as a morally condemning emotion, questioning its moral relevance.

11:00am – 11:20am **Paper 4: The Challenge of Communicating Moral Achievements: Pride Communicates Self-interest, Joy Communicates Selflessness**

Neil McLatchie & Jared Piazza
Lancaster University, UK

Expressions of pride following an achievement are thought to serve a communicative function that informs others of the achievement and thereby enhances the achiever's social status (Tracy, Shariff & Cheng, 2010). However, in the moral domain, attempting to capitalize on one's achievements (e.g. helping someone) might serve to undermine the altruistic motivations that prompted the act. Across two studies (N = 609), we investigate whether pride expressions following moral achievements undermine the achievement by increasing rather than decreasing perceptions of self-interest of the achiever. In Studies 1 and 2, vignettes described an individual accomplishing either an individual achievement (winning money for themselves) or a moral achievement (donating money to charity). The vignettes were accompanied by a photo of a pride and neutral expression, and participants were asked to judge the achiever on measures of selfishness and perceived support for meritocratic versus egalitarian values. Results showed that individual achievers were judged to be self-interested and meritocratic, and that expressing pride enhanced these evaluations. By contrast, moral achievers were judged to be egalitarian and much less selfish, yet expressing pride overturned these judgements. Study 2 extended the findings by including a joyful expression and showing that unlike pride, expressions of joy reduced selfishness and increased perceptions of egalitarianism. Study 2 further extended the findings by including a vicarious condition in which participants were told the photo was of a friend of the achiever. Results indicated that vicarious pride expressions also reduced judgments of selfishness and increased perceptions of egalitarianism. Our findings highlight the challenge of displaying pride for moral actors, and the role that joy and vicarious expressions of pride might have in communicating moral accomplishments.

11:20am – 12 noon **Discussion/Q&A**

12 noon – 13:30pm **LUNCH & POSTERS** (Hunter Halls)

SYMPOSIUM 14: Neurochemistry of Affect: The Role of the Opioid System

Thursday 5th April, 10am – 12noon

Lecture Theatre G466

Convener: Henk van Steenbergen, Affect, Motivation & Action lab, Leiden Institute for Brain and Cognition, Institute of Psychology, Leiden University, The Netherlands

This symposium showcases recent work from four different research groups on how the opioid system regulates affective responses in a wide variety of experimental contexts spanning the social, cognitive, and clinical domain.

The first talk by Meier focuses on the role of the mu-opioid system in the regulation of social behavior. Facial mimicry of emotions, which is the predominantly automatic and unconscious imitation of another person's facial expression, has been shown to promote social affiliation. This talk describes a recent study which investigated whether a 50 mg administration of naltrexone, an opioid antagonist with highest affinity for the mu-opioid system, modulates emotional mimicry. The results demonstrate an increase of negatively-valenced facial responses (corrugator and depressor) to happy facial expressions after naltrexone compared to placebo, consistent with lowered interest in social interaction or affiliation. This talk will also highlight the results of a follow-up study that has investigated the effect of naltrexone on the neural response to socially rewarding stimuli.

In the second talk, Bershad highlights recent findings on the stress-dampening effects of opioid drugs and its potential as an antidepressant. Two studies examined the effects of opioids with different receptor profiles on responses to a stressful public speaking task. Both the mu-opioid partial agonist and kappa antagonist buprenorphine and the pure mu-agonist hydromorphone were shown to dampen the cortisol response to stress, although only buprenorphine dampened subjective assessments of threat. In another study, the effects of buprenorphine on responses to emotional stimuli in depressed individuals was investigated. Buprenorphine reduced visual to attention to faces expressing fear, especially in individuals with high depression scores. Overall, these results support recent preclinical evidence that opioids, especially opioids with actions at both mu and kappa receptors, reduce reactivity to threatening stimuli.

The potential role of opioids in modulating adaptive increases in cognitive control following errors is highlighted in the talk by van Steenbergen. He presents two recent experiments that investigated the effect of making errors in a Stroop-like task on facial electromyography and cardiac effort. Results show that errors compared to correctly-performed trials increase corrugator muscle activation and cardiac contractility, suggesting that errors are aversive and increase subsequent effort. He then discusses the role of the opioid system in the modulation of the behavioral adaptations to errors. This was investigated in a psychopharmacological study involving the opioid blocker naltrexone. Consistent with the hypothesis that the affective response to errors is modulated by the opioid system, relative to placebo, naltrexone was shown to increase behavioral adaptations following errors. Collectively, these findings support the view that errors induce aversive arousal and that the opioid system modulates cognitive control by regulating the affective response to errors.

The final talk by Leknes critically reviews the evidence behind the idea that the endogenous opioid system mediates positive mood. After describing recent findings on the effects of opioid agonists and -antagonists on mood, it is concluded that endogenous opioids are not necessary for positive mood in a regular state. However, when people are in a pain state, their mood may rely partly on opioids since opioids downregulate pain. In contrast, being in pain might not enhance the positive mood effects of opioid agonist drugs.

Taken together, this symposium provides a state-of-the-art overview on how the opioid system modulates a wide range of biobehavioral phenomena, including social interactions, stress, cognitive control and mood.

10:00am – 10:20am **Paper 1: Naltrexone Increases Negatively-Valenced Facial Responses to Happy Faces**

Isabell M. Meier[1], Peter A. Bos[1], Katie Hamilton[2], Dan J. Stein[3], Jack van Honk[1,2,3], Susan Malcolm-Smith[2]

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[2]Applied Cognitive Science and Experimental Neuropsychology Team, Department of Psychology, University of Cape Town, South Africa

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The endogenous mu-opioid system is suggested to play an important role in the regulation of social behavior, for instance as an inhibitory regulator in the acquisition of fear, a modulator of the hedonic value of reward and affecting social affiliation processes – which we investigated in a recent study. Positive social cues, like happy facial expressions, activate the brain's reward system and indicate interest in social affiliation. At the same time, facial mimicry of emotions, which is the predominantly automatic and unconscious imitation of another person's facial expression, has been shown to promote social affiliation. We investigated whether a 50 mg administration of naltrexone, an opioid antagonist with highest affinity for the mu-opioid system, modulates emotional mimicry. A passive viewing task with dynamic facial expressions was used in a randomized placebo controlled between-subjects design. Mimicry was measured with electromyography (EMG) on three facial muscles, the corrugator supercilii and the depressor jaw muscle, associated with negatively-valenced emotions, and the zygomaticus major, which is activated during smiling. The results demonstrate an increase of negatively-valenced facial responses (corrugator and depressor) to happy facial expressions after naltrexone compared to placebo, consistent with lowered interest in social interaction or affiliation. Our findings provide evidence for a role of the opioid system in modulating automatic behavioral responses to cues of reward and social interaction and translate to rodent models of the mu-opioid system and social affiliation. In addition to the here described results, we will present new data from a functional neuroimaging study, investigating the effects of 50 mg of naltrexone compared to placebo on the neural response to socially rewarding stimuli.

10:20am – 10:40am **Paper 2: Opioid Antidepressants? Exploring the Effects of Opioid Drugs on Emotional Reactivity**

Anya K. Bershad & Harriet de Wit
Department of Psychiatry and Behavioral Neuroscience, University of Chicago, USA

Opioids are prescribed medically to reduce pain, but they may also improve negative mood states. Many nonmedical opioid users claim that the drugs alleviate stress, and in animal models, the drugs have stress-dampening behavioral effects. Little is known about the stress-dampening effects of opioid drugs in humans. We have conducted a series of studies investigating effects of single doses of opioid drugs in healthy human volunteers, to determine the drugs' effects on responses to social stress and responses to emotional stimuli. The studies used controlled double-blind, placebo-controlled procedures, with sensitive and standardized behavioral tasks and physiological measures. In two studies we examined the effects of opioids with different receptor profiles on responses to a stressful public speaking task. We found that both the mu-opioid partial agonist and kappa antagonist buprenorphine and the pure mu-agonist hydromorphone dampened the cortisol response to

stress. However only buprenorphine dampened subjective assessments of threat during stress procedure. In another study, we investigated the effects of buprenorphine on responses to emotional stimuli in depressed individuals. Buprenorphine reduced visual to attention to faces expressing fear, especially in individuals with high depression scores. Overall, our results support recent preclinical evidence that opioids, especially opioids with actions at both mu and kappa receptors, reduce reactivity to threatening stimuli. These findings lay the foundation for further development of opioids in the treatment of psychiatric disorders, including mood disorders.

10:40am – 11:00am **Paper 3: The Affective Nature of Errors and Its Modulation by the Opioid System**

Henk van Steenbergen

Affect, Motivation & Action lab, Leiden Institute for Brain and Cognition, Institute of Psychology, Leiden University, The Netherlands

The ability to adaptively increase cognitive control in response to cognitive challenges is crucial for goal-directed behavior. Building on the idea that aversive arousal triggers adaptive increases in control, I will present two recent experiments that investigated the effect of making errors in a Stroop-like task on facial electromyography and cardiac effort. Results show that errors compared to correctly-performed trials increase corrugator muscle activation and cardiac contractility, suggesting that errors are aversive and increase subsequent effort. I will then continue by discussing a candidate neurochemical mechanism that might underlie the affective modulations of error-related behavioral adaptations. Given earlier work showing that hedonic states modulate control adaptation, we hypothesized that the mu-opioid system might modulate adaptive control modulations. This was tested in a double-blind, placebo-controlled psychopharmacological study involving a Stroop-like task. We assessed the effect of naltrexone, an opioid blocker most selective to the mu-opioid system, on post-error slowing. Consistent with our hypothesis, relative to placebo, naltrexone increased post-error slowing. Collectively, these findings support the view that errors induce aversive arousal and that this triggers adaptive effort and control. Moreover, they reveal a novel role for the opioid system in modulating such effects.

11:00am – 11:20am **Paper 4: Do Opioids Regulate Mood?**

Siri Leknes[1] & Marie Eikemo[2]

[1]Department of Psychology, University of Oslo, Norway

[2]Oslo University Hospital, Norway

Opioid drugs produce pain relief. In higher doses, they can also elicit subjective 'high' and induce positive mood. Accordingly, opioids are commonly thought to regulate mood. This notion is supported by PET studies. Endogenous opioid release during prolonged pain is thought to underpin automatic endogenous downregulation of pain and related negative affect. A limited number of PET studies have also reported evidence consistent with endogenous opioid regulation of non-painful affective states (both positive and negative mood inductions). This evidence is correlational in nature, however experimental evidence supports the notion that endogenous opioid activity causally inhibits feelings of prolonged pain. In contrast to the above evidence, blockade of endogenous opioid function with the antagonists naloxone and naltrexone does not produce dysphoria. When administered slowly and in smaller doses, drugs stimulating the mu-opioid receptors often do not produce positive mood or feeling 'high'. The absence of mood effects typically occurs despite clear evidence that stimulus-induced subjective feelings are affected by drug administration. Antagonists can reduce reward behaviours and inhibit pain relief induced by e.g. placebo, whereas agonists can enhance enjoyment and approach of rewards. Here, I will critically review the evidence behind the idea that a function of the endogenous opioid system is to make people happy. In brief, endogenous opioids are not necessary for positive mood in a regular state. However, when people are in a pain state, their mood may rely partly on opioids, since opioids downregulate pain. In contrast, being in pain might not enhance the positive mood effects of opioid agonist drugs.

11:20am – 12 noon ***Discussion/Q&A***

12 noon – 13:30pm **LUNCH & POSTERS** (Hunter Halls)

THURSDAY LUNCH TIME POSTER SESSION

Thursday 5th April, 12:00 noon – 13:30pm
Hunter Halls

Poster 1: The Guilt Reducing Function of Pro-Social Act: An Examination of the Role of Cost

Natalia Stanulewicz
Durham University, UK

Objectives: To examine the role of cost on the choice of pro-social/punishing behaviour when feeling guilty, with regard to differentiation of motivation behind it (guilt alleviation versus other's well-being). If the theory of guilt as a relationship-focused emotion is valid (Baumeister et al., 1994), we should see that the cost will not modulate the pro-social choices. However, if that is not the case, it might suggest that guilt serves more functions. Methods: An experimental study induced guilt in participants, who took part in a cooperative game and failed their partner (following a validated procedure: de Hooge, 2012). Subsequently, participants had a choice of reducing their own points or sending their points to their game partner which was supposed to help with reducing their guilt. The cost of these options was manipulated. Results: The results confirmed that the cost of the available option affects the choice of the behaviour, which suggests that guilt should be seen as an emotion with more than one function. Guilt does not only motivate people to repair their wrongdoing, but it might also motivate them to alleviate their guilt by other means if the cost of being pro-social is high. Conclusions: Guilt seems to function at least in two ways: (i) by motivating repayment, and (ii) motivating self-punishment. The cost of these options seems to be an important predictor of which option will be selected. This finding brings it closer to the Freudian view of guilt, as an internal punishing system.

Poster 2: How Empathy Relates to Emotion Regulation: Divergent Patterns from Trait and Task Based Measures of Reappraisal

Nicholas Thompson, Carien van Reekum & Bhismadev Chakrabarti
University of Reading, UK

While there is evidence to suggest that empathy and emotion regulation abilities may be related, few studies have directly examined this relationship. Here we report two studies which examined: 1) how trait empathy (Questionnaire of Cognitive & Affective Empathy; QCAE; Reniers et al., 2011), relates to emotion regulation strategy (specifically, habitual use of reappraisal, measured with Emotion Regulation Questionnaire; ERQ; Gross & John, 2003), and 2) how trait empathy (QCAE) relates to a task based measure of reappraisal (operationalised as the magnitude of negative emotion downregulation in an IAPS-based reappraisal framing task). In study 1) on 220 adults, a positive correlation between trait cognitive empathy and habitual reappraisal use was observed, $rho(204) = .26$, $p < .001$; affective empathy showed no relationship with reappraisal use. In study 2), 96 participants completed a reappraisal framing task in which previously viewed negative IAPS images were paired with either a positive or neutral frame sentence. Participants then reported on a 9-point Likert scale how pleasant/unpleasant each image made them feel. Positive frame sentences provided a context for the images in which a potential positive appraisal was highlighted; neutral frame sentences were purely descriptive. As

expected, valence ratings for positively framed negative images were less unpleasant relative to negative images paired with neutral frame sentences, $F(1, 86) = 84.92$, $p < .001$, $\eta_p^2 = .50$; the reappraisal metric used for correlational analyses was the magnitude of this difference. In contrast to study 1), a positive correlation between trait affective empathy and framing effect magnitude was observed (rho(83) = .41, $p < .001$); there was no evidence of a relationship between cognitive empathy and framing effect magnitude. These findings are discussed in relation to a dual process model of reappraisal (Ochsner & Gross, 2005).

Poster 3: Empathy and The Use of fMRI Neurofeedback to Learn Regulation of the Anterior Insula

Dana Kanel, Salim Al-Wasity, Kristian Stefanov & Frank Pollick
University of Glasgow, UK

The anterior insula (AI), known to have a key role in the processing and understanding of social emotions, is activated during tasks that involve the act of empathising. Neurofeedback, a neuroimaging technique, aims to help individuals to alter their brain activity by allowing them to view, in real-time, activity levels in one region of their brain. Following previous research investigating the ability of individuals to upregulate AI activity levels through neurofeedback, we were interested to explore whether this could be similarly accomplished during an empathy task involving auditory stimuli of human emotion expressions. We tested the connection between participants' own intrinsic empathy levels and their ability to upregulate AI activity. Here, a positive trend was found, with the experimental group demonstrating an improvement and overall increase in AI activity levels between the first and last neurofeedback run. The control group, who received sham feedback from an unrelated part of the brain, did not demonstrate the same effect, suggesting that these results did not simply occur due to general brain excitability. Importantly, participants in the experimental group were able to transfer this ability onto runs lacking any visual feedback. This suggests that learned skills could be applied in real-world scenarios, highlighting the therapeutic possibilities of neurofeedback techniques. Lastly, a negative relationship was observed between individuals' empathic traits and upregulation abilities, indicating that those with lower empathy levels (such as individuals with high autistic traits) have a greater potential to increase AI activity, further advocating the therapeutic possibilities of this methodology

Poster 4: Affiliation and Intimacy Motives and Response-Oriented Emotion Regulation Strategies

Rafael Wilms & Ralf Lanwehr

Fachhochschule Suedwestfalen, Germany

Introduction: The current study examines the relationship between the affiliation motive (AM), intimacy motive (IM), fear of rejection motive (FR; avoidance affiliation motive), fear of losing emotional contact motive (FLEC; avoidance intimacy motive) and response-oriented emotion regulation strategies (ERS). Method: The current study is based on explicit trait motives, and trait emotion regulation strategies. A multiple regression is performed in conjunction with a commonality analysis to obtain results. Commonality analysis is needed, because the data is correlated. Age, gender, extraversion and neuroticism were used as control variables. Results:1. Expressive Suppression. Expressive suppression is predicted by AM and IM (ΔR2 = .03*). Even though, ΔR2 is small. 2. Empathic suppression of emotions. AM, IM FLEC and FR do not predict empathic suppression of negative emotions (ΔR2 = .01). FLEC and AM predict empathic suppression of positive emotions (ΔR2 = .03*). Even though, ΔR2 is small. 3. Uncontrolled expression of emotions. AM, IM FLEC and FR do not predict uncontrolled expression of negative emotions (ΔR2 = .01). IM and AM predict uncontrolled expression of positive emotions substantially (ΔR2 = .13**). Even though, AM is not significant, AM has a high common effect, stressing that it is still a good predictor for uncontrolled expression of positive emotions. 4. Controlled expression of emotions. IM and extraversion predict sharing emotions with others (negative emotions ΔR2 = .09**; positive emotions ΔR2 = .13**). Further, the IM highest unique effect on sharing negative emotions. FLEC and AM have substantial common effects. Discussion: The results indicate that IM and AM are positively related to the expression of positive emotions and partly with expression of negative emotions, whereas IM and AM correlate only marginally with (the on average detrimental ERS) expressive suppression of emotions. This study contributes to the understanding of who applies certain ERS.

Poster 5: The Social Functions of Shame and Guilt: Large-Scale Reputation versus Small-Scale Relations

Darren McGee[1] & Roger Giner-Sorolla[2]
[1]Canterbury Christ Church University, UK
[2]University of Kent, UK

Testing the social functional nature of shame and guilt, two experiments had participants either imagine inducing shame (or guilt) in another person (Experiment 1) or imagine themselves being the target of the shame (or guilt) induction (Experiment 2). The social context of the shame/guilt induction was also manipulated: participants imagined interacting either with a friend, which represented a close interpersonal relationship, or a stranger, which represented a more distant interpersonal relationship. Utilising a Discreet Choice Experiment, it was

expected that participants in the shame condition would be significantly more likely choose the reputation reminder, whereas participants in the guilt condition would be significantly more likely to choose the interpersonal harm reminder. Furthermore, it was expected that the reputation reminder would be most frequently chosen in the shame/stranger combination and the interpersonal harm reminder would be most frequently chosen in the guilt/friend combination. Consistent with these hypotheses, findings from both experiments supported the "both social" theory of shame and guilt.

Poster 6: Dual Functions of Empathy: Is Empathising Behaviour Involved in the Management of Our Social Position?

Christine Spencer & Gary McKeown
Queen's University Belfast, UK

The desire for affiliation and the pursuit of social status are thought to be two fundamental drivers of human behaviour (Kenrick et al. 2010). It is proposed that the display of empathic behaviour allows individuals to achieve these goals simultaneously. Whilst the facilitative role of empathy in the formation of social bonds is well documented, its potential role in the management of an individual's relative social position has been less explored. We propose that, through empathy, individuals manage their social status by signalling the possession of high levels of "social fitness", defined as the ability to skilfully navigate the social environment. Dyadic recordings involving different status dynamics were sourced from two existing audiovisual databases. These consisted of status-matched pairs of friends, in addition to pairs of strangers who were assigned conversational roles, whereby one interactant assumed the role of an "expert" in a particular area, whilst the other was labelled a "novice". Thirty-two one-minute clips were generated at two-time points for each dyad. Lab assistants scored each person's level of empathic effort every 15 seconds, obtaining satisfactory inter-coder reliability, before computing an average score per clip. Groups of online coders then rated each person's level of social fitness. Online participants were asked to rate each person's level of social status, relative to that of an average member of the population. As predicted, interactants perceived to be successful in navigating the social environment effectively, primarily by displaying strong empathic behaviour and social fitness, were perceived to possess a significantly higher degree of social status. These results support the notion that empathic behaviour is involved in managing an individual's position in the social hierarchy, whilst simultaneously facilitating social bond formation. The influential role of non-verbal engagement and conversational behaviour in signalling interpersonal skill, status and dominance is discussed.

Poster 7: On the Relevance of Compassion for Morality: A Neuro-Meta-Ethical Reflection

Franlu Vulliermet
University of Linköping, Sweden

Compassion is traditionally seen with moral significance. A view widely adopted that can be reflected in the works of many authors who see this "emotion-virtue" being valuable and that was adopted in contemporary approaches of virtue ethics such as ethics of care. In parallel thanks to progress, neurosciences have shown tremendous development to the point they gave birth to neuroethics. One aspect of neuroethics is to bridge empirical brain sciences with moral philosophy. It offers thus the possibility to understand better humans and morality by deepening the knowledge we have of the brain and its mechanisms. With the belief that neuroethics and neurosciences are relevant for morality and can enlighten our understanding of compassion this article aims at looking at the case of compassion from a neuroethical perspective. Using the neuroethical theory of informed materialism it reconstructs compassion and its components and more precisely it intends to precise some positive features of compassion for the onlooker that are frequently not taken into consideration: its cathartic strength and the pleasure of being compassionate. Ultimately this article intends to challenge the widely admitted view that compassion can serve as moral basis in a virtue-ethics framework and to offer a reflection hinting that compassion would be a better fit as a moral basis integrated to a utilitarian framework.

Poster 8: Condemnation of Harm, but not Impurity, is Mitigated by Fictional Contexts

John S Sabo
University of Kent, UK

Why does it seem that harmful fiction is generally more acceptable than sexually deviant fiction? This vignette-based experiment (N = 484) examined online participants' anger, disgust, and moral judgments towards descriptions of acts that violated moral norms of either harm (i.e. verbal aggression) or purity (i.e. sexual deviance). The type of act presented (harmful versus impure) was further described as being performed in real life, as being imagined, watched in a film, or performed in a video game. Results indicated that fictional contexts mitigated condemnation of harm, even when the act was immoral in real life. By contrast, evaluations of fictional impurities were relatively more similar to those of their real-life counterparts. These findings offer empirical

evidence for the role that moral emotions and moral judgments play in the casual observation that fictional harms are more easily excusable than fictional impurities.

Poster 9: Mortality Salience Enhances Racial In-Group Bias in Event-Related Theta and Alpha Oscillations for Others' Pain

Xiaoyang Li[1] & Shihui Han[2]
[1]Tsinghua University, China
[2]Peking University, China

Behavioral research suggests that mortality salience (MS) leads to increased in-group identification, in-group favoritism, and in-group prosocial behavior, in this study we tested the hypothesis that MS enhances empathic neural responses to others' suffering that are associated with helping behavior and differentiate between in-group and out-group racial members. We recorded electroencephalographic (EEG) signals to pain/neutral expressions of Asian and Caucasian faces after Chinese adults had been primed with mortality salience (MS) or negative affect (NA) and conducted time-frequency analysis for theta band (4-7Hz) and alpha band (8-13Hz) oscillations. The analysis of ERD (Event-related desynchronization)/ERS (Event-related synchronization) revealed a significant interaction of Race and Expression at right postal cortical region 200-400ms after stimulus onset for theta oscillation, Asian painful versus neutral faces elicited greater theta ERS than Caucasian painful versus neutral faces. We also found a significant interaction of Race and Expression of alpha oscillations at left central postal cortical region 600-800ms after stimulus onset, Asian painful versus neutral faces elicited greater alpha ERD than Caucasian painful versus neutral faces. The interaction of Race and Expression in Theta and Alpha oscillations demonstrated time-frequency-power evidences for racial in-group bias in empathy (RBE). Moreover, alpha band activity demonstrated a significant three-way interaction of Group, Race and Expression at an extensive cortical region 600-800ms after stimulus onset. Under MS condition, Asian painful versus neutral faces elicited greater alpha ERD than Caucasian painful versus neutral faces; However, no such effect had been found in NA group. Our results suggest that Theta and alpha oscillations are involved in the neural coding of racial bias in empathy. Furthermore, alpha oscillation is susceptible to the interaction of racial in-group relationship and priming, leading to enhanced racial bias in empathy following mortality salience processing.

Poster 10: Positive Thinking about the Future Predicts Ethical Violations in International Sports Competition? The Case of London 2012 Summer Olympics

Jacob Do-Hyung Cha[1], and Hyunju Jin[2]
[1]Seoul National University, South Korea
[2]Zhejiang Normal University, China

A group of psychologists has shown that positive thinking about the future, described as "freely generating thoughts and images that depict possible futures in an idealized way" (Oettingen and Mayer, 2002), predicts low effort (e.g. Oettingen, 2012), risky decision (e.g. Kappes, Sharma, and Oettingen, 2013), and poor performance (e.g. Sevincer, Wagner, Kalvelage, and Oettingen, 2014). First, we test whether the relationship between positive thinking about the future and poor performance will apply to global sports area too. Then, we further argue that positive thinking about the future may lead to the ethical violations in international sports competition. In the studies reported here, we used computer-assisted text analysis method to measure Olympians' ex ante narratives before the Olympic competition to examine the relationship among positive thinking about the future, low performance, and even unethical behavior. As low efforts may lead to poor performance and this anticipated low outcome may increase the need for use of prohibited drugs under high performance pressures like the Olympic competition. Additionally, favoring positive information may lead to morally risky decisions ("I may escape from the coming doping test"). We used the stylized sample of 2012 London Summer Olympians that the more Olympians showed the positive thinking about the future, the more their performance declined compared to previous competition. In addition, we showed that all 95 disqualified athletes from 22 countries who committed 'doping' cases show significantly higher level of positive thinking about the future compared to non-doping athletes. These finding may help to debunk a common belief of lay people that imagining the future in a favorable way is generally beneficial for performance and warn the unintended consequence of triggering unethical behaviors.

Poster 11: The Interaction between Emotional Valence, Gender, Empathy, and Conservatism in Moral Judgments

Ronja Demel[1], Michael Waldmann[2] & Annekathrin Schacht[1]
[1]Affective Neuroscience and Psychophysiology, University Göttingen, Germany
[2]Cognition and Decision Making, University Göttingen, Germany

The influence of emotion on moral judgment has become increasingly prominent in recent years. Moral judgments have been shown to be modulated by subjective ideological value systems and empathy, in particular,

the ability to take others' perspectives. Furthermore, research suggests that females generally score higher on standard tests of empathy, give overall harsher ratings when confronted with unethical decision-making, and show more extreme moral judgments than males. Based on Gray and Wegner's (2009) Dimensional Moral Model, the present study aimed at testing whether moral evaluations were influenced by moral valence, gender, empathy, and conservatism. 228 participants (119 female) were presented with morally positive, neutral and negative scenarios and were asked to judge the harmfulness/helpfulness of an act on a scale from 1 (very harmful) to 7 (very helpful). Results showed that participants judged neutral, negative and positive moral scenarios as significantly different from each other. Contrary to our hypothesis, conservatism had a significant influence on moral judgments but only for the neutral scenarios. The interaction of the valence of the scenario and empathy did not reach significance. We found a significant interaction between gender and the valence of the scenario. Females were more extreme in their ratings for positive scenarios compared to males. In conclusion, gender seems to moderate the effect of moral judgments.

Poster 12: Moral Emotion and Prevention: The Potential Implication of Attentional Biases

Aurélien Graton[1] & François Ric[2]
[1]Université Savoie Mont-Blanc, France
[2]Université de Bordeaux, France

Emotions can be seen as serving behavior. However, the cognitive mechanisms underlying this association are in need for further clarification. More specifically, "moral emotions" (Haidt, 2003) like guilt, shame, pride or embarrassment, have been shown to promote pro-social behaviors (e.g. Cryder, Springer, & Morewedge, 2012; Leach & Cidam, 2015, Wubben, De Cremer, & van Dijk, 2012). For this reason, moral emotions have been widely used in the field of prevention and persuasion messages. For example, guilt is seen as an emotion promoting socialization processes and increasing feelings of responsibility toward others (Ketelaar & Au, 2003). Guilt appeals are then frequently used in order to promote compliance to a message's demand in the health or pro-environmental domains (e.g. Chang, 2012). However, this link is not systematic and there exists a, sometimes, substantial discrepancy between moral emotions and actual moral behaviors (Tangney & Dearing, 2002). For instance, guilt was sometimes found to produce backlash and reactance-like effects (see O'Keefe, 2002). Although many studies investigated this inconsistency, the explanation of the mechanisms underlying the emotion - behavior remains in need for further specification. We suggest in the present paper that taking into account the implication of attentional processes triggered by emotions would provide a better understanding of these paradoxical outcomes. We support this assumption by a series of experiments showing that guilt and shame

could increase attention toward positive and reparation-oriented cues. Implications in terms of a broader understanding of the emotion - prevention efficiency association are discussed.

Poster 13: The Morality of Gratitude: Feelings of Gratitude and Willingness to Accept Help Depend on Moral Judgment

Hongbo Yu[1], Xiaoxue Gao[2], Anne-Marie Nußberger[1], Huiying Liu[3] & Xiaolin Zhou[2]

[1]University of Oxford, UK

[2]Peking University, China

[3]Zhengzhou University, China

Gratitude is essential for social cohesion and as such a key moral emotion. Both in academia and everyday life, gratitude is often associated with situations of one party receiving help from another. Psychological research has identified three key determinants: the benefactor's intention, their effort, and their help's value to the recipient. This work has taken for granted that the helping behavior in itself is morally good, or at least neutral. Meanwhile, there are abundant real-world instances in which a valuable act of helping might occur with the noblest intention and considerable effort, but – crucially – be morally questionable, if not wrong. Heroic lies to protect prosecuted individuals, stealing from the rich to help the poor, or eliminating a brutal tormentor are just few examples. Involving a helping behavior (saving five people at the sacrifice of one life) that most people judge morally wrong, moral dilemmas provide a laboratory setting mirroring these situations. To investigate the relationship of moral judgment and gratitude, we used the "footbridge" version of the classic trolley dilemma (involving a putatively strong emotional violation) and the "switch" version (putatively less emotional). Participants imagined themselves being of the five saved by an anonymous decider and rated their gratitude and indebtedness towards the decider. Additionally, we collected their moral judgment about the decider's action, perceived psychological distance to the decider, perceived decider's effort, and willingness to accept the decider's help. Moral judgment about the decider's action were positively correlated with gratitude but not with indebtedness, even after controlling for perceived psychological distance and decider-effort. Causal mediation analysis specified that gratitude plays a mediating role between moral judgment and willingness to accept help. These findings suggest that perceived morality of helping behavior is an important determinant of gratitude and plays a putative role in behavioral responses to being helped.

Poster 14: Neophobia Towards Different Types of Food: Sex Differences and Disgust Towards Meats and Plants

Çağla Çınar, Joshua M. Tybur & Annika K. Karinen
Vrije Universiteit Amsterdam, The Netherlands

In the omnivorous food palette, meats (compared to plants) offer additional benefits in terms of micronutrients and calories, but they also carry greater risks in carrying foodborne pathogens. Literature shows that individuals have a greater inclination in learning to associate the emotion disgust with meat than plants, which functionally aids the eater's health considering the asymmetric danger posed by meats. Learning which food products to consume is also intertwined with trying novel foods in the first place. Although the general tendency in reluctance to try new foods is measured by the Food Neophobia Scale (FNS: Pliner & Hobden, 1992), differences in food neophobia across food categories are underexplored within the literature. In order to test whether the differential risk posed by meat versus plant products is reflected in how individuals approach novel foods, we asked 223 participants on Amazon MTurk to rate their willingness to eat 35 exotic meat and 35 exotic plant products. Participants additionally reported FNS, pathogen disgust, and current hunger. Results indicated that food neophobia can be separated into distinct meat and plant factors. Overall, meat neophobia was greater than plant neophobia among participants. We also found sex differences in this phenomenon such that, although plant neophobia was similar for men and women, women had greater meat neophobia than men. We did not find any evidence in explaining this sex difference based on men and women's differential pathogen disgust levels. Discussion includes follow-up research recommendations in explaining these sex differences with different hypotheses based on disgust sensitivity, gender roles, empathy towards animals, and overall liking in eating meats and plants.

Poster 15: Trypophobia is Predicted by Pathogen Disgust, Germ Aversion and Neuroticism

Laura McAuley & Eugene Dawydiak
University of Glasgow, UK

Trypophobia is characterised by unpleasant sensations and somatic responses while viewing innocuous visual stimuli containing small clusters of holes. This study aimed to investigate potential driving forces behind trypophobia and examined whether disgust sensitivity, perceived vulnerability to disease and neuroticism predicted aversion to trypophobic images. Participants (n = 532) completed an online survey containing the

Trypophobia Questionnaire, Perceived Vulnerability to Disease Questionnaire, Three Domain Disgust Sensitivity Scale, Big Five Inventory, and open-ended survey questions to investigate subjective experiences when viewing trypophobic images. Multiple regression analysis found germ aversion, pathogen disgust and neuroticism significantly predicted trypophobia. Qualitative exploration using thematic analysis revealed trypophobic images were viewed as dangerous due to fears of the unknown and potential threats to survival via contamination or toxicity. Findings suggest trypophobia may be consistent with the evolutionary account suggesting trypophobia is driven by an innate disgust for scars, sores and poisonous animals to avoid disease and contamination. Furthermore, this study was the first to demonstrate a relationship between neuroticism and trypophobia sensitivity, this association may be linked to an overly sensitive evolved threat-detection system towards predators and potential sources of contamination. These results add to the accumulating literature investigating the adaptive rationale for heightened aversive responses when viewing trypophobic imagery and allows better understanding of potential individual differences in trypophobia. Future research should build upon these reliable effects and investigate other components contributing to trypophobia sensitivity.

Poster 16: Disgust-Eliciting Images Produce an Attentional Blink Independent of State- and Trait-Level Disgust

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Navigation through a world abundant in sensory information requires selective attention, which operates by boosting the stimuli selected by the system to further processing while suppressing irrelevant, non-selected stimuli. Stimuli are selected based on their relevancy to the current goal and context of the individuals, and/or by their physical saliency (e.g. luminance, abrupt onset, and/or color). Multiple studies report that fear- and disgust-evoking stimuli are perceived as salient and capture selective spatial attention more than neutral stimuli. The current study aimed to shed light on the temporal characteristic of this attentional bias by using an Emotional Attentional Blink (EAB) task. Moreover, we aimed to investigate the influence of the contextual level of disgust on the attentional bias towards disgust-eliciting stimuli by testing the moderating effect of olfactory cues to pathogens (i.e. state-disgust), and of individual differences in disgust sensitivity (i.e. trait-disgust). Participants (N = 126) performed the EAB task twice - once while not exposed to an odor, and once while exposed to either a pleasant or an unpleasant, disgust-eliciting odor - and completed the Three Domain Disgust Scale. We found that disgust-eliciting stimuli hold attention longer than fear-evoking and neutral stimuli, and that this attentional bias is not influenced either by individual differences in disgust sensitivity, or by the current state disgust activation.

We speculate that visual attention is held longer on disgust-eliciting stimuli than on fear-evoking stimuli to evaluate the risk associated with them. The fact that state and trait disgust do not influence this temporal bias suggests that the context in which disgust-eliciting stimuli are perceived does not facilitate the evaluation of possible risk.

Poster 17: Disgust Sensitivity as a Predictor of Stigma Towards Skin-Picking Disorder, Schizophrenia and Sexual Sadism Disorder

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Previous work (e.g. Oaten, Stevenson & Case, 2011) has suggested that the Behavioral Immune System (BIS; e.g. Schaller & Park, 2011) may be an important component underlying the process of stigmatization. The current study investigated the relationship between Disgust Sensitivity (an operational measure of BIS) and Stigmatizing attitudes towards three mental health conditions: Skin Picking Disorder, Schizophrenia, and Sexual Sadism Disorder. Participants (N = 114) completed the Three Domains of Disgust Scale (TDDS; Tybur, Lieberman & Griskevicius, 2009) to measure disgust sensitivity, and Corrigan's AQ-27 (Corrigan, 2012) to index the stigma associated with the three mental health disorders. Multiple regression analysis revealed that disgust sensitivity was a significant predictor of stigma towards all three mental health disorders, explaining: 16.4% of the variance in skin picking stigma, 19.4% in sexual sadism and 7.5% in Schizophrenia. These findings are broadly consistent with the BIS model of stigmatisation and indicate that disgust sensitivity may play a significant role in the stigmatisation of some mental health disorders.

Poster 18: The Effect of Pain and Touch on Risk Taking Depends on the Perceived Affective Consequences

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We investigated how two interdependent mechanisms, affective evaluation and affect regulation, modulate the influence of affect on risk taking. Participants (n = 92) played the hot and cold versions of the Columbia Card

Task (CCT), once while receiving painful heat stimulation (negative affect manipulation), once while being stroked with a soft brush (positive affect manipulation), and once without any physical stimulation (control). Before they began the task, one-third of participants were told that gambling makes people happy (mood-lifting cue), one-third were told that gambling makes people sad (mood-threatening cue), and one-third were told that gambling has no effect on people's moods (mood-freezing cue). Results showed a significant interaction between cue and affect manipulation in the cold CCT, $F(4, 150) = 2.587$, $p = .039$. As predicted, participants who received a mood-threatening cue were less risk taking in both the positive and negative affect conditions than in the control condition, whereas participants who had received a mood-freezing cue were more risk seeking in the positive than negative affect condition ($ps < .05$). Results did not go in the predicted direction in the hot CCT, presumably because the strong integral, or task-related, affect in the hot CCT prevented incidental affect from influencing behavior. These findings help explain why research on the role of affect in decision making has yielded inconsistent results. Specifically, our study suggests that incidental affect has different effects on risk taking depending people's beliefs about the affect-regulatory properties of risky behavior.

Poster 19: Are Every Positive Emotions Really Good for Us? Differential Impact of Emotional Cues Processing in Sequential Decision Making

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In risky decisions, individuals are uncertain about the possible outcome of their decision. The processing of previous outcomes is necessary in order to construct an adapted representation of a task by increasing the predicted accuracy of subsequent outcomes. In sequential decision making, positive emotions lead to a low search for information (Von Helversen et al., 2012) because they are associated with heuristic processing (Bless & Fiedler, 2006). However, the Appraisal Tendency Framework (Han et al., 2007) holds that the level of (un)certainty associated with the induced emotion modulates information processing. Tiedens and Linton (2001) show that induced emotions associated with a high degree of certainty lead to heuristic processing whereas induced emotions associated with a level of uncertainty lead to deliberative processing. In contrast to deliberative processing, heuristic processing allows participants to increase their accuracy by processing the emotionally charged information arising from previous outcomes. However, the influence of the information processing has been mainly assessed in sequential decision making with negative emotions and alternatives with greater expected utility. Consequently, we sought to determine whether processing of previous outcomes improve their

representation of the task (study 1) even when no alternatives with greater expected utility are available (study 2). In these two studies, participants performed a risk-based and sequential decision-making task, in which the processing of previous outcomes was required to improve their representation of the task and make appropriate decision. Two different emotion (joy and hope) were induced, in order to trigger heuristic processing (rather than deliberative processing). In these two studies, joyful participants made appropriate decisions, whereas hopeful participants did not. Taken as a whole, these two studies are the first to indicate that the processing of previous outcomes can modulate appropriate decision in sequential decision making even when we manipulated different incidental positive emotions.

Poster 20: How Far Will You Go? The Effect of Uncertainty on Risk Taking is Moderated by Personality

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We often make decisions in which consequences could be calculated (risky situations) or not (ambiguous situations). In risky and ambiguous situations, the Appraisal-Tendency Framework (ATF) predicts that cognitive appraisal of certainty associated with incidental emotions modulates people decisions (Han et al., 2007). A lot of studies were mainly focused about the influence of incidental emotion associated with a high degree of (un)certainty on risk taking (Lerner & Keltner, 2001). Nevertheless, the ATF goes further and also predicts that individual dispositions (e.g. personality) could affect risk taking in risky and ambiguous situations. Whereas only few studies have investigated this effect, impulsivity, for example, seems to be an individual disposition particularly related to risk taking (e.g. Lauriola et al., 2014). Aim of this study was therefore to study the influence of this factor on risk taking in both risky and ambiguous situations. Eighty-five participants performed 20 trials of a specific risk-taking task (Balloon Analogue Risk Taking, Lejuez et al., 2002). The uncertainty level was manipulated by varying the available information during the task (low uncertainty condition = risky situation and high uncertainty condition = ambiguous situation). The Barratt impulsive scale-10 was then administered. We found a significant increase of risk taking in the low uncertainty condition (vs. high uncertainty condition), $F(2, 73) = 5.06$, $p < .01$. The interaction between uncertainty effect and impulsivity was also significant, $F(2, 73) = 3.26$, $p < .05$. The uncertainty effect was observed in participants who have the low impulsivity level (vs. high impulsivity level). Risk taking is related to the level of uncertainty especially among those who have a low impulsivity level. These results are consistent with the ATF, which predicts that individual dispositions affect risk taking. The present study is the first to indicate that impulsivity moderates the link between uncertainty and risk taking.

Poster 21: Interaction Between Regret and Cooperation in Risky Decision-Making

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The negative emotion of regret is part of our everyday experiences. An agent experiences regret when thinking about counterfactual outcomes that could have occurred if another choice was made. During risky decision-making, individuals anticipate regret and try to avoid experiencing it by choosing options that minimize how regretful they might feel about decision outcomes. Such behaviour is observed when individuals are exposed, in addition to their obtained outcomes, to counterfactual outcomes carrying information of "what could have happened if they did otherwise". Here we tested the hypothesis that engaging in collective decisions reduces this behaviour as the responsibility over an outcome of a collective decision is shared and thereby the feeling of individual regret attenuated. In an online behavioural experiment, 129 participants had to choose between two gambles and were shown the outcome of both the chosen and unchosen gambles to induce feelings of regret. For each pair of gambles, participants were given the choice to play individually or in group following a majority vote rule. The results of this study suggest an influence of experienced regret on cooperation choices as well as an interaction between cooperation and anticipated regret in the gamble choice. Our findings thus support the idea that an individual agent anticipating regret can sometimes join others to share the responsibility for the outcome of the decisions and thereby experience less the highly negative emotion of regret.

Poster 22: A Componential Emotion Approach to Moral Distress in Health Carers: A Qualitative Study

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Many health care professionals are claimed suffer from ‘Moral Distress’ (MD). However, the validity of its assessment and even the scientific value of the concept itself has been questioned. The current research is a step in a broader project to reconceptualize MD as a set of emotional experiences and to develop a new assessment instrument. The objective of the current study is to empirically identify which emotional processes play a key role in moral distress using an open qualitative approach. A structured qualitative questionnaire was taken by 38 health care professionals from different disciplines (e.g. registered nurses, physical therapists, care assistants, …)

and different health care organizations (e.g. hospitals, care homes, …). Participants were asked to write about a recent critical incident of MD and describe their emotional experiences during that incident. Based on the componential emotion approach, participants were asked to describe the situation, their appraisals, action tendencies, bodily reactions, expressions, and subjective feelings. Moreover, open questions were asked about emotion regulation and coping. The transcriptions are being coded and analysed within the componential emotion approach. Preliminary results show that MD has a strong affective component. The most commonly reported emotional reactions are a combination of anger and frustration for not being able to deliver adequate care, compassion for the suffering of the patient, and guilt for playing a role in the situation. Full results will be presented at the conference. This study is the first using the comprehensive componential emotion approach to empirically identify the core features of MD. The results from this study will be used to construct a new instrument for MD that is both theoretically grounded and derived from empirical data. Furthermore, the better the emotion dynamics underlying MD are understood, the more effective interventions to cope with MD can be developed.

Poster 23: Investigating Emotional Contagion in Counsellors

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Aims: Emotional contagion theory (Hatfield, Rapson & Cacioppo, 1994) proposes that people "catch" the emotions of others through automatic mimicry and feedback processes. This mixed methods study tested for emotional contagion in counsellors and psychology students exposed to video clips of emotion to identify potential differences in levels of contagion between participant groups and the influence of the relatedness to the individual portraying the emotion. Methodology: Using a self-report emotion rating scale, 11 psychology students and 11 counsellors' responses to 12 video clips of anger and/or sadness, in a counselling and non-counselling context were measured via an online survey. Participants were subsequently interviewed to obtain subjective accounts of their emotional experience to one of the clips. Ratings were analysed using SPSS and transcripts subject to thematic analysis. Preliminary Results: Quantitative: Evidence of contagion was found in both groups for anger, $Z = 3.29$, $p = .001$ and sadness, $Z = 3.29$, $p = .001$. There was no evidence that counsellors showed higher contagion levels than students. There was a positive correlation between ratings and relatedness to the person. Qualitative: Ten out of 11 counsellors reported experiencing at least one of the emotions in the anger and sadness clip and nine expressed having a physical manifestation of that emotion. Anger was experienced more frequently than sadness by counsellors in response to the interview clip. Limitations:

Limitations include sample size and some video clips used actors. Conclusions/Implications: Evidence of contagion for anger and sadness was found, but there was no difference between groups. Counsellors reported higher levels of anger contagion to non-counselling clips suggesting inhibition of emotion in counselling responses. Most counsellors reporting anger or sadness also reported feeling it as a physical manifestation suggesting counsellors may somatise and inhibit other forms of emotion processing.

Poster 24: Sharing of Emotions Among Victims and Survivors of Crime in a Peer Support Setting

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Victimization can be an emotional disturbing and confusing experience and may immediately or in the (long term) aftermath elicit negative emotions such as fear, anger and depression. Experiencing these negative emotions stimulates social comparison processes to asses one's own perceptions and opinions, especially when people lack objective standards or when they experience a confusing situation (Festinger, 1954). Also, emotional experiences elicit a person's motivation to seek social contact and to (socially) share these emotions (Schachter, 1959; Rimé, 2009). Therefore, peer support among victims and survivors of crime is a common but under researched phenomenon. This study aims to map the current knowledge on the effects of peer support among victims and survivors of crime by through a systematic literature research. It was found only few studies on this matter in the field of victimology are available as opposed to the historical and numerous studies in the medical field and the growing number of publications in the mental health sector. Results show that effects of peer support are very much dependent on: a) the conceptualization of peer support, b) the type of peer support (i.e. formal vs. informal), c) the practical outline of the support (for example group sessions vs. peer-to-peer), d) the goal and aimed effects of the peer support. Furthermore, conditions for success of peer support are listed. In conclusion, more extensive empirical research combining qualitative and quantitative methods is needed in order to be able to draw conclusions on the effects of peer support among victims and survivors of crime. Also, a critical reflection on what the aimed effects are or should be is needed so optimal forms of peer support can be developed to grant victims and survivors a solid ground to safely share their emotions following their victimization.

Poster 25: Legal Professionals' Articulated Thoughts about Emotional Victims of Crime

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Secondary victimization (the "negative social or societal reaction in consequence of the primary victimization [which] is experienced as further violation of legitimate rights or entitlements by the victim" (Orth, 2002, p. 314)) is a problem within the criminal justice system. A common preventive measure is the extension of participatory victims' rights. However, the extension of victims' voice is contentious: the emotionality of the victim might lead to negative reactions in itself. Previous research (e.g. Schuster & Propen, 2010) shows that judges normatively value some emotions in victims, such as sadness and compassion, but find the expression of other emotions, such as anger, undesirable in court. This research uses qualitative analysis to explore whether legal professionals have positive or negative attitudes towards an emotional victim. Dutch criminal judges (n = 26) and public prosecutors (n = 21) participated in the study. They watched a movie of a victim delivering a statement in court. The victim was either male or female and expressed either sadness or anger. In line with the Articulated Thought in Simulated Situations Paradigm (Davison et al, 1995), participants were asked to think out loud during short breaks. Their articulated thoughts were then coded and analyzed. In line with previous research, results indicate that Dutch professionals show different attitudes towards a sad vs. angry victim. The sad victim seemed to live up to their expectations, while the angry victim got them slightly frustrated. However, in contradiction to the findings in other jurisdictions, Dutch legal professionals seem to leave more room for emotions in general, even when they feel hesitant towards a certain emotion or when they cannot respond to the emotion as they would wish to due to professional guidelines (e.g. with regard to their expression of empathy).

Poster 26: Stereotype Based Stressors in Group Contexts: The Role of Emotion Contagion

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Cues that trigger stereotype threat (ST) among women in STEM are present in popular group-based learning contexts. The negative consequences of ST on individual women in STEM are clear, yet, a critical question is whether the negative stress-oriented consequences of ST are transmitted to other non-threatened women via

stereotype-based stress contagion (SBSC). Using synchrony between emotion networks in the brain as an index of SBSC, we examined how SBSC altered interactions among women in dyadic performance contexts while EEG activity was recorded. Results revealed that ST actors' emotional reactivity to performance feedback-connectivity between brain regions integral for emotion-predicted connectivity in the same emotion network among non-threatened female partners in response to feedback overtime. This synchrony between ST actors and partners also predicted decreased performance in the partner overtime-ST actors' performance was actually buffered by partners. These relationships were not evident among non-threatened dyads. Thus, SBSC may engender negative group outcomes in performance contexts via brain synchrony, particularly for otherwise non-threatened partners of ST actors.

Poster 27: "I am Proud of You" or Should We Say "I am Proud for You"?

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Research generally agrees that pride is the result of a positive self-evaluation concerning a specific behavior or achievement. The behavior or achievement needs to be internally attributed, relevant for the own self-concept and congruent with goals in order to lead to pride. Being proud of someone else hardly seems to fulfill these prerequisites, yet it is common linguistic use to express pride of one's child, spouse, friend or even a famous person. This emotion is commonly referred to as vicarious pride which implies that it might be a shared emotion instead of one's own pride. So, what is vicarious pride exactly? Is it indeed a vicarious experience of pride or do other mechanisms play their parts? Our study aims to explore in which situations people experience vicarious pride and which factors contribute to this emotion. Using a 2x2 between-subjects design, we found main effects for both relationship to the other person and involvement in their achievement. Furthermore, sympathetic emotions appear to play a key role in experiencing vicarious pride. This study provides interesting first insights into vicarious pride and indicates a direction for further research.

Poster 28: Emotion Regulation Strategy Preference in Adolescents and Its Relation with Executive Function

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Do children select different emotion regulation strategies with age? The use of emotion regulation shifts from expressive suppression (a response-focused strategy that suppresses the behavior responses to emotional-elicited events) to a less detrimental and more effective one—cognitive reappraisal (an antecedent-focused strategy that changes the potential thoughts) during adolescence, which parallels the maturation of prefrontal cortex. Yet, the strategies adolescents select to regulate their emotion could vary as a function of the intensity of emotional arousal they are experiencing. Given this, the present study investigated adolescent's choice of emotion regulation strategies in different intensity contexts and its relation with executive function—both abilities are supported by prefrontal cortex activity. Early adolescents (13.32 years, n = 30), middle adolescents (16.04 years, n = 37) and older adolescents (20.81 years, n = 29) were recruited to complete an Emotion-Regulation Choice Task, in which they were free to engage either suppression or reappraisal strategies to regulate their emotions aroused by negative pictures of low or high intensity. Besides, the major components of executive function (inhibitory control, working memory and cognitive flexibility) were also measured. Consistent with the previous research, reappraisal strategies were increasingly frequent with advancing age. However, this developmental pattern was affected by context. Despite growing preference for reappraisal, adolescents showed more suppression in high than low intensity contexts. Nonetheless, better cognitive flexibility was associated with stronger preference for reappraisal in the high-intensity context. Taken together, the results point to a general shift from suppression to reappraisal during adolescence, while even older adolescents resort to suppression in high-intensity contexts. Cognitive flexibility, as the salient index of cognitive resources during adolescence, acts as a supportive factor for the increasing use of reappraisal.

Poster 29: Impact of a Home-Based ABM Intervention of Attentional Control, Attentional Biases and Anxious Symptoms in Socially Anxious Children

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Attentional biases (AB) towards threatening faces are a major feature of social phobia. At a neural level, AB have been indexed by enhanced amplitudes of P1, reflecting increased perceptual processing, and P2, indicating difficulties to remove attention from threatening information. According to Eysenck et al.'s theory (2007), AB would be due to an attentional control deficit whose retraining has shown promising results in adults. The aims

of this study were to evaluate the efficacy of a home-based attentional training on AB in socially anxious children and to index the neural changes induced by this procedure. After a first evaluation of AB, fifteen 8 to 12 year-old socially anxious children (mean age = 10.12; *SD* = .76) completed 10 sessions of attentional retraining after what they completed another evaluation of AB. AB were assessed by an emotional spatial-cueing task in which children had to detect neutral targets cued by neutral or disgusted faces. During retraining sessions, the targets systematically followed the neutral face in order to train children to engage their attention towards safety cues. Children also had to complete measures of anxiety before and after the training. Results confirmed the presence of AB towards disgusted faces in socially anxious children. Although we failed to demonstrate a positive impact of ABM on AB, we found a decrease of anxious symptoms and of the P1 component after the training revealing a diminished attentional engagement towards social information. These data support the distinction between the efficiency and effectiveness processes of the attentional control theory.

Poster 30: Automatic and Controlled Emotion Regulation in Aging: The Case of Expressive Suppression

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Introduction. To explain the high levels of well-being reported in older ages, socioemotional selectivity theory suggests that older adults may automatically implement regulatory processes in order to generate more positive emotions and less negative emotions. Therefore, automatic emotion regulation may become more efficient with age, compared with controlled regulation. However, the automatization of regulation processes may apply only to some specific regulation strategies. There is evidence that expressive suppression, a strategy that consists in masking the facial expression that results from an emerging emotion, may be more frequently and more efficiently used with increasing age. Objective. Our objective was to determine whether automatic expressive suppression becomes more efficient with age, compared with controlled suppression. We tested this hypothesis with regard to disgust, an emotion whose processing is not altered by cognitive aging. Methods. Disgusting videos were presented to 74 young adults (mean (SD) age: 20.1 (1.8)) and 52 older adults (mean (SD) age: 73.6 (9.3)) randomly assigned to one of three conditions: control (in the absence of regulation), implicit condition (where automatic suppression was invoked without participants' awareness), and explicit condition (where participants were instructed to suppress). Their facial expressions were recorded and processed with CERT software. The disgust expressed and the disgust felt were analyzed with factorial analyses of variance that included age group and regulation condition as between-subject variables. Main results. Older adults had more difficulty than young adults in suppressing their facial expressions in both the implicit and the explicit condition, but they reported feeling less disgust in general.

Conclusions. The automatization of regulation processes may not apply to expressive suppression. The older adults' ability to suppress facial expressions did not appear to be directly associated with the intensity of their emotions: other strategies might be involved.

Poster 31: Attentional Capture by Angry Faces is Modulated by Social Group Membership, Implicit Attitude, and Identification

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It is generally assumed that faces, especially those expressing negative emotions, benefit from a privileged status in the attentional selection process. Beyond emotion, faces are also an important source of social information, allowing a quick distinction between individuals from the in-group and the outgroup, a distinction leading to a variety of intergroup biases. The present study aimed at investigating the vulnerability of the attentional selection process of emotional faces to social constructs. We used a variant of the dot-probe task with neutral and angry faces as cues. Group membership was manipulated through the origins of the faces (Caucasian or North-African), and the origins of our French participants (Caucasian in the first experiment, North-African in the second). Participants' identification with the French group, as well as their attitudes towards the Caucasian and North-African groups were measured. Participants with Caucasian origins (exp. 1) showed no attentional capture by angry faces whatsoever. In contrast, participants with North-African origins (exp. 2) showed a strong attentional capture by angry faces. Importantly, this effect was modulated by an interaction between the face's ethnicity and both identification and implicit attitudes. Specifically, the more the participants with North-African origins were identified with France, or hold negative attitudes towards North-Africans, the more North-African angry faces captured attention. Symmetrically, the less they were identified with France, or hold negative attitudes towards French people, the more the Caucasian angry faces captured attention. Therefore, our study shows that social processes, such as the degree of identification with one's group, or implicit attitudes toward social groups, may influence the capacity of angry faces to capture attention. Nevertheless, these effects were only observed for the participants with North-African origins. Differences in terms of social status and level of discrimination between the participants from the two experiments will be discussed to explain this difference.

Poster 32: Attentional Capture by Reward-Distractors Under Perceptual Load

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As affective influences, emotional and motivational characterization of information share common mechanisms that shape a large range of cognitive functions. In this line, reward-signaling stimuli have been repeatedly reported as particularly powerful in capturing visual spatial attention even when they are physically non-salient or irrelevant for the task at hand. This so-called value-driven attentional capture (VDAC) led to the proposal that reward-stimuli might attract our attention in an automatic way. However, only a few studies have put the VDAC automaticity to the test by investigating whether cognitive control could counteract attentional capture by reward-distractors. As a cognitive control framework, the Load Theory (Lavie, 2005) has provided converging evidences for reduced distraction by salient, but unrewarded, distractors under high perceptual load condition. We therefore investigated whether visually salient distractor stimuli associated with a monetary reward could still capture attention when the task at hand involves a high perceptual load. Participants had to report the identity of a target-letter (H or S, displayed on the side of a central fixation sign) while ignoring a peripheral irrelevant but salient distractor letter (also H or S) whose color (red or green) signaled high or low reward outcomes (in case of fast and accurate responses). The distractor-letter could either be compatible (same letter) or incompatible (different letter) with the expected target-letter response. The perceptual load was manipulated through a well-used go/nogo paradigm where the go/nogo cue was defined by simple feature detection (i.e. low perceptual load) or a feature conjunction (i.e. high perceptual load). Our results revealed that both high and low salient reward-distractors produced a significant compatibility effect under low perceptual load. However, under high perceptual load, the compatibility effect was abolished for low-reward distractors only. We concluded that reward drastically weighs on stimulus priority for attentional selection, leading to automatic VDAC.

Poster 33: Attention Modulates Ensemble Coding of Facial Expressions

Haojiang Ying & Hong Xu
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Facial expression is one of the most important information from face. Recent evidence suggests that our visual

system is able to interpret facial expressions from a group of faces via ensemble coding. Here we investigated the factors affecting the ensemble representation of temporally and spatially presented faces. In experiment 1, we found that adaptation to rapid serial visual presentation (RSVP) of happy and sad faces leads to significant and repulsive facial expression aftereffects (FEA). This FEA is equivalent to their paired averaged faces in the RSVP sequence, suggesting ensemble coding of the RSVP face sequence. Further experiments suggested that this ensemble representation of the RSVP faces is determined by the mean emotion of them, but not the variations in emotion or temporal frequency of the stream. If we vary the identity of the test faces to match one of the faces in the RSVP sequence, this matching identity did not alter the FEA. In the 2nd experiment, we investigate whether attention modulates the spatial ensemble coding of facial expressions. Compared to concentrating at the central fixation cross, cueing to the happiest face and to the saddest face significantly biased the judgment of the ensemble representation toward the cued face's emotion. Together, our results suggest that: (1) our visual system is able to use averaging to represent the multiple faces; (2) attention modulates the ensemble coding.

Poster 34: Dispositional Mindfulness Attenuates Emotional Attentional Capture

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Emotionally laden stimuli have been shown to rapidly and automatically hijack attention, hindering the detection of forthcoming targets, an effect known as Emotional Attentional Blink (EAB). Mindfulness is defined as a present moment non-judgemental attentional stance that can be cultivated by meditation practices, but that could present interindividual variability in the general population. While it has been associated with flexible and adaptive affective processing, the mechanism underlying this effect is still a matter of debate. In particular, it is not clear if mindfulness is associated with a diminished emotional response, or to faster recovery. We presented to 29 young participants target pictures embedded in a rapid visual presentation stream. The targets could be preceded, at different time intervals determined with a staircase procedure, by negative, neutral or scrambled critical distractors. We showed that dispositional mindfulness, in particular the non-reacting facet assessed with the Five Facets Mindfulness Questionnaire, negatively correlated with the EAB magnitude, but not with the recognition rate of negative critical distractors. Our findings support the hypothesis that mindfulness is not linked with a dampening of the emotional response per se, but with a faster recovering of attentional resources. These results could have implications for mood disorders characterised by an exaggerated attentional bias toward emotional stimuli, such as anxiety and post-traumatic stress disorders.

Poster 35: Attention to Positive Emotion Increases Cognitive Dialecticism, Well-Being, and Self-Regulation: Experiments in the Context of Daily Life

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At any given moment, we are presented with a myriad of emotion-related cues and stimuli, yet we only attend to a fraction of them. Theory and research indicate that attention to emotions can help to guide individuals and provide useful information for how best to tailor responses to everyday social situations. This research focuses on people's awareness of positive emotion in daily life. Because positive emotions are subtle and fleeting experiences relative to negative emotions, we often pay little attention to them. Yet, even mild experiences of positive emotions can produce transformative benefits for health and well-being. Three studies used a novel technique known as experience-sampling intervention to examine whether and how momentary experiences of positive emotion build valuable personal resources. Using mobile technology, participants received experimental cues in the context of their daily lives, multiple times per day for several days. In Study 1, participants were experimentally induced to attend to positive (vs. neutral) emotional experiences. Findings revealed that attention to positive emotions increases cognitive dialecticism and emotional complexity. Building on these findings, Study 2 used experience-sampling intervention procedures to remind participants to use positive (vs. neutral) coping strategies to manage daily experiences of stress. Participants who received positive (vs. neutral) coping reminders reported fewer physical health symptoms and greater social connectedness. In Study 3, participants were asked to reflect on daily positive (vs. neutral) experiences and showed that daily positive (vs. neutral) experiences increased self-regulation following an ego-depletion task. Together, these findings demonstrate that paying attention to positive emotions can help to guide individuals and provide useful information for effective coping with stress in response to everyday social and personal situations.

Poster 36: Investigating the Effects of Gaze and Emotion on Neural and Self-Report Responses to Human and Computer-rendered Faces

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Computer-rendered faces are used frequently to substitute human face stimuli in social and affective

neuroscience. Whether computer-rendered faces can evoke equal emotional effects as human faces is still largely unknown, however. Here, we tested a shared signal hypothesis for gaze and emotion in human and computer-rendered faces. This hypothesis suggests that anger and fear faces signal a threat from the observed person or environment, respectively, and that congruent gaze direction (direct gaze with anger and averted gaze with fear) facilitates the processing of facial emotion. In an ongoing 3T fMRI experiment, 14 participants (7 female) viewed briefly (300ms) presented faces that were human or computer-rendered; expressed anger, fear, or neutral emotion; and had direct or averted gaze. Three functional runs (480 volumes, TR = 1500ms, 24 stimulus–rest blocks), anatomical data, and a functional localizer run (Faces vs. Houses) were acquired. Participants carried out a catch trial task in which they were asked to press a button in response to a red circle (shown once per block). Afterwards, participants rated their emotional reactions to the faces in terms of emotional valence (unpleasant to pleasant) using a visual analogue scale. Functional MRI data collection and analyses are still ongoing. Preliminary analysis for self-report data confirmed the expected shared signal effect (higher unpleasantness for congruent stimuli) but only for female participants viewing human faces. These preliminary self-report findings suggest that the shared signal effect may be different for human and virtual faces, and more pronounced for female participants.

Poster 37: The Perception of Emotion in Artificial Agents

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Given recent technological developments in robotics, artificial intelligence and virtual reality, it is perhaps unsurprising that the arrival of emotionally expressive and reactive artificial agents is imminent. However, if such agents are to become integrated into our social milieu, it is imperative to establish an understanding of whether and how humans perceive emotion in artificial agents. Here, we incorporate recent findings from social robotics, virtual reality, psychology, and neuroscience to examine how people recognize and respond to emotions displayed by artificial agents. First, we review how people perceive emotions expressed by an artificial agent, such as facial and bodily expressions and vocal tone. Second, we evaluate the similarities and differences in the consequences of perceived emotions in artificial compared to human agents. Besides accurately recognizing the emotional state of an artificial agent, it is critical to understand how humans respond to those emotions. Does interacting with an angry robot induce the same responses in people as interacting with an angry person? Similarly, does watching a robot rejoice when it wins a game elicit similar feelings of elation in the human

observer? Here we provide an overview of the current state of emotion expression and perception in social robotics, as well as a clear articulation of the challenges and guiding principles to be addressed as we move ever closer to truly emotional artificial agents.

Poster 38: Personality Analysis of Embodied Conversational Agents

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Giving machines the ability to produce social information can help improve human-machine interactions. Embodied Conversational Agents (ECAs) are virtual software agents that can process and produce speech, facial expressions, gestures and eye gaze, enabling natural, multimodal, human-machine communication. This paper shows that standardized, validated personality questionnaires can be used to evaluate ECAs psychologically, and that state of the art ECAs can manipulate their perceived personality through appearance and behavior, making them a useful tool in examining the mapping between behavior and personality. Of course, such a mapping will also be useful in creating new ECAs for specific applications. We performed three experiments measuring the effect of semiotic channels on the perception of personality using a standardized personality questionnaire on a state-of-the-art ECA. First, to evaluate if standard personality measures can be used to evaluate virtual personality, we conducted an experiment where the participants interacted with the full system, resembling a normal video-conference. As the differences in perceived personality could merely come from the appearance of the avatars, in a second experiment, participants were just presented with photographs of the avatars to judge their personalities. In the last experiment, we examined the relative importance of visual and auditory interactions with two scenarios ("Telephone" and "Glass Wall"), where only audio or visual information was respectively, bidirectionally transferred. Our findings indicate that the same aspects of personality are in different physical channels for different people. Also, in many cases the perception of an agent's personality through multimodal interaction is not always a weighted sum of its visual and acoustic personalities. Moreover, the results showed that targeted changes in one personality aspect often brings changes in other personality traits. Thereby, when designing an avatar, not only should the visual and the acoustic behavior be considered, but also the interaction or consistency between them.

Poster 39: Speaker's Personality and the Expressiveness of His Speech in Man-Machine Voice Communication

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Our CRISIS expressive speech database was designed to cover as wide as possible range of levels of (acted) emotional arousal in speech. It was meant for the design of expressive speech synthesizers and acute-stress detection system. Each speaker was instructed to utter phrases in three defined levels of urgency (insisting voice, warning/emergency voice) and three levels of soothing (calming, comforting voice). The situation during the recording of the CRISIS database in the studio is in a way related to some situations in man – machine vocal communication. The speaker is left alone in a closed room and announces messages (~ gives commands) to the recording device (~ automated system). The intensity, how his emotional arousal is reflected in the acoustical characteristics of his voice, depends (along with various other factors) on his personality type. We used the NEO Five-Factor Inventory questionnaire to identify the personality traits of the speakers. We expect that the correlation between the particular personality dimensions and the measured/estimated level of expressiveness (~ range of the emotional tense arousal) in their recordings will indicate how the personality type affects the expressivity of vocal displays. This could predict some of the aspects of the vocal behavior of the speakers when communicating with automated systems in relation to the type of their personality. In line with the results of other scientists, our former research has confirmed the expected fact, that great deviations from the neutral emotional state lead to a serious decrease in reliability of voice-controlled systems. This is of course mainly caused by the mismatch between training and testing, but also by the inter-speaker differences in the expression of emotional excitation which is targeted by our current research. This paper presents preliminary results obtained on a subset of 30 speakers.

Poster 40: The Effects of Varying Predictability on Affective Picture Processing: An Event-Related Potential (ERP) Study

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Recent studies have shown that both uncertain and invalid expectations (e.g. expecting a positive picture but seeing a negative picture) affect both neural and behavioural responses to subsequent pictures. Previous studies used either uncertain or invalid cues but to date, no study has systematically varied the predictive value of the

presented cues. In order to investigate this, participants were asked to view and rate the pleasantness of negative and neutral pictures preceded by a cue while neural responses were measured using electroencephalography (EEG). In the uncertain condition, the cue was followed by a negative or a neutral picture with equal probability (50% of trials for each type of picture), in the valid/invalid condition the cue was mostly followed by a negative picture (75% of trials, valid condition) but sometimes by a neutral picture (25% of trials, invalid condition). Participants were informed of the meaning of each type of cue. In the certain condition, the cue was always followed by a negative picture. Anticipatory brain activity showed an increased N2 amplitude for the certain compared to the other conditions. The amplitude of the Late Positive Potential (LPP) was increased for neutral pictures in the valid/invalid condition compared to neutral pictures in the uncertain condition. Results are discussed in relation to emotion regulation strategies in general and attentional deployment in particular.

Poster 41: Decoding Feedback of Positive and Negative Valance in Occluded Early Visual Cortex with fMRI

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Regions of primary visual cortex (V1) that do not receive meaningful feedforward stimulation still however contain information about the surrounding visual scene (Smith and Muckli, 2010). This surrounding contextual information is transferred to V1 by cortical feedback (Muckli et al. 2015). Investigating the contribution of contextual feedback to V1 is central to understanding how internal brain signals interact with visual processing. Using human functional brain imaging (fMRI) and multivoxel pattern classification, we investigated if information patterns fed back to V1 included emotional content. We used partially-occluded positive, negative and neutral valance colour images of dogs and cars chosen from the International Affective Picture System (IAPS) as stimuli. Replicating our previous findings, we can decode between image pairs from non-stimulated voxels in V1. Additionally, using a cross-classification approach, we show that a classifier trained on positive and negative valance dog images can generalise to positive and negative valance car images. When one of these valance categories is switched for the neutral valance images, the cross-decoding no longer works. Our data indicate that information about valance is important even at the earliest stage of cortical visual processing, and that this information is generalisable across visual categories. In order to understand the developmental trajectory of this feedback mechanism in early visual processing, we are now investigating this in children and adolescents.

Poster 42: To See or not to See? An fMRI Study About Curiosity for Emotional Stimuli.

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Curiosity is an important human drive. Although some progress is made in studying curiosity for positive or neutral information, little is known about "morbid curiosity" (i.e. curiosity for information involving death, violence or harm). In this fMRI study, we examined the neural representation of curiosity for emotionally evocative images and, crucially, whether this representation is different between curiosity for negative and positive information. In the scanner, participants either performed an active-choice task or a passive-viewing task. In the active-choice task, subjects could choose whether or not they wanted to view positive and negative images, based on verbal cues (e.g. "Woman smiles to her new-born baby" vs. "Man attacks tied-up victim with knife"). In the passive-viewing condition, participants viewed images according to the response pattern of a participant in the active-choice condition. Both tasks involved an induction phase, consisting of the presentation of a verbal cue; and a relief phase, in which participants viewed the corresponding image or not. Participants reported more curiosity in the active-choice task as compared to the passive-viewing task. Based on previous work on curiosity, we focused on two a-priori defined regions of interest (ROIs): bilateral striatum and bilateral inferior frontal gyrus (IFG). Contrasts comparing active choice vs. passive viewing during induction, demonstrated activation in striatum and IFG, for both positive and negative cues. In addition, we found activation in the insula, orbitofrontal cortex and medial prefrontal cortex. Contrasts comparing active choice vs. passive viewing during relief, demonstrated activation in the IFG for negative chosen images and insula for both positive and negative chosen images. These results are consistent with other work on curiosity and suggest that morbid curiosity, as curiosity for non-negative information, involves neural systems associated with reward/salience processing and cognitive control.

Poster 43: Towards an Understanding of Sustained Emotional Experience: State Changes of Intrinsic Functional Connectivity and Processing of Emotional Information

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Emotions are fundamentally temporal processes that dynamically change over time. This temporal nature is inherently involved in making emotions adaptive, guiding interactions with our environment. Alterations in such temporal dynamics have been identified as key signatures of maladaptive emotional responses and psychopathology. However, the vast majority of (neuroimaging) research has largely focused on emotions in terms of momentary responses or trait differences. Such approaches are likely to miss important aspects of the (neural) correlates of emotional experiences. Indeed, it is becoming increasingly clear that responses to emotional events and stimuli are not confined to short stimulus induced changes in the BOLD signal, but also have a more sustained effect on the organization of intrinsic functional neural activity. However, how such dynamics are contributing to the emotional experience is to date widely unknown. In the current study, we tested the hypothesis that such state changes in the intrinsic functional connectivity might be connected to state changes in the processing of emotional information. Such a mechanism could be especially important because it might contribute to a stabilization and generalization of the emotional experience. Investigating this hypothesis, positive as well as negative emotions were elicited in the fMRI scanner using film clips, followed by a resting phase to examine changes in functional connectivity relative to neutral rest. Participants then performed an emotional Stroop task to assess emotion-induced influences on processing of emotional information. Results indicate that state changes in intrinsic connectivity are associated with variation in the neural responses towards emotional stimuli. These findings not only indicate a central role of intrinsic neural activity in emotion dynamics, but also point towards a possible explanation for the relation between alterations in the functional organization of intrinsic functional brain networks and affective disorders.

Poster 44: A Signal-Detection Approach to Individual Differences in Negative Feeling

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Feeling, or the subjective emotional experience, is a fundamental element of the emotional reaction and an important source of individual differences. Here we implemented a new signal-detection-theory based model for feeling generation, involving two parameters: The report criterion (c), the level above which enough emotional evidence has gathered for intense feeling to appear, and evidence differentiation (da), the ability to emotionally differentiate between external (negative) triggers of varying intensity. According to the model, feelings can be disproportionally intense (false alarms [FA]; e.g. emotional overreaction) or disproportionally weak (misses

[Miss]; e.g. failing to detect danger), with the criterion controlling the relative proportion of these "errors." In line with SDT, we suggest that criterion setting depends both on prior expectations and the possible costs of each type of error (FA VS. MISS) and serves as the emotional narrative of a person. We explored the relation between model's parameters and: (a) core personality traits, and (b) affective style. Results indicate a double dissociation: c was related to Neuroticism but not to affective style constructs, yet da was related to limited access to emotion regulation strategies, but not to personality traits. These findings further validate the independence of the two parameters, and their importance in conceptualization and assessment of (trait) emotional experience, in which c represents the emotional narrative for responding to the world, while da represent the basic ability to correctly generate and accumulate emotional evidence.

Poster 45: The Voluntary Control of Piloerection

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To date, three case studies have described individuals with voluntary control of piloerection—almost exclusively focusing on physiological aspects of this ability. For the current investigation, a sample of thirty-two individuals with the voluntarily generated piloerection (VGP) ability was recruited and asked to report on their personality, and physiological and emotional phenomenology of VGP. The physiological descriptions were consistent with the three previously conducted case studies. Most participants reported: (1) that VGP was accompanied by psychological states that typically accompany involuntary piloerection (e.g. absorption), (2) using VGP during activities that elicit involuntary piloerection (e.g. music), and (3) higher absorption in response to aesthetic situations compared to a previously collected sample. In line with the findings regarding emotions, VGP participants differed substantially on openness to experience compared to normative samples. These findings suggest that through their unique control of piloerection, people with VGP ability may be able to effortlessly influence their emotional state.

Poster 46: Differences in Subjective Emotional Experience: Associations with Autism, Empathy, and Motor Action.

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Objectives: Emotional granularity, the ability to differentiate between similar emotional states, is associated with greater empathy and emotional regulation. It has also been suggested that low granularity may underpin some of the emotional and communicative difficulties seen in autism. The current study aimed to assess how emotional granularity and intensity relates to autistic traits, empathy, and motor action. It was hypothesised that granularity would be associated with higher empathy, lower autistic traits, and greater accuracy in imitating the facial expressions of others. Methods: Sixty healthy adult participants took part. Participants first imitated a series of static facial expressions and were recorded by the camera to assess imitation accuracy. Empathy was then assessed with the Empathy Quotient (EQ) and the Actions and Feelings Questionnaire (AFQ), a measure of motor empathy assessing the ability and tendency to understand and communicate emotion with others through action. Autistic traits were measured with the Broad Autism Phenotype Questionnaire (BAPQ). Finally, participants completed the image response task, rating 20 emotional images by 10 emotion words, which yielded scores of emotional intensity, granularity, and tendency towards emotional extremes. Results: While emotional granularity showed no relationship with imitation accuracy, higher positive emotional intensity was significantly correlated with greater imitation accuracy and empathy. However, greater negative emotional intensity was associated with lower emotional granularity. Furthermore, while imitation accuracy was unrelated to autistic traits, autistic traits were associated with significantly lower emotional granularity and higher negative emotional intensity. Conclusions: These findings indicate that autistic traits in the population may be associated with higher negative emotionality, which may in turn be associated with empathy, granularity, and imitation accuracy. This may have implications for the empathic, emotional, and communicative difficulties seen in autism.

Poster 47: Emotional Dispositions of Gang Members: Comparison of Street-Gang to Non-Gang Prisoners

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Background: The ability to recognise, identify and utilise emotional stimuli is essential for effective social

interactions. Deficits in these emotional processes have been robustly identified as risk factors for offending. However, there is a dearth of knowledge focusing on emotional dispositions of street gang members. This is despite the uniqueness of gang membership: cooperation, mutual understanding and reciprocity is essential with ingroup members, whilst callous-disregard for outgroup members' enables violent behaviours. Thus, for effective interventions to be developed, it is essential to understand emotional dispositions of street gang compared to non-gang offenders. Objectives: As such, this study examined how street gang members compare to non-gang offenders on: trait emotional intelligence (TEI), antisocial personality disorder (ASPD), callous-unemotional traits, anger rumination and aggressiveness. As an exploratory component, this study also assessed prevalence of neurodevelopmental disorders (associated with emotion dysregulation) in street gang compared to non-gang offenders. Method: Participants were 73 (44 street gang and 29 non-gang) male prisoners, recruited through volunteer sampling. Participants completed seven questionnaires assessing emotional dispositions, social desirability and, consistent with the Eurogang definition, street gang membership. To compare participants' demographics and identify predictors of street gang membership, chi-square and discriminant function analyses were conducted. Results: With a significant discriminant function, Î = .80, Ï2(6) = 14.96, p = .021, high levels of ASPD, anger rumination and aggression, and low levels of TEI predict street gang membership. Compared to non-gang prisoners, street gang prisoners did not differ on demographic variables (including age and ethnicity), callous-unemotional traits or presence of neurodevelopmental disorders. Conclusions: This study identified that street gang, compared to non-gang prisoners, possess dysfunctional emotional dispositions. Therefore, findings support the inclusion of emotion-focused components within street gang prevention and intervention programmes. Recommendations for future research are made, including examining additional emotional dispositions (e.g. recognition of emotional expressions and alexithymia).

Poster 48: Gender Differences in Cardiovascular Reactivity and Self-Reported Affect

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Psychophysiology may be useful for detecting emotions for which gender socialization hinders overt disclosure. Women appear to exceed men in the experience and expression of sadness, but not anger (Stapley & Haviland, 1989; Plant, Hyde, Keltner, & Devine, 2000). This may result in greater concordance between men's self-reported affect and physiological reactivity during anger compared to other emotions such as sadness. However, since male socialization generally discourages emotional expression, men may be more hesitant than women to

disclose affect regardless of the specific emotion (Paprini, Farmer, Clark, & Micka, 1990). Therefore, men may show greater verbal-physiological discordance than women for both anger and sadness. In a study involving autobiographical recall of emotional events, we tested competing hypotheses that (1) men would self-report sadness, but not anger, less than women, resulting in greater verbal-physiological discordance among men for sadness versus anger, or (2) men would be unwilling to self-report sadness and anger resulting in greater verbal-physiological discordance than women for anger and sadness. An occlusive cuff was used to measure the systolic and diastolic blood pressure (SBP, DBP) and heart rate (HR) of 113 participants. Following an 8-minute resting baseline, participants recalled an event that provoked sadness (or anger). An 8-minute rest period followed, and then participants recalled an anger-provoking (or sadness-provoking) event. Participants rated their affect after each emotion induction. Men showed greater elevations in SBP (but not DBP or HR) compared to women during both anger and sadness conditions. However, there were no gender differences in self-reported anger or sadness, revealing greater verbal-physiological discordance for men across both emotions. Men's greater verbal-physiological discordance across anger and sadness may reflect an overall reluctance to express affect and have important mental and physical health implications.

Poster 49: Implicit Bias Toward Threatening Faces: The Role of Emotion, Hormones, and Group Membership

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Previous studies report that women's attitudes towards outgroup men are more negative during the fertile phase of their menstrual cycle, presumably to guard against the increased costs of sexual coercion when fertility is high. Other costs might also vary across the cycle - specifically the compensatory prophylaxis hypothesis suggests that women should be more avoidant of pathogen threats when their progesterone is high. In the present study, we investigated how women's attitudes towards angry faces (violence threat) and disgust-eliciting, infectious faces (pathogen threat) shifted with the change in reproductive hormones (specifically, estradiol and progesterone) across the menstrual cycle. We also tested how attitudes varied across target-group membership (as manipulated with a minimal group paradigm). A group of 41 women completed four single-category implicit attitude tasks (one for each threat/group combination) and provided saliva samples once a week for a period of four weeks. Multilevel modeling analyses showed that women in general had a negative attitude toward both angry and pathogenic faces. Further, we found that changes in estradiol-to-progesterone ratio (a marker of fertility) moderated the difference in women's attitudes towards angry faces and pathogenic faces. However, we

did not find that bias varied across angry or infectious faces, or that bias was different toward ingroup or outgroup faces. Our findings suggest that attitudes towards violence and pathogen threats might differentially vary as a function of hormonal state, but that they do not vary depending on the group membership of the threatening face.

Poster 50: Individual Difference Predictors of Attentional Vigilance and Avoidance in Social Anxiety

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The aims of this study were a) to examine moderators of attentional biases (AB) in social anxiety and clarify the characteristics associated with attentional vigilance vs avoidance to threat, b) to examine the effectiveness of attention bias modification treatment (ABMT). It was predicted that self-focused attention, measured with the Self-Consciousness scale, would predict greater avoidance. Also, it was predicted that ABMT would reduce anxiety through changes in attentional processes. Participants were fifty-eight socially anxious students (48 female) who scored above clinical cut-offs on the SPAI-23 and whose clinical status was verified using the ADIS-IV. They completed a dot-probe task to measure attention biases to threatening faces, consisting of 120 trials with 80 pairs of angry-neutral faces and 40 pairs of neutral-neutral faces. The same task was used to train participants to direct their attention towards neutral faces; a placebo condition was also used. Depending on their performance, participants were divided into those showing vigilance and those showing avoidance of threatening faces. Results indicated that the vigilant group scored significantly lower than the avoidant group on private self-consciousness. Multiple regressions indicated that high private self-consciousness was the best predictor of low vigilance and high avoidance of threat. A reduction of AB levels was found in both intervention and placebo group. Some reduction of anxiety was only found for the intervention group. Results suggest that, as proposed by dominant social anxiety theories, both vigilance and avoidance are characteristic of this symptom category, but there may be heterogeneous subgroups, with different individual characteristics showing preference for each type of AB. Tendencies to turn attention towards the self, as suggested by Clark et al., are most predictive of attentional avoidance.

Poster 51: Differences in Males' and Females' Prefrontal Cortex Activation When Exposed to Romantic, Friendly or Sibling Love

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Love is a deep sense of close emotional attachment between two people. This emotion plays a pivotal role in everyday interactions, such as between family members, friends and romantic partners. However, little is still known about the physiological mechanisms underlying feelings of love within these distinct relationships. The present study aims to investigate central and peripheral nervous system activations in response to the view interacting couples in different relational levels. Near-Infrared Spectroscopy (NIRS) and Electrocardiogram were utilised to record participants' (N = 75) central and peripheral physiological activations in response to three 1-minute long video stimuli depicting couples (one male, one female) interacting with each other while (i) baking, (ii) exercising, and (iii) eating. The context of the interaction was modulated by informing participants about the type of relationship each couple in the three video clips were in: (i) siblings, (ii) friends, or (iii) romantic partners. The order of video stimuli presentation was fixed, whereas the order of the contextual information provided (type of relationship) was counterbalanced across participants. Analysis revealed that friendly love elicited greater activation in the left DLPFC and inferior frontal cortex (IFC) as compared to sibling love. Moreover, a gender by context interaction revealed that in males, friendly love, as compared to romantic love, elicited higher activations in DLPFC and IFC and lower activations in the left medial PFC. No significant effect of context, or gender by context interaction, was found on heart rate responses. Findings suggest that differences in feelings of love in distinct relational contexts arise at the level of the central nervous system. Specifically, higher-order cognitive interpretation seems to be deeply involved in the process of attributing a conscious meaning to emotions such as love. These results enable us to better understand the nature of different social interactions occurring in everyday life.

Poster 52: Love Patterns: A Machine Learning Approach to the Study of Individuals' Perception of Romantic Interactions in Ongoing and Past Relationships

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Many research have tried to explain love and its dynamics over time using mathematical models through machine learning approach. This study aims to investigate time patterns for core components of love relationships using a set of self-reported measures collected through a web platform. We hypothesized that there will be differential patterns between people who are describing an ongoing relationship and people who are describing a past relationship. Participants (N = 480) were asked to fill in a survey, which collected demographic information about themselves and their past or current relationship. Then, individuals' perceptions about the temporal dynamics of seven basic relational components (intensity, romance, passion, common interests, commitment, friendship, patience) were assessed by asking participants to draw, using a mouse or a touch screen device, a plot describing the fluctuation of each component in time, from the beginning of their relationship to "Today". For every participant, the values of each component in different time windows were extracted. For each of the time window, one sum value was computed for every possible combination of the seven elements. On this summed value, different Machine Learning Models (Linear SVG, SGD Classifier) were trained to categorize the patterns in the two groups (current vs past). When tested on classification performances, the models obtained probability scores higher than chance, with better classifications for relationships that lasted longer than 2 years. Findings suggest that the temporal patterns of relationships components have similar dynamics between different people. We propose that there may be some underlying physiological basis at the level of the central nervous system because individuals' perceptions about their relationships appear to be influenced by the context of their relationship status.

Poster 53: The Relationship Between Emotional Intelligence and Mood Dynamics

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It has been shown that high emotional intelligence (EI) predicts positive mood but EI relations with dynamics characteristics of mood are understudied. The study aimed at exploring relations between static mood characteristics versus dynamic mood characteristics on one hand and EI versus variability, instability, and inertia of mood on the other hand. Mood self-reports of 28 participants were collected through a two-week experience sampling procedure; mood was assessed with the scales of Positive Affect, Negative Affect, and Tension. EI was measured with a questionnaire EmIn comprising the scales of Interpersonal EI, Intrapersonal EI, Emotion Understanding, and Emotion Management. EI was more related to dynamic than static mood characteristics. Interpersonal EI and emotion understanding were positively related to inertia of positive and negative moods (rs

from .30 to .46) and negatively to instability of tension (from .30 to .32). Results suggest that EI plays important role in mood endurance and stability.

Poster 54: Dynamics of Emotions and Personality Characteristics in Prolonged Stressful Situations

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Emotions as one of the most significant components of stress have been studied for a long time. However, only single measurements are made in most of them, while emotions are impermanent, fickle. Emotional states can be perceived as nonlinear dynamic systems, self-developing and self-contagious. At that rate, they should be studied in dynamics. We measured the explicit and implicit affects of 50 people daily for a month. In addition, personal characteristics were tested, some of which are included in a personal potential, while the other interferes with optimal personal functioning. Our main hypothesis is that the higher the personal potential, the more stable person's emotional state is in prolonged stress, the less he is affected by external circumstances. Stability measure is determined by Shannon entropy as measure of the uncertainty and unpredictability of some complex system. The higher the entropy is, the higher the chaos and lower the stability of emotions are. To analyze the non-linear dynamics of emotional states we applied the logistic map which describes the state of the system at time (n +1) as function of the state of this system at time n. Using this model, we can find the attractors, which indicates the severity of the inner, immanent emotional state in the absence of external influence. The findings confirm our main hypothesis only for implicit emotions. The higher the personal potential is, the lower the chaos of personal implicit emotions is. The emotional dynamics of a person with a high personal potential is characterized by greater predictability. Thus, logistic map is adequate model for analysis emotional dynamic process in different circumstances of personal activities for some types of emotions. Such results pose the question of the nature and essence of the differences obtained in the measurement of explicit and implicit emotions.

Poster 55: Childhood Emotional Abuse and Psychosocial Outcomes in Adulthood: The Mediating Role of Attachment

Hannah Robertson, Jenny Smith & Karen Goodall

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Childhood emotional abuse (CEA) is a major public health concern associated with depressive, anxiety and stress symptoms in adulthood. This study re-conceptualises 'CEA' in terms of acts of omission and commission as previous literature suggests that outcomes are dependent on the type of emotional abuse endured. Moreover, insecure attachment has been suggested as a potential mediating factor. The aim of the current project is thus twofold; exploring the structure of CEA and its relationship to adult outcomes, and whether these are mediated by insecure attachment. Three hundred twenty-four non-clinical participants completed an online survey exploring previous CEA experiences, alongside attachment and depressive, anxiety and stress symptoms in adulthood. Subscales from several validated psychometric scales were compiled into a new, holistic measure of CEA. A Principal Components Analysis confirmed a two-factor structure of CEA, comprising omission and commission behaviours. Results further indicated that CEA was predictive of insecure attachment and depressive, anxiety and stress symptoms in adulthood. Regression and mediational analyses confirmed that acts of omission and commission were independently predictive of depressive symptoms, and partially mediated by both dimensions of insecure attachment. Only acts of commission were predictive of later anxiety and stress symptoms, and this relationship was partially mediated by attachment anxiety only. CEA has damaging effects on psychosocial functioning across the lifespan. Importantly, this study has highlighted the differential effects of different types of CEA and the role of attachment in mediating these effects. Moreover, to our knowledge, this is the first study to empirically test an omission-commission model of CEA. Future research should endeavour to investigate other potential mediators and control for age and gender differences. In order to ensure a resilience-led approach, policy should focus on reducing early emotional abuse experiences, and continue promoting positive parenting and stability in early attachment relationships.

Poster 56: Emotion Recognition in Young People with Offending Behaviour: Assessing Cognitive Bias Modification as an Avenue for Intervention

Miriam H. Cohen[1,2], Natalia S. Lawrence[1], Marcus R. Munafò[2], Lucy Biddle[2], W. Huw Williams[1] & Ian S. Penton-Voak[2]

[1]University of Exeter, UK

[2]University of Bristol, UK

Objectives: To investigate the feasibility of a randomised control trial (RCT) for a novel cognitive bias modification intervention, for use with violent young people, in a prison setting. This psychological intervention

uses repetitive training and feedback and attempts to re-calibrate hostility biases in the perception of ambiguous facial expressions. As prisons are unpredictable, and difficult places to deliver intervention studies, we designed a feasibility study and pilot trial to assess whether a definitive RCT would be possible. Methods: We used a mixed methods design, including quantitative and qualitative assessment for pilot and feasibility criteria. We conducted background health and neuropsychology assessment prior to delivering the intervention and delivered the intervention on tablets with the help of prison intervention staff (four times within one week). The intervention used a linear morph sequence of stimuli, with expressions morphing from anger to happiness. Using an individual balance point feedback is given which attempts to subtly shift recognition towards the positive end of the spectrum. Aggressive behaviour was recorded using a staff and self-rated diary. Results: We recruited eleven participants from a young offenders institute in HMP Parc (UK). Whilst we were unable to recruit the numbers specified in our proposal due to current resource constraints, all eleven completed four sessions of the training within a week, and all completed four weeks of behavioural diaries, with no missing data or study attrition. Qualitative interviews suggested the intervention was easy to use and well received by participants and staff, with the drawback that it was repetitive, causing some to disengage with repeated administrations. Conclusions: This informs us that this intervention may be appropriate for use within a prison setting. Participant's engaged well with the interactive element and the tablet technology, and staff required minimal training and integrated the intervention easily within the current programmes.

Poster 57: Autistic Traits in Social Gaze Appraisal

Ka Lon Sou & Hong Xu
Psychology, School of Social Sciences, Nanyang Technological University, Singapore

Individuals with high autistic traits are impaired in emotion perception. Appraisal theory of emotion predicts that the perception of facial expression is based on our appraisals, i.e. threat evaluation and self-relevance evaluation, of the target. However, do high autistic traits introduce deviance in such appraisals? Self-relevance was manipulated using different gaze directions (direct or averted) in face stimuli. Forty-three participants completed a facial expression recognition task. They were asked to identify the emotion of the faces (Angry, Happy, Sad or Fearful) presented on the screen, rate its intensity, and rate how threatening it was to themselves. Two sets of self-report scales measuring autistic traits (AQ-50) and alexithymia traits (TAS-20), the suggested predominant predictor of impaired emotion perception in autistic population, were administered afterward. AQ-50 alone is a significant predictor for the difference in the threat rating between direct gaze faces and averted gaze faces, $F(1, 41) = 5.56$, $p < .05$, adj $R^2 = .10$ by stepwise regression analysis. Communication, one of the subscales of AQ-50,

significantly predicted the difference in threat rating in the model, $F(1, 41) = 13.53$, $p < .001$, adj $R^2 = .23$. On the other hand, TAS-20 alone is a significant predictor for the averaged rating of threat on the faces, $F(1, 41) = 5.82$, $p < .05$, adj $R^2 = .10$. Further analysis revealed that the effect was driven by its subscale, Difficulty in Identifying Feeling, $F(1, 41) = 12.61$, $p < .001$, adj $R^2 = .22$. To summarize, while alexithymia traits affect the threat evaluation aspect of facial emotion perception, autistic traits are associated with atypical self-relevance evaluation. We conclude that autistic traits and alexithymia traits can affect facial expression perception from different perspectives in the appraisal theory.

Poster 58: Gender Identity Better than Sex Explains Individual Differences in Autobiographical Memory, Future Thinking and Self-Reference Effect in Memory

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A number of recent studies suggest that performance differences between men and women in episodic autobiographical memory are better explained by gender identity (i.e. individual identification of typical features of a gender) than by sex as a binary variable. This study aimed to test this hypothesis on the structural and functional aspects of autobiographical memory and future thinking. On the one hand, the structural aspects were investigated by asking participants to fulfil a comprehensive evaluation of episodic and semantic autobiographical memory, conceptual self and projection into the future. On the other hand, the functional aspects were investigated by studying the mechanisms of encoding new information via self-reference in order to examine the mnemonic benefit associated with the connection with autobiographical memory (i.e. self-reference effect). Finally, participants' gender identity was measured by the Bem Sex Role Inventory, which allowed us to compare sex and gender identity related differences. Few sex-related differences were identified, and gender identity was generally a better predictor of interindividual differences in autobiographical memory, future thinking and self-reference effect than sex. Feminine gender identity was associated with clear differences in emotional aspects that were expressed in the various components of autobiographical memory and future thinking and self. In conclusion, our results support the hypothesis that inter-individual differences in

autobiographical memory are better explained by gender identity than by sex, extending this assumption to the self-memory system in its entirety.

Poster 59: Memory of the 2016 EU Referendum: The Effects of Positive and Negative Emotion on Event Memory

Jasmine Raw, Judi Ellis & Michiko Sakaki
Psychology and Clinical Language Sciences Department, University of Reading, UK

Flashbulb memories (FBMs) are vivid memories of surprising, consequential and/or emotionally-arousing events like President Kennedy's assassination (Brown & Kulik, 1977) and the 9/11 terrorist attack (Hirst et al., 2016). However, most research on FBMs has focused on memories for negative events even though positive events are thought to elicit FBMs too (Hirst and Phelps, 2016). In the current study, we recruited residents from the UK and US to address the effects of positive and negative emotions on FBMs for the UK's EU Referendum held in 2016. Participants' initial autobiographical memories (qualitative data) and emotional reactions (quantitative data) for the event was assessed one week after the referendum results and then again at 3 and 9 months later. The study allowed us to examine an event that yielded both positive and negative emotions depending on participants' voting choice i.e. 'Leave' versus 'Remain'. Our quantitative results show that UK residents, irrespective of their voting choice, reported more vivid memories three months after the referendum along with greater levels of recollection confidence compared to US residents. In addition, stronger emotional reactions reported in the initial survey predicted more vivid memories at follow-up across participants. Overall, our results suggest that FBMs are formed for emotional events irrespective of whether the events are positive or negative.

Poster 60: Different Biases Result in Memory for Discrete Emotions According to Different Events

Barbara Muzzulini, Carla Tinti & Susanna Schmidt
University of Turin, Italy

Memory of emotions elicited by past events guide people's ongoing and future behaviours. Nevertheless, past research has provided evidence that memory for emotions is often subjected to overestimation or underestimation biases, as individuals tend to reconstruct or infer their recalled memories according to their current appraisals (i.e. how they evaluate the event). However, it remains largely unclear how the nature of the

event may influence the memory bias observed in discrete emotions' recall. The present research adopts an evolutionary perspective to investigate whether a different memory bias can be observed for frightening events that directly threaten the individual's survival (e.g. a terrorist attack) and consequential events that do not represent a survival threat (e.g. a political withdrawal). To do so, we chose two different events: the terrorist attacks in Paris (Study 1, N = 151 Italians) and the referendum that determined the exit of the UK from the EU (Study 2, N = 249 British). Participants completed the first questionnaire (T1) a few days after the two events and again (T2), respectively 19 and 11 months after. The questionnaires were the same among the two studies and they assessed current emotions (fear, surprise, anger, sadness, disgust, and happiness), and current appraisals (novelty, importance, and consequentiality) at T1, and memory for the same emotions, and the same current appraisals at T2. As predicted, both studies revealed that, when present, the bias on emotions' recall was predicted by current appraisals. However, in Study 1, no bias was observed for the emotions of fear, surprise and anger, while in Study 2 a bias among all the emotions' recall was observed. In line with evolutionary theories, our findings suggest that under the circumstances of particularly frightening events, people remember specific discrete emotions more consistently than others in order to enhance their chance of survival in future behaviours.

Poster 61: Emotional Content on Source Monitoring in Fibromyalgia Patients

Frédérique Robin[1], Tifenn Cébron[2], Marine Letellier[3] & Julien Nizard[3]

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Objective: For healthy adults, source confusions between perceived and imagined events occur less frequently for the negative items than for positive or neutral items (Kensinger et al., 2007). However, the prevalence of negativity bias remains controversial. For instance, patients with Alzheimer's disease or post-traumatic stress disorder tend to remember negative items as well as positive ones and both more often than neutral items (Kensinger et al., 2002; Mickley Steinmetz et al., 2012). However, in view of the effects of emotional congruence, it is acceptable to think that individuals in situations of chronic pain should display a negativity bias (Bartley et al., 2009; Elbeze-Rimasson et al., 2012). Surprisingly, very few experiments have addressed emotional bias with patients suffering from fibromyalgia whereas dysregulation of affect is an important factor in these patients. Method: Thirty participants: 15 FMS patients and 15 healthy women performed a source monitoring task, where they had to decide whether positive, negative and neutral words were imagined or seen

with a photograph. Fibromyalgia patients were assumed to pay more attention to negative stimuli, which was thought to involve a cognitive deficit in the learning of positive and neutral information. Results: Although preliminary, the results challenge the hypothesis of the negative valence advantage on source monitoring, emotional impacts on memory is relatively similar in fibromyalgia patients and controls. Nevertheless, the patients exhibit more source confusions and recognition deficits than control subjects. Conclusion: FMS affects episodic memory both quantitatively and qualitatively, which leads to memory illusions (i.e source confusions). This hypothesis encourages us to persist with research in this field. In addition, the study of the relationship between the affective value of events and source attribution is an experimental setting which may lead to progress on the issue of emotional regulation.

Poster 62: Interindividual Determinants of Implicit Emotion Regulation

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Successfully dealing with our emotions is a critical adaptive ability to achieve well-being and mental health. Unsurprisingly, the training and rehabilitation of emotion regulation is often the main goal of psychotherapy. However, emotion regulation is a complex function encompassing numerous cognitive processes, selectively triggered by various strategies. One of such strategies, fictional reappraisal, aims at decreasing the level of "reality" of an event in order to attenuate the emotional response. This can be done voluntarily (in CBT techniques such as mental exposition or alternative thoughts generation) or implicitly, through involvement in fiction (movies, virtual reality worlds etc.). However, the interindividual characteristics that modulate the efficiency of this strategy remain unclear. We conducted a series of studies investigating the phenomenal, bodily, and neural changes induced by implicit fictional reappraisal. We showed that presenting realistic material as "fictional" attenuates the different components of the emotional response. Critically, this effect was modulated by interindividual characteristics, such as executive functioning, interoceptive abilities or dispositional traits such as empathy. These findings cast light upon the interindividual differences responsible for efficient implicit ER. Critically, they suggest the existence of cognitive prerequisites necessary for the successful deployment of such kind of emotion regulation strategies. On a clinical level, we argue that the outcome of cognitive-behavioural psychotherapies could beneficiate from the neuropsychological assessment and parallel rehabilitation of the mechanisms circumscribed by our studies.

Poster 63: Non-Compliance with Online Mood Manipulations Using Film Clips: How to Detect and Control for it

Yury Shevchenko & Arndt Bröder
University of Mannheim, Germany

The reliability of online mood manipulations is undermined by participants' non-compliance behavior, e.g. skipping a part of the experiment or switching between web pages during the mood manipulation. The goal of the current research is to investigate (1) whether and how mood manipulations are threatened by non-compliance behavior, (2) whether it is confounded with the induced mood state as predicted by Affect Regulation Theory, and (3) what measures can be taken to control for this. In two online-experiments, non-compliance behavior was assessed during the mood manipulation with movie clips by tracking interruptions of watching and page switches. The results confirm the affect regulation hypothesis demonstrating that people confronted with a negative emotion content interrupted watching the video and switched between pages more often than people with a positive content. Methodologically, this causes a threat to the internal validity of internet-based mood manipulation studies. To decrease the risk of non-compliance, the current study recommends to block skipping a part of the mood manipulation, detect page focus events and measure the time people stay on a page.

Poster 64: Efficacy of Acceptance Strategy in Emotion Regulation – a Comparison of Three Ways of Strategy Explaining

Agnieszka Wojnarowska
University of Warsaw, Poland

Acceptance is one of emotion regulation strategies. It stands out among others strategies (suppression, reappraisal or distraction), as it neither avoids emotional experience nor modify the form and frequency of thoughts and feelings (Hayes et al., 1996). Recently, the development of therapies that emphasize the importance of accepting your own, even difficult emotions, has been observed (ACT – Hayes et al., 1999; DBT – Linehan, 1993; MBCT – Segal et al., 2002). Experimental studies on efficacy of acceptance mix up various components that are labelled as "acceptance strategies" (e.g. acceptance and willingness, mindfulness, cognitive defusion). In those studies acceptance is explained to participants with diverse features (exercises, metaphors) referring to diverse components, but still little is known about the effectiveness of each component. The aim of the study is

to measure and compare the effectiveness of emotion regulation based on each of three acceptance components: 1) acceptance and willingness 2) mindfulness – being present and 3) cognitive defusion. In each of experimental conditions aversive pictures were used to provoke negative emotions. The efficacy of emotion regulation was analyzed with diverse emotional reaction measures, including conscious emotional experience (declarative measures), memory of experience and physiological level (heart rate variability HRV, obtained from electrocardiographic measurement). The poster presents the preliminary results of analysis, indicating effects of diverse ways of explaining the acceptance strategy for efficacy of emotion regulation.

Poster 65: The Association Between Regulatory Mode and Nostalgia Proneness

Effrosyni Mitsopoulou, Tim Wildschut, Erich Graf & Matt Garner
Department of Psychology, University of Southampton, UK

Previous findings suggest that nostalgia proneness correlates positively with assessment, a self-regulation orientation focused on evaluation, but negatively with locomotion, a self-regulation orientation focused on goal pursuit (Pierro et al., 2013). We tested this hypothesis in two studies using large English-speaking samples (Study 1 & Study 2). In both studies, we consistently replicated the positive correlation between nostalgia proneness scales and assessment while we tend to find a positive rather a negative correlation between nostalgia and locomotion orientation. In addition, we explored whether there is a difference between the English version of the locomotion scale and the translated Italian version used by Pierro et al. (2013) that might account for the findings. Following Pierro et al. (2013), we administrated the Italian versions of the self-regulatory scales. Italian participants filled out either the English (Study 3) or Italian version (Study 4) of the self-regulation subscales and nostalgia proneness scales. The results confirm our earlier findings of a positive relation between locomotion orientation and nostalgia proneness. Subsequently, we compared the standardized effect sizes across nine studies testing the locomotion-nostalgia relation. Our meta-analysis confirmed a positive correlation between locomotion and nostalgia. These results have important implications for the nature of nostalgia proneness.

Poster 66: Acute and Repetitive Fronto-cerebellar tDCS Stimulation Improves Mood in Non-depressed Participants

Simon Newstead, Hayley Young, David Benton, Gabriela Jiga-Boy, Hana Burianová & Frédéric Boy
Swansea University, UK

Transcranial direct current stimulation (tDCS) is a non-invasive form of brain stimulation, which allows for selective inhibition or excitation of neural structures. It has demonstrated some efficacy in the treatment of mood disorders. However, these studies have predominantly focused on stimulation of the prefrontal cortex (PFC). The cerebellum has an increasingly recognized role in emotional control, affective state, and some psychopathologies. As such, tDCS research into mood modulation needs to expand beyond conventional PFC-focused paradigms. Using a contralateral stimulation electrode placement [anodal left dorsolateral(dl) PFC, cathodal right cerebellum], and a single-blind, repeated-measures design, we initially assessed changes in the mood of healthy participants in response to acute stimulation (n = 44) and three repeated stimulations delivered second-daily (n = 21). In a second experiment, we separately investigated the influence of reversed polarity upon these same measures, in response to acute stimulation (n = 23) and repeated stimulation (n = 11). We observed a systematic elevation of mood in both active conditions following single and repeated tDCS, the latter of which displayed a progressive elevation of mood from baseline. No mood change was noted in response to either single or repeated stimulation in the sham condition. Frontocerebellar tDCS stimulation advantageously influences mood in healthy participants, with an accumulative and potentiated effect following successive stimulations. The possibility that frontocerebellar stimulation may provide a novel therapeutic adjunctive or pre-emptive intervention in stress-related disorders and mood-related psychopathologies should be considered.

THURSDAY AFTERNOON SYMPOSIA

SYMPOSIUM 16: Dispatch from the ERC CREAM Project: Four New Software Tools to Manipulate Audio Emotional Signals in Cognitive Psychology and Neuroscience Research

Thursday 5th April, 13:30pm – 15:30pm

Bute Hall

Convener: Laura Rachman[1,2] & Jean-Julien Aucouturier[1]

[1]STMS Lab (IRCAM/CNRS/UPMC UMR 9912), France

[2]Brain and Spine Institute (CNRS UMR 7225/UPMC/INSERM U 1127), France

In recent years, the experimental sciences of emotion perception and production have greatly benefited from software tools that are able to synthesize realistic facial expressions, which can be used as stimuli in experimental paradigms such as reverse-correlation and in neuroimaging studies. In the audio modality however, tools to control or synthesize the acoustic characteristics of emotional speech or music in a similar manner typically do not exist. The objective of this symposium is to present four new open-source software tools that

have been developed in the past two years in the context of the ERC CREAM project ("Cracking the Emotional Code of Music") and that attempt to fill this methodological gap.

In more details, the tools presented here are designed as transformation techniques: they do not synthesize artificial sound, but rather work on genuine audio recordings, or sometimes even on real-time audio streams [1], which they parametrically manipulate to make them sound more or less emotional. Each tool has been designed with a specific psychophysical or cognitive psychology experiment in mind, but many other applications can be conceptualized. Three of the tools (DAVID [2], ZYGi [3], and ANGUS) are computational models of a specific vocal behavior, such as the form of the speaker's mouth conveying the sound of a smile, a trembling voice expressing fear, or the roughness of a voice expressing arousal. The use of such computational models makes it possible to change specific characteristics of interest in the speech signal, while leaving others untouched. The fourth tool (CLEESE [4]) was developed not to generate emotional speech per se, but rather to generate infinite prosodic variations, which can then be used as stimuli to uncover people's mental representations of specific emotional or attitudinal vocal expressions in reverse-correlation paradigms, similarly to studies in the visual domain [5]. In the four presentations of this symposium, each of the tools will be presented along with a demonstration of possible applications in experimental research. All the tools presented in this symposium are made available open-source for the community (http://forumnet.ircam.fr/), in the hope that they will foster new ideas and experimental paradigms to study emotion processing in speech and music.

13:30pm – 14:00pm **Paper 1: DAVID, Da Amazing Voice Inflection Device**

Laura Rachman[1,2], Marco Liuni[1] & Jean-Julien Aucouturier[1]
[1]STMS Lab (IRCAM/CNRS/UPMC UMR 9912), France
[2]Brain and Spine Institute (CNRS UMR 7225 / UPMC / INSERM U 1127), France

DAVID is a tool developed to apply infra-segmental cues related to emotional expressions, such as pitch inflections, vibrato, and spectral changes, onto any pre-existing audio stimuli or direct vocal input through a microphone. Users can control the audio effects in a modular manner to create customized transformations. Three emotion presets (happy, sad, afraid) have been thoroughly validated in English, French, Swedish and Japanese, showing that they are reliably recognized as emotional, and not typically detected as artificially produced [1]. When applying the emotion effects to real-time speech, the latency of the software is less than 20 milliseconds, short enough to leave continuous speech unaffected by any latency effect. This notably makes the tool useful for vocal feedback studies [2] and investigations of emotional speech in interpersonal communication.

DAVID can be controlled through a graphical user interface, which is practical for exploring different combinations of the audio effects, as well as piloted in experimental software via a Python module pyDAVID. This extension allows for trial-by-trial control of for example the onset or the intensity of the emotion effects. Finally, time stamps can be stored with pyDAVID, making the tool not only appropriate for various behavioral paradigms, but also ideally suited to use in conjunction with neurophysiological recordings, such as electroencephalography (EEG).

14:00pm – 14:30pm **Paper 2: ZYGi, the Rise and Fall of zygomatics in speech**

Pablo Arias & Jean-Julien Aucouturier
STMS Lab (IRCAM/CNRS/UPMC UMR 9912), France

ZYGi is a digital audio processing algorithm designed to model the acoustic consequences of smiling — Facial Action Unit 12 — in speech. The algorithm is able to simulate the subtle acoustic consequences of zygomatic contraction in the voice while leaving other linguistic and paralinguistic dimensions, such as semantic content and prosodic features, unchanged. The algorithm, which is based on a phase vocoder technique, uses spectral transformations — frequency warping and dynamic spectral filtering — to implement the formant movements and high-frequency enhancements that characterize smiled speech. Concretely, the algorithm can either shift the first formants of the voice towards the high frequencies to give the impression of a smile during the production, or shift them towards the low frequencies, giving the impression of a closed/round mouth. In a series of recent studies, we showed that such manipulated acoustic cues are not only recognized as smiled and as more positive, but that they can also trigger unconscious facial imitation [1]. ZYGi exists as a Python wrapper around IRCAM SuperVP voice transformation software and is open to the research community.

14:30pm – 15:00pm **Paper 3: ANGUS: Highway to Yell**

Marco Liuni, Luc Ardaillon & Jean-Julien Aucouturier
STMS Lab (IRCAM/CNRS/UPMC UMR 9912), France

ANGUS is a software tool for high quality transformation of natural voice with parametrical control of roughness. Recent psychophysical and imaging studies suggest that rough sounds, characterized by specific spectro-temporal modulations, target neural circuits involved in fear and danger processing; the brain extracts

such features from human voices to infer socio-emotional traits of their speakers [1]. Our software aims at the design of reproducible psychophysical experiments imposing a parametrical scream-inspired effect on natural sounds, with the aim of investigating the emotional response to this sound feature. Analyzing and synthesizing rough vocals is challenging, as roughness is generated by highly unstable modes in the vocal fold and tract: compared to standard production, rough vocals present additional sub-harmonics as well as nonlinear components. Our approach is based on multiple amplitude modulations of the incoming sound, that are automatically adapted to the sound's fundamental frequency, which lead to a realistic, but also highly efficient, parametric effect well-suited for real-time applications.

15:00pm – 15:30pm **Paper 4: CLEESE, the Ministry of Silly Speech**

Emmanuel Ponsot[1], Juan-Jose Burred[2] & Jean-Julien Aucouturier[3]

[1]Laboratoire des Systèmes Perceptifs (CNRS UMR 8248) and Département d'études cognitives, Ecole Normale Supérieure, PSL Research University, France

[2]Independent Researcher, France

[3]STMS Lab (IRCAM/CNRS/UPMC UMR 9912), France

CLEESE (Combinatorial Expressive Speech Engine) is a tool designed to generate an infinite number of natural-sounding, expressive variations around any speech recording. It consists of a voice-processing algorithm based on the phase vocoder architecture. It operates by generating a set of breakpoints in a given recording (ex. at every 100ms in the file) and applying a different audio transformation to every segment. Doing so, it allows for modifying the temporal dynamics of any arbitrary recorded voice's original contour of pitch, loudness, timbre (spectral envelopes) and speed (i.e. roughly defined, its prosody), in a way that is both fully parametric and realistic. Notably, it can be used to generate thousands of novel, natural-sounding variants of the same word utterance, each with randomly manipulated relevant dimensions. Such stimuli can then be used to access humans' high-level representations of speech (e.g. emotional or social traits) using psychophysical reverse-correlation methods. By providing a computational account of such high-level auditory "filtering," we believe this tool will open a vast range of experimental possibilities for future research seeking to decipher the acoustical bases of human social and emotional communication [1], hopefully as successfully as it has been in vision science from analogous tools [2]. CLEESE is available open-source as both a Matlab and Python toolbox.

15:30pm – 16:00pm **COFFEE BREAK** (Hunter Halls)

SYMPOSIUM 17: Learning about Emotional Expression through Intentional Communication

Thursday 5th April, 13:30pm – 15:30pm

Senate Room

Convener: Tim Wharton, University of Brighton, UK

The study of emotional expression has been central to the scientific research on emotion from the earliest days of its inception (Darwin 1872). Since then, studies on emotional expression have multiplied, leading to some of the fiercest oppositions in affective sciences, such as that between basic emotion (Ekman or Izard), appraisal theories (Fridja or Scherer), and constructionism (Russell or Barrett). What is less generally appreciated is that all parts of the debate on emotional expression have long assumed a common "code model" of communication. According to this model, communication is established when a signaler sends information encoded into signal (cries, gestures, face expression, olfactory markings, and so on) and a receiver decodes the signal and, in doing so, retrieves the communicated information. The code model does not conceive the intention on behalf of the signaler to communicate information to the receiver as a constitutive component of successful communication. For instance, Ekman's seminal studies of the recognition of expressive faces presupposes that their patterns would encode some information about emotional states, which can be decoded by someone else, irrespective of the signaler's communicative intentions. Russell's (1994) criticism of Ekman denies that the latter has succeeded in proving the universality of such recognitions while implicitly accepting the code model of communication.

However, in the past decades a rival model of communication has emerged, namely the ostensive-inferential model of communication. This model was first proposed by Sperber & Wilson (1986/1995), following work by philosopher Paul Grice (1957), in order to explain phenomena distinctive of human communication which the code model is unable to capture. To illustrate. Suppose that Sam and Maria are complaining about how over-rated a certain TV show is. A third person comes by, starts praising the TV show, and leaves. Maria wants to communicate to Sam her irritation and to acknowledge that this is just what they were complaining about. To do so, she can improvise an indefinite number of expressions: raise her eyebrows, emphatically sigh, stick her tongue, wrinkle her nose, etc. There is no code in operation here since there is no fixed association between the signal and the information one is attempting to convey. What is required for communication to take place, according to the ostensive-inferential model, is that Maria shows an ostensive intention to communicate, and that Sam infer from this ostensive behavior that Maria wants to communicate something. It is only by recognizing Maria's ostensive behavior that he gets to infer the message. Unlike in the code model, in the ostensive-

inferential model of communication, what is essential is not a predefined code, but a recognition of communicative intentions.

The ostensive-inferential model of communication is now adopted by a significant number of linguists and philosophers preoccupied with pragmatics (e.g. Diane Blakemore, Stephen Levinson) and developmental psychologists and cognitive scientists attempting to explain the uniqueness of human communication (e.g. Michael Tomasello, Anne Reboul) Nevertheless, research on emotional expression in human beings is yet to reap the benefits the ostensive-inferential model of communication. The aim of this symposium is to trace the prospects of theorising emotional expression within the ostensive-inferential framework of communication. To this end, there are two objectives we want to achieve. First, show how research in intentional communication helps to identify both the strengths and, in particular, the weaknesses in accounts of emotion expressivity, thus furthering research on the nature of emotional expressions. Second, we want to show that theories of emotional expression have much to teach theories of intentional communication. Ultimately, we believe these two areas of research would benefit from a cross-disciplinary dialogue.

13:30pm – 14:00pm **Paper 1: Saying, Showing and Expressing**

Tim Wharton
University of Brighton, UK

The communication of emotion creates a number of problems for the linguist. Firstly, so called ‘linguistic expressives’ contribute to speaker meaning in a manner that is independent from the utterance(s) in which they appear. Secondly, this meaning is difficult to pin down, or ‘descriptively ineffable’. Finally, while expressive meaning is often conveyed by non-linguistic means, even linguistic expressives a non-linguistic 'flavor'. They are used to convey emotional information directly rather than merely report it. This talk examines expressive behaviours – linguistic expressives, interjections, facial expressions or tone of voice – from a pragmatic perspective. The analysis is centred around two main themes, both of which have implications for pragmatic theorising. Grice’s famous distinction between ‘showing’ and ‘non-natural meaning’ is reassessed, as well as the broader question of whether all expressive behaviours work in the same way? Reassessing the pragmatics of expressive meaning in this way is part of an attempt to synthesize an account of ‘emotional communication’ in a way that fits with not only with notions from cognitive models of pragmatics but also recent work on emotions in cognitive science. On the pragmatics side, the idea is that the kind of information encoded by expressive behaviours puts the user into a state in which emotional ‘procedures’ are highly activated and are therefore much

more likely to be recognised by an audience. The pragmatic notion of cognitive effect might therefore require complementing with a new notion of emotional effect, typically activated by the receiver's emotion-reading procedures and rendering them worthy of further processing. Turning to cognitive science, the paper adopts the idea that an emotion is a kind of superordinate cognitive procedure, the function of which is to regulate or mobilise cognitive sub-programs responsible for perception and attention, goal choice, information-gathering, specialised types of inference, physiological changes etc.

14:00pm – 14:30pm **Paper 2: Two Models of Communication to Explain Emotional Expression Through Sounds**

Constant Bonard
University of Geneva, Switzerland

According to recent literature (e.g. Slocombe & Scott-Phillips, 2017) there are only two theoretical models of communication available: the code model and the Gricean (or ostensive-inferential) model. Unfortunately, this distinction is generally not applied in the discussion of emotion expression. In this talk, I ask: Which of these competing models best explain what we know about emotion communication? Of course, a definite answer cannot be given, but I sketch what are some possible answers by applying the models to cases of auditory emotional expression in music, language, and vocal outbursts. Here is the code model: a signaler encodes a (probalistic) information into a shareable medium. A receiver then decodes it, through appropriate algorithms, and thus access the information. This model has proven to be extremely powerful in domains ranging from ethology to computer science. Here is the Gricean model: a signaler has the intention i-1 to share information as well as the intention i-2 to make the intention i-1 manifest. This model is less parsimonious than the code model, but its proponents (e.g. Sperber & Wilson or Recanati) argue that most human communication cannot be explained without it. I discuss arguments for the necessity of the Gricean model with cases of emotion communication through sounds. The upshot of my discussion is that, if we consider findings on the emotional expression in music, language, and vocal outbursts, only the latter seems to have a good chance of being accurately predicted by the code model. In other words, emotional expression research probably needs the Gricean model to account for verbal and musical expression.

14:30pm – 15:00pm **Paper 3: The Generation, and the Communication, of Emotion in Fictional Stories**

Gregory Currie
University of York, UK

Audiences to fictional stories in various media (written, film, drama, etc.) experience various emotions. Generally, the relation between story content and felt emotion is not arbitrary; audiences respond in ways that "make sense" in the light of story content--ways that would be intelligible to an outsider. Very often, audiences respond in ways they are intended to respond by the work's creator, and the work is shaped with an eye to generating those responses, or at least responses within an intended range. Yet while it is unproblematic that story-content (the events of the story and the doings of its characters) are communicated to an audience, it is much less obvious that appropriate/intended emotional reactions are communicated. It is not even clear that the idea of communicating an emotion (as opposed to, say, communicating the fact that one has an emotion) makes sense. I suggest that we adopt an expressive rather than a communicative model to explain an audience's "uptake" of a story's emotional content. Within this account it will be important to distinguish between expressing an emotion and doing something that is expressive of an emotion. It is this latter idea that is of most value to us here.

15:00pm – 15:30pm **Paper 4: Emotional Expressivity, Social Referencing and Intentional Communication**

Daniel Vanello
Swiss Centre for Affective Sciences, University of Geneva, Switzerland

In this talk, I argue that developmental studies on social referencing in children below 1 year of age show that emotional expressivity entails a form of mother-child connection that ostensive-inferential theories of communication have a hard time accounting for. Social referencing refers to the process by which an individual identifies emotional information in her environment to understand the import of an otherwise ambiguous situation. Social referencing is studied by means of “visual cliff” scenarios where a child and a mother are placed on opposite sides of a gap covered with a glass surface, thus confronting the child with having to reach the mother by crossing over the glass. The child acquires information regarding the ambiguous situation by affectively responding to the mother’s emotional expression e.g. if the mother expresses fear, the child shows signs of emotional distress and does not cross the glass surface. By relying on these studies, I make three claims: (i) social referencing involves the communication of information from mother to child; (ii) such communication is to be explained in terms of an irreducible connection between mother and child constituted by the child’s

affective response to the mother's emotional expression; and (iii) the child's affective response to the mother's emotional expression does not involve any sort of inference of the mother's intention to communicate. By relying on (i), (ii) and (iii), I argue that ostensive-inferential models of communication are unable to account for the communication established by emotional expression in social referencing in virtue of their core commitment that a necessary condition of communication is inference on behalf of the recipient of the signaller's intention to communicate.

15:30pm – 16:00pm **COFFEE BREAK** (Hunter Halls)

THURSDAY AFTERNOON OPEN PAPER SESSIONS

OPEN PAPER SESSION 6: CONCEPTS & KNOWLEDGE

Thursday 5th April, 13:30pm – 15:30pm

Gilbert Scott Conference Suite (Room 253)

Chair: Rui Sun, University of Amsterdam, The Netherlands

13:30pm – 13:45pm **Paper 1: Adaptation Aftereffects for Facial Emotional Expressions are Affected by Attributions of Authenticity**

Joanna Wincenciak[1], Letizia Palumbo[2], Nick E Barraclough[3] &Tjeerd Jellema[4]

[1]University of Glasgow, UK

[2]Liverpool Hope University, UK

[3]University of York, UK

[4]University of Hull, UK

Objectives: Can we perceive a facial expression at face value, or does the emotional or mental state we attribute to the person affect how we perceive her expression? Using a visual adaptation paradigm, we addressed the question whether having a belief regarding the authenticity of the observed agent's emotional facial expression affects basic visual mechanisms involved in the perception of that facial expression. Methods: Across three experiments we tested participants' adaptation to both genuine and faked facial expressions of happiness and anger that were matched for intensity of expression, while we varied the duration of the adapting stimulus. On

each trial, participants first assessed the authenticity of the expression and received feedback about their judgement, to ensure they held the correct belief about the emotional state of mind of the observed actor. Next, participants adapted to this facial expression for either 500 ms, 5 s or 8 s, in a between-subject design. In the test phase evaluations of the neutral expression of the same actor were measured on a 5-point Likert scale (from slightly happy to slightly angry, including neutral). Results: Across all experiments (500 ms, 5 s or 8 s adaptations) the analyses showed typical adaptation effects in both genuine and faked conditions. However, after-effects to expressions of genuine happiness and genuine anger were significantly larger than those to expressions of faked happiness and faked anger. These results indicate that knowledge regarding the authenticity of the observed expressions modulates the size of the adaptation aftereffects. Conclusions: Our findings can be interpreted as support for the premise that fairly basic visual mechanisms involved in the perception of an agent's emotional facial expression are influenced by mental state attributions made to the observed agent. It highlights the intense interplay between perception and mentalising.

13:45pm – 14:00pm **Paper 2: Feelings, Emotions, and Intentional Objects**

Corey Maley
Department of Philosophy, University of Kansas, USA

Emotion theorists take it as a near truism that emotions have intentional objects: to be sad or happy is to be sad or happy about something. It is virtually axiomatic that the very concept of emotion presupposes an object toward which particular emotional instances are directed. However, for some emotions, it is quite easy to characterize an instance of that emotion in the absence of an intentional object; for others, it is not. For example, someone may experience sadness without that sadness being about anything in particular: her sadness may well have been caused by a medication that induces sadness as a side effect. Keeping clear the distinction between the cause of the emotion and the emotion's intentional object, this would be sadness that is not about anything at all, despite having a clear cause. On the other hand, it seems incoherent to imagine someone feeling betrayed, but without feeling betrayed by or about anything in particular. Without such an intentional object, it is unclear why such a feeling would count as betrayal as opposed to some other negatively-valenced emotion. In other words, part of the individuation conditions for feeling betrayal is that the feeling is directed at a betrayer (possibly only perceived): with no such betrayer, there can be no feeling of betrayal. This distinction between those emotions that necessarily require an intentional object and those that do not offers an interesting theoretical taxonomy that solves several problems regarding emotions, such as: why certain emotion concepts and terms appear in all cultures while others do not; why some emotions (but not others) have analogs in other animal species; and why

different people report different affective experiences for the same feelings that require objects (e.g. guilt or betrayal), but not for those that do not (e.g. sadness or happiness).

14:00pm – 14:15pm **Paper 3: Holding on to Hope (or Fear): Justifying One's Ideology Through Emotions**

Ruthie Pliskin[1], Eden Nabet[2], John Jost[3], Maya Tamir[4] & Eran Halperin[2]
[1]Leiden University, The Netherlands
[2]Interdisciplinary Center Herzliya, Israel
[3]New York University, USA
[4]Hebrew University, Israel

Can a desire to experience an emotion that justifies one's ideological convictions be enough to actually arouse that emotion, even in the face of real-world events that discourage its experience? In four studies, we examine whether people maintain ideology-congruent emotions in circumstances that would otherwise diminish these emotions, and whether this is driven by a belief that the emotion serves to justify one's ideology. Study 1 (N = 76) employs a repeated measures design over two weeks of Israeli-Palestinian clashes to examine whether Israeli leftists maintain hope for the violence to subside despite accumulated exposure to violence, finding that their hope remains high while rightists' hope diminishes over time. Studies 2 (N = 125) and 3 (N = 125) provide evidence that people's belief that an emotion justifies their ideology drives their experience of that emotion in response to ambiguous targets. Jewish-Israeli and American leftists believed that hope justifies their ideology more than rightists did, with the opposite trend found for fear. This belief mediated ideology's relation to one's emotional experience in response to a conflict resolution opportunity, eventually predicting levels of support for the opportunity. Study 4 (N = 96) provides causal evidence that promoting a belief that an emotion justifies one's ideology encourages the experience of that emotion. American liberals who read that hope justifies liberal ideology experienced higher levels of resistance-based hope in the wake of Trump's election and were more willing to partake in collective action against policies that they opposed. The findings' significance is discussed.

14:15pm – 14:30pm **Discussion/Q&A/Comfort break**

14:30pm – 14:45pm **Paper 4: Kama Muta: Conceptualising and Measuring the Experience of**

'Being Moved' Across 19 Nations and 15 Languages

Janis H. Zickfeld & the KAVIAR Project
University of Oslo, Norway

English-speakers sometimes say that they feel moved to tears, emotionally touched, stirred, or something warmed their heart. Speakers of some other languages use similar metaphors to refer to an affective state. Do these expressions, and their translations in other languages, all refer to the same distinct emotion or do they rather belong to a fuzzy category of positive or mixed emotions? Are such experiences universal across nations—even ones that do not have accessible vernacular terms for the state—or do they depend on particular sociocultural frames of reference? We propose and test the concept of kama muta to understand experiences often given these labels. Across 19 different countries, five continents, 15 languages, and a total of 3542 participants we tested the appraisals, valence, bodily sensations, motivation, and lexical labels related to kama muta and validated a comprehensive scale to measure each them. Our results are congruent with previous findings showing that kama muta is a distinct positive social emotion and is evoked by experiencing or observing a sudden intensification of communal sharing. It is accompanied by moist eyes or tears, chills or piloerection, a warm feeling in the body, feeling choked up, and feelings of buoyancy and exhilaration. It motivates affective devotion and moral commitment to communal sharing. It tends to be labeled with certain vernacular lexemes such as, in English, moving, touching, and heartwarming. We observed a number of consistencies across cultures, but also variations with regard to the magnitudes of the correlations among these five aspects of kama muta.

14:45pm – 15:00pm **Paper 5: Paper 5: Mood Granularity: Identifying, Distinguishing, and Describing 18 Moods**

Haian Xue[1], Pieter M. A. Desmet[1], Steven F. Fokkinga[1,2], Plamena Adrianova Karova[1]
[1]Faculty of Industrial Design Engineering, Delft University of Technology, The Netherlands
[2]Emotion Studio Rotterdam, The Netherlands

Many studies have investigated emotional granularity, which is individuals' ability to specify and differentiate emotions. It has been found that individuals with high emotional granularity tend to better regulate their emotions. In contrast, there has been little research effort to understand discrete representations of *mood.* Given our overarching research purpose of designing products, services and systems for mood regulation, our current study is dedicated to exploring the mood granularity. Research Questions: Which affective experiences could be

identified as moods? What are the lived experiences of discrete moods? This study was carried out in two parallel steps. Step 1 was to identify moods as granular types. An exhaustive list of mood words was collected from literature, which were filtered and validated in four rounds: duplicates removal, researchers' individual filtration, collective filtration and categorisation, and validation with a native English linguist. Step 2 was to generate rich descriptions of discrete moods. Eight master students were selected as co-researchers based on their affective sensitivity. After being trained in a workshop, the co-researchers kept a mood diary for fourteen days, were individually interviewed, and finally co-created phenomenological descriptions in two focus groups. Results: An overview of 18 mood types. Definitions, rich descriptions and illustrations of each mood. Conclusion: This study contributes a deeper understanding of the granularity of mood by identifying, distinguishing, defining, and phenomenologically and pictorially describing 18 moods. In the next step, we plan to develop a strategy and multimodal tools for communicating these moods. Musicians, dancers, actors, visual artists, and poets will be invited to create diverse, enriched and vivid media that communicate moods, which will be integrated in the development of design tools for mood communication.

15:00pm – 15:15pm **Paper 6: Learning Situated Emotions**

Lauren A. M. Lebois[1], Christine D. Wilson-Mendenhall[2], W. Kyle Simmons[3], Lisa Feldman Barrett[4] & Lawrence W. Barsalou[5]

[1]Harvard University, USA
[2]University of Wisconsin, USA
[3]Laureate Institute of Neuroscience, USA
[4]Northeastern University, USA
[5]University of Glasgow, UK

From the perspective of constructivist theories, emotion results from learning assemblies of relevant perceptual, cognitive, interoceptive, and motor processes in specific situations. Across emotional experiences over time, learned assemblies of processes accumulate in memory that later underlie emotional experiences in similar situations. A neuroimaging experiment guided participants to experience (and thus learn) situated forms of emotion, and then assessed whether participants tended to experience situated forms of the emotion later. During the initial learning phase, some participants immersed themselves in vividly imagined fear and anger experiences involving physical harm, whereas other participants immersed themselves in vividly imagined fear and anger experiences involving negative social evaluation. In the subsequent testing phase, both learning groups

experienced fear and anger while their neural activity was assessed with functional magnetic resonance imaging (fMRI). A variety of results indicated that the physical and social learning groups incidentally learned different situated forms of a given emotion. Consistent with constructivist theories, these findings suggest that learning plays a central role in emotion, with emotion adapted to the situations in which it is experienced.

15:15pm – 15:30pm **Discussion/Q&A**

15:30pm – 16:00pm **COFFEE BREAK** (Hunter Halls)

OPEN PAPER SESSION 7: INFLUENCE

Thursday 5th April, 13:30pm – 15:30pm

Lecture Theatre G466

Chair: Oksana Itkes, University of Haifa, Israel

13:30pm – 13:45pm **Paper 1: Is a Stimulus-driven or a Goal-directed Process Responsible for Emotional Behavior?**

Maja Fischer, Agnes Moors, Batja Mesquita & Peter Kuppens
University of Leuven, Belgium

A recently developed account of emotional behavior proposes that emotional behavior is determined by a goal-directed process and not a stimulus-driven process as many emotion theories suggest (Moors, Boddez, & De Houwer, 2017). In a stimulus-driven process, an association between the representation of stimulus features and the representation of a behavior determines the behavior, whereas in a goal-directed process the expected utilities of different behavior options are assessed and the behavior option with the highest expected utility is chosen. The expected utility is a function of the subjective value of an outcome (e.g. satisfaction of a goal) and the subjective expectancy that a behavior will lead to this outcome. We examined whether emotional behavior elicited by social exclusion could be explained by a goal-directedness process instead of by often-proposed stimulus-driven processes. In two experiments, participants (N = 178, N = 101) were excluded using the cyberball paradigm (Williams, 2007), and were then either assigned to a condition in which they could choose to send aggressive or prosocial messages to the other players or to a condition in which they could send aggressive, prosocial, or

moralizing messages. We assumed that the expected utility would be highest for aggressive behavior in the first condition, but for moralizing behavior in the second condition resulting in the corresponding behaviors. The results in both experiments confirmed our hypothesis ($p < 0.001$), supporting the idea that a goal-directed process can determine emotional behavior.

13:45pm – 14:00pm **Paper 2: The Effect of Categorical and Probabilistic Relevance appraisal on the Emotional Response**

Olteanu Larisa, Golani Shahar, Eitam Baruch & Kron Assaf
University of Haifa, Israel

Most models of emotion assume that the emotional response is preceded by an assessment of a stimulus' relevance to the perceiver's goals. Although widely assumed, experimentally controlling and hence empirically testing the effect of a stimulus' relevance on the emotional response has proven challenging. To overcome previous difficulties, we used stimuli with high ecological validity and manipulated their relevance while holding constant the perceptual features of the stimuli. In the experiment, participants were given the result of their Israeli Psychometric Entrance Test (PET). The PET score is highly relevant to most participants as, at the time of the experiment, it is the only unknown about whether they shall be admitted to their major of choice at the university. Relevance of the information was manipulated both categorically by manipulating whether the presented score is the participant's or belongs to another unfamiliar participant and probabilistically — by manipulating the probability that a presented score is their actual PET score. We found a robust effect for categorically manipulated relevance and a weak effect for probabilistically manipulated relevance on the emotional response. The results provide strong evidence that information about a stimulus' relevance modulates the emotional response to it.

14:00pm – 14:15pm **Paper 3: Why do Adolescents Experience Difficulties Disengaging from Social Media? A Qualitative Exploration of Social, Emotional and Cognitive Drivers**

Holly Scott, Heather Cleland Woods & Stephany Biello
University of Glasgow, UK

Social media has rapidly become an integral part of daily life, particularly for today's adolescent generation who have grown up with 24/7 instant communication. Younger people are particularly likely to experience a strong connection to devices and platforms, feeling anxious, isolated and disconnected without access to social media. This can lead to social media use being prioritised over other activities, such as sleep, due to difficulties disengaging from online activity. The current study explored drivers behind social media engagement in adolescents, with a focus on what underlying motivators contributed to difficulties disengaging from social media activity at bedtime. Adolescents aged 11-17 years participated in four focus groups. Semi structured discussions focused on motivators for social media engagement and perceived impact on bedtime behaviours and sleep, including the experience of disengaging from social media. Inductive thematic analysis identified three overarching themes: Missing Out, Social Expectations and Mood Regulation. Fear of the offline costs of missing out on online content created anxiety around disconnecting at night. Participants continued late night online interactions, despite tiredness and lack of enjoyment, in order to meet perceived social expectations and etiquette. Some participants also reported using social media platforms to regulate negative emotions and combat rumination around bedtime. These factors led participants to use social media past their intended bedtimes, despite acknowledging negative effects on their sleep and daytime functioning. The current findings add novel insight into motivators driving social media behaviours, including negative emotions around disconnecting at night. Efforts to encourage healthier adolescent sleep-related social media habits therefore need to move beyond simply restricting bedtime social media access, and instead address the underlying emotional experience of disconnecting from one's online social world as a modern teenager.

14:15pm – 14:30pm **Discussion/Q&A/Comfort break**

14:30pm – 14:45pm **Paper 4: Mechanisms Underlying the Opposing Effects of Emotional Arousal on Memory: A Neurocomputational Framework**

Michiko Sakaki[1], Allison Ponzio[2], Taiji Ueno[3], Carolyn Harley[4] & Mather Mather[2]

[1]University of Reading, UK

[2]University of Southern California, USA

[3]Takachiho University, Japan

[4]Memorial University of Newfoundland, Canada

Emotional arousal sometimes facilitates memory but sometimes impairs memory. Previous studies suggest a role for norepinephrine (NE), a neuromodulator released from the locus coeruleus when encountering emotional events, in explaining the effects of emotional arousal on memory. Yet noradrenergic innervation is widespread across the brain. If norepinephrine released broadly under emotional arousal is responsible for its effects on memory, how can arousal lead to both memory enhancement effects and memory impairing effects via the same noradrenergic system? In the current study we present computational and behavioral evidence elucidating the mechanisms by which emotional arousal can modulate memory in opposite ways via the local/synaptic-level noradrenergic system. We formally derive a model based on neurophysiological observations that NE released under emotional arousal is locally controlled by glutamate levels, resulting in different NE effects across regions, gating either long-term potentiation or long-term depression by activating different adrenergic receptors depending on NE concentration levels. The model generates a novel prediction that emotional arousal amplifies competition among representations. Across three studies, we provide experimental evidence consistent with this prediction. These findings suggest that the NE's local effects, rather than broad effects, are key in determining the effects of emotion on memory.

14:45pm – 15:00pm **Paper 5: Affective Integration: Subjective Affective State as a Function of Integrated Sensory Information and Prior Affect**

Erkin Asutay & Daniel Västfjäll
Linköping University, Sweden

Understanding how affective states are formed as a function of integrated information is arguably required for making progress in understanding the affective experience and the role of affect in behavior. Here, we investigated the mental calculus behind the integration of affective information and fluctuations in core affect. In four studies, participants (N = 213), in each trial, viewed a number of images in a sequence and reported their momentary valence and arousal. We varied number (4 or 6) and duration (2s or 4s) of images in different studies. In two studies (N = 119), positive and negative images were presented in separate blocks (blocked-valence), while in others (N = 94), images were presented randomly (mixed-valence). We predicted current affect (i.e. valence and arousal) as a function of normative image ratings and prior affect (measured in the previous trial). Group-level analyses revealed an averaging mechanism for affective integration that assigns higher weights to potentially more affective and recently represented sensory input. Critically, affective averaging of sensory information and prior affect accounted for different sources of variances in current affect. Also, the relative contribution of prior valence was higher during blocked-valence (st.β = .41±.02) compared to mixed-valence

condition (st.β = .09±.02). Whereas, relative contributions of normative valence ratings were higher during mixed-valence. Thus, core affect seems to have an increased sensitivity to extrasensory information when pleasantness of sensory input is unpredictable.

15:00pm – 15:15pm **Paper 6: The Implication of Epistemic Emotions During Creativity**

Catherine Audrin[1,2], Isabelle Capron Puozzo[1], David Sander[2]
[1]University for Teacher Education, Lausanne, Switzerland
[2]Swiss Center for Affective Science, University of Geneva, Switzerland

Epistemic emotions are important in the academic context (Pekrun & Linnenbrink-Garcia, 2012) as they have been proposed to facilitate exploration (Silvia, 2010), knowledge acquisition (Valdesolo, Shtulman, & Baron, 2017) and learning (e.g. D'Mello, Lehman, Pekrun, & Graesser, 2014). To our knowledge, no study has assessed the importance of epistemic emotions in the context of creativity. In this study, we hypothesize that epistemic emotions may also be particularly involved in creativity tasks, and that there may be different profiles of epistemic emotions in creativity tasks as compared to other tasks. Ninety-five participants were recruited to take part to the experiment. Participants were presented with a creativity task (the 3-minutes Divergent Thinking Task, Beaty, Silvia, Nusbaum, Jauk, & Benedek, 2014) and two classical cognitive tasks (the Verbal Fluency task, Beaty et al., 2014, and the Raven Standard Progressive Matrices, Van der Elst et al., 2013). After each task, participants were requested to report the epistemic emotions they felt during each task using the short version of the Epistemically-Related Emotion Scale (Pekrun, Vogl, Muis, & Sinatra, 2017). Analyses revealed that epistemic emotions were experienced in all three tasks and were on average particularly important in the creativity ($F(2; 93) = 53.879$). Notably, participants reported feeling curious and enthusiastic. Interestingly however, the profile of emotions were different between the tasks ($F(12; 83) = 14.582$): participants reported being more surprised during creativity task than during both cognitive tasks, but less enthusiastic and more bored than during the fluency task. This study highlights that epistemic emotions are involved during creativity, highlighting the particular importance of curiosity, enthusiasm and surprise in this process. Future studies should assess how epistemic emotions may predict performance in creativity tasks.

15:15pm – 15:30pm **Discussion/Q&A**

15:30pm – 16:00pm **COFFEE BREAK** (Hunter Halls)

OPEN PAPER SESSION 8: AFFECTIVE STATE

Thursday 5th April, 13:30pm – 15:30pm

East Quadrant Lecture Theatre

Chair: Julian Provenzano, KU Leuven, Belgium

13:30pm – 13:45pm **Paper 1: Revisiting the Dissociation between Valence and Arousal in the Human Brain**

Hadeel Haj-Ali[1], Adam K. Anderson[2] & Assaf Kron[1]

[1]University of Haifa, Israel

[2]Cornell University, USA

Valence and arousal are frequently used to model the conscious experience of emotion. By asking to report feelings of arousal and valence separately, researchers assume that participants are able to attend and report distinct feelings of arousal and valence. However, previous studies suggest that arousal and valence are not distinct qualia. Instead, their dissociation might be an artifact resulting from using bipolar valence scale (Kron et al., 2013; Kron et al., 2015). Kron et al. (2015) demonstrated that using bivariate valence scales (separate scales for pleasant and unpleasant feelings) renders arousal scale redundant. Particularity, arousal scale had no additional contribution over bivariate pleasant and unpleasant scales in predicting peripheral activation. The aim of the current work is to generalize the previous results to the neural domain. Specifically, we investigate whether arousal has an advantage over bivariate valence, in explaining the signal variability in arousal-related regions in the brain. Thirty participants viewed emotional pictures in the MRI scanner, while providing reports about their emotional response. Half of the reports were given with bipolar valence scale (consisted of arousal and valence scales), and the other half with bivariate valence (consisted of two scales for pleasant and unpleasant feelings). The results of parametric modulation analysis show no significant difference between arousal and bivariate valence in explaining the fMRI signal, which was extracted from thirteen Regions of Interest (ROI's) in a localizer task. ROI's include anterior Insula, Cerebellum, and right Thalamus. The findings question the distinction between arousal and valence as two separate qualia.

13:45pm – 14:00pm **Paper 2: Musical Chills, Fear and Social Cues: A Multiple Process Perspective**

Scott Bannister
Durham University, UK

Chills, an emotional experience accompanied by gooseflesh, shivers, and tingling sensations, has received substantial attention in music and emotion research, although little is understood about the response. Theories of fear processing (Huron, 2006) and prosocial aspects (Panksepp, 1995; 1998) have been proposed, but almost no research exists that describes the emotional characteristics of aesthetic chills, or the manipulation of the response in experimental conditions. This theoretical paper aims to present an alternative and developing account of aesthetic chills, namely that chills may actually refer to numerous phenomenologically distinct experiences, derived from differing causal processes. The paper summarises two recent investigations carried out by the author: Firstly, a survey that investigated qualitatively the emotional and situational characteristics of musical chills in listeners (N = 375), and the musical features linked to the response; secondly, a listening experiment that removed various aspects of three pieces of music to reduce the frequency of chills in listeners (N = 24). Results from the survey highlight that chills are often described as moving, intense and pleasurable, frequently containing both positive and negative feelings. However, significant variation in emotional experience suggests that some chills may be quite distinct from others. The listening experiment extends this, showing the capacity for multiple distinct musical features to elicit chills (crescendo, guitar solo, string theme), evidenced by the reduced number of chills when these features are removed from a piece. Conclusions from the investigations suggest that the chills concept may encapsulate phenomenologically distinct emotional experiences, and that these differences may be derived from the type of musical feature or aesthetic stimulus that elicits the response. From here, a preliminary multi-process perspective of aesthetic chills is proposed, which may explain inconsistencies in existing research, bring different theories together, and call for a reconceptualisation of the emotional chills response.

14:00pm – 14:15pm **Paper 3: A Psychosomatic Model of Rumination**

Sander L. Koole[1] & Caroline Schlinkert[2]
[1]Vrije Universiteit Amsterdam, The Netherlands
[2]Utrecht University, The Netherlands

People differ in their disposition towards rumination, or chronic tendencies to engage in perseverative (often negative) thought. Rumination is not only associated with psychopathology, but also with a wide range of

physical complaints, including headaches, stomach aches, sleeping problems, appetite dysregulation, and sexual dysfunction. To date, however, little is known about how rumination may become translated into physical complaints. To fill this gap, we propose a psychosomatic model of rumination (Koole, Schlinkert, & Tops, 2017). According to the model, chronic ruminators cope with stress through psychophysiological processes that alternate between mobilization and minimization. Mobilization coping is characterized by heightened vigilance for bodily signals and inhibition of bodily needs like sleep and hunger. Minimization coping is characterized by fatigue and physiological blunting, along with escapist behavioral tendencies such as over-eating and self-injury. Over time, mobilization-minimization coping increases allostatic load, which can ultimately lead to organic disease. I will present research that offers initial support for the psychosomatic model of rumination. Studies 1-4 examine the presumed mobilization process, whereas Studies 5-7 address the presumed minimization process. Studies 1 and 2 show that a mild stress induction leads ruminators (but not non-ruminators) to display greater interoceptive awareness, as assessed by self-report and a heartbeat detection task. Studies 3 and 4 show that a mild stress induction leads ruminators (but not non-ruminators) to display disruptions in appetite regulation, as indexed by the correlation between food deprivation and taste ratings for calorie-rich food. Studies 5-7 show that real-life and experimentally induced stress lead to decreases in body vitality among ruminators, but not among non-ruminators. Taken together, these findings, along with the broader framework of the psychosomatic model, afford important new insights into the pathogenic effects of ruminative coping with stress.

14:15pm – 14:30pm **Paper 4: Oxytocin Induces Brain Activity Reductions to Negative Emotional Stimuli in Younger and Older Adults**

Diana S Cortes, Kristoffer Månsson, Håkan Fischer & Petri Laukka
Stockholm University, Sweden

In recent years, the intranasal administration of the neuropeptide oxytocin has mainly been related to improvements in domains such as emotion recognition and memory, but to date the effects of oxytocin in aging remain largely unknown. A major caveat in oxytocin research is that it is almost exclusively based on young men which may reflect an inadequate picture of the potential benefits of oxytocin administration. In a randomized, double blind, placebo controlled, within-subjects study design, we investigated whether oxytocin affects the recognition of positive and negative stimuli differently in younger and older adults. Forty-four older adults (50% women; $M = 69.82$) and 44 younger adults (50% women; $M = 24.75$) participated in this study two times, receiving a single intranasal dose of 40 IUs of placebo and oxytocin in randomized order 40 minutes before engaging in the task. Participants watched short videoclips where actors displayed nine emotions: neutrality,

happiness, pride, interest, relief, anger, despair, sadness, and disgust. Preliminary results indicate that oxytocin-induced reductions to negative emotions were found in bilateral fusiform gyrus ($Z > 4.16$, Family wise error corrected, $pFWE < 0.009$), hippocampus ($Z > 4.53$, $pFWE < 0.002$), insula ($Z > 3.69$, $pFWE < 0.045$), and superior temporal gyrus ($Z > 4.34$, $pFWE < 0.008$), as well as, right-lateralized reductions in the amygdala ($Z = 3.73$, $pFWE = 0.005$). These findings are in line with previous studies showing decreased brain activity to negative stimuli and suggest that this mechanism in not only present in younger adults but it can also be extended to an older population. Future studies should investigate how oxytocin impacts socioemotional and cognitive processes in elderly.

14:30pm – 14:45pm **Discussion/Q&A/Comfort break**

14:45pm – 15:00pm **Paper 5: Gradual Emotion Induction with a Visual Velten Method Using Images**

Charlotte Out, Martijn Goudbeek & Emiel Krahmer
Tilburg University, The Netherlands

The Velten method (1968) induces positive and negative emotions by letting individual participants read 60 sentences out loud that gradually increase in emotional content. The method has been widely used as a successful emotion induction method (although findings generally show stronger effects for negative than positive emotional states) and is highly relevant for researchers studying the relation between emotion and language. However, we argue that the method suffers from two limitations: 1) since the sentences are fixed, it is hard to study how emotion influences actual language production, 2) there is a risk of demand characteristics, because participants are more or less told how to feel when uttering the Velten statements (e.g. "God, I feel great!''). In the current study (which was preregistered at OSF, https://osf.io/kv8g3/), we propose a new variant of the Velten method, where predefined sentences are replaced with pictures (taken from the IAPS; Lang, Bradley, & Cuthbert, 1997) of gradually increasing emotional content. In a 3 (positive, neutral, negative) by 2 (pretest, posttest) experiment, we asked participants to describe one of three sets pictures and recorded their descriptions (total collected descriptions: $N = 1194$). The pictures increased in valence from 5.22 (neutral) to 8.34 (positive), decreased from 5.24 (neutral) to 1.31 (negative), or ranged from 4.62 to 5.92 (neutral condition). Before and after describing the pictures, participants filled in an emotion questionnaire. The results show that participants indeed felt worse after viewing negative pictures, but not better (compared to neutral) after viewing positive pictures. Our results provide evidence that describing emotionally charged pictures effectively induces negative, but not positive emotional states, which is in line with previous findings. Future research will assess the role of verbal

descriptions by comparing them to a mere exposure condition with stimuli still increasing or decreasing in valence.

15:00pm – 15:15pm **Paper 6: Acute Pain Attenuates Emotional Experience in the Body**

Juulia T. Suvilehto[1], Eija A. Kalso[2] & Lauri Nummenmaa[3]

[1]Department of Neuroscience and Biomedical Engineering, Aalto University, Finland and Turku PET Centre, University of Turku, Finland

[2]Department of Anesthesiology, Intensive Care and Pain Medicine, University of Helsinki and Helsinki University Hospital, Finland

[3]Department of Psychology and Turku PET Centre, University of Turku, Finland

Emotions are felt in the body, and the bodily fingerprints of emotions contribute to the subjectively felt emotion states. Because emotions are embodied in the brain's somatosensory system, it is possible that both chronic and acute pain could influence also non-painful emotional experiences. We measured topographical maps of acute and chronic pain experience; tactile, nociceptive and hedonic sensitivity maps; and bodily feelings associated with basic emotions (anger, fear, disgust, happiness, sadness, surprise) and the neutral emotional state. This was done using emBODY, an online tool. We also enquired about subjects' current and recent pain experiences and their current emotional state. We acquired data from 2056 Finnish subjects (1841 female) with mean age 35.9 years (SD 14.7). Altogether 85% of the subjects had experienced pain in the last 24 hours; 56% had experienced chronic pain at some point in their lives. Chronic pain was most commonly felt in neck/shoulders, back, joints, and head. Over 45% of the subjects report having experienced chronic or recurring pain in the upper back. Acute pain was felt in similar locations as chronic pain. Intensity of acute pain was associated with increased bodily area for nociceptive sensitivity ($r = 0.26$, $p < 0.001$) and decreased bodily area for hedonic sensitivity ($r = -0.17$, $p < 0.001$). It was also associated with decreased bodily feelings during happiness, anger, surprise, sadness, fear, and disgust (rs in [-0.15,-0.10], ps < 0.05 Holm corrected). These dampened sensations were found in areas that generally had highest self-reported sensations for each emotion. Moreover, intensity of acute pain correlated with self-reported negative emotional states (depression, anxiety, sadness, anger, fear, and disgust), rs in [0.28,0.39], ps < 0.001. We conclude that acute pain alters both subjective and embodied experience of emotions as well as topographical nociceptive and hedonic sensitivity in the body. This suggests a tight link between pain, emotion, and somatosensation.

15:15pm – 15:30pm **Paper 7: In the Blink of an Ear: Measuring Pavlovian Appetitive Conditioning in Humans with the Postauricular Reflex**

Yoann Stussi[1], Sylvain Delplanque[1], Seline Coraj[1], Gilles Pourtois[2] & David Sander[1]
[1]University of Geneva, Swizerland
[2]Ghent University, Belgium

Despite its evolutionary and clinical significance, Pavlovian appetitive conditioning has been rarely investigated in humans. It has been suggested that this gap originates from the difficulty in finding suitable appetitive stimuli that elicit strong physiological responses. However, this might also arise from a possible lack of sensitivity of the psychophysiological indicators commonly used to measure human Pavlovian appetitive conditioning. Here, we tested whether the postauricular reflex – a vestigial muscle microreflex that is potentiated by pleasant relative to neutral and unpleasant stimuli – may provide a valid psychophysiological index of Pavlovian appetitive conditioning in humans. To this end, we used a differential Pavlovian appetitive conditioning procedure, in which a neutral stimulus was contingently paired with a pleasant odour (CS+), while another neutral stimuli was not associated with any odour (CS-). We measured the postauricular reflex, the startle blink reflex, and skin conductance response (SCR) as learning indices, thereby enabling a systematic comparison thereof. Altogether, our results show that the postauricular reflex was potentiated in response to the CS+ compared with the CS-, whereas this potentiation extinguished when the pleasant odour was no longer delivered. By contrast, we found no evidence for startle blink reflex attenuation in response to the CS+ relative to the CS-, and no effect of Pavlovian appetitive conditioning was observed on SCR. These findings suggest that the postauricular reflex is a sensitive measure of Pavlovian appetitive conditioning and constitutes a promising tool for providing further insights into the understanding of emotional learning and reward processing in humans.

15:30pm – 16:00pm **COFFEE BREAK** (Hunter Halls)

THURSDAY AFTERNOON OPEN PAPER SESSIONS

OPEN PAPER SESSION 9: INDIVIDUAL DIFFERENCES

Thursday 5th April, 16:00pm – 17:15pm

Bute Hall

Chair: Egon Dejonckheere, KU Leuven, Belgium

16:00pm – 16:15pm **Paper 1: Pervasive Influence of Idiosyncratic Associative Biases During Facial Emotion Recognition**

Marwa El Zein[1], Valentin Wyart[2] & Julie Grezes[2]
[1]University College London, UK
[2]Ecole Normale Superieure, France

Many consequential decisions such as choosing a political leader depend on the judgments of others' facial morphology - characteristics that are diagnostic of someone's identity. Spontaneous associations between particular facial morphologies and specific emotions have been shown to strongly influence emotion recognition in a way that is shared across human observers. Here we demonstrate that these shared associations between facial morphology and emotion coexist with strong variations unique to each human observer. Interestingly, these idiosyncratic associations are independent from contextual associations induced by pairing arbitrarily each face with a particular emotion and thus do not vary on short time scales. Rather, they emerge from stable inter-individual differences in the way facial morphologies are associated with specific emotions. Computational modelling of decision-making and neural recordings of electrical brain activity revealed that both shared and idiosyncratic face-emotion associations operate through a common biasing mechanism rather than an increased sensitivity to face-associated emotions. Together, these findings emphasize the underestimated influence of idiosyncrasies on core social judgments and identify their neuro-computational signatures.

16:15pm – 16:30pm **Paper 2: Does an Adult's Ability to Recognise Microexpressions of Emotion Depend on Family-Related Factors?**

Fatima M Felisberti
Kingston University London, UK

Emotion processing in adults results from the interaction of a wide range of factors, from early vicarious learning and personality traits to more complex forms of emotion understanding and regulation. Here I examine whether the adults' ability to attribute emotions to brief facial expressions (known as "microexpressions") is associated with family-related environmental factors (FrFs). Experiment 1 tested the experimental design against previous studies and explored the role of one's number of siblings in facial emotion recognition. The individual's attachment style and perceived parental authority style in emotion recognition were examined in Experiments 2 and 3. Participants' accuracy and reaction time to the recognition of anger, contempt, disgust, fear, happiness,

and sadness to facial microexpressions (exposure: 100 ms) were measured with a six-alternative forced choice computerised method. The perceived authority style of the participants' parents and the attachment style of participants were accessed using questionnaires. The findings revealed that more than 13% of the variance in participants' responses could be explained by FrFs, with modest to moderate effect sizes. Facial microexpressions of emotion linked to signs of hostility or threat (i.e. contempt and fear) were decoded faster and/or more accurately by adults with few or no siblings or with a fearful attachment. Conversely, participants who recalled their fathers as authoritarian were worse at recognising contempt and fear than participants who perceived them as permissive or authoritative. The findings suggest that early FrFs may still be involved in the fine-tuning of responses to signs of contextual danger when the time for cognitive processing of facial expressions is severely restricted.

16:30pm – 16:45pm **Paper 3: Emotion Recognition in People with Autistic Traits and Comorbid Anxiety: A Behavioural Study**

Peipei Liu, Margaret Sutherland & Frank Pollick
University of Glasgow, UK

Although atypical emotion processing has been widely reported in Autism Spectrum Disorder (ASD), most investigations have focused on unimodal presentation of emotions, such as facial or vocal expressions; only a few have investigated multimodal emotion processing. The co-occurrence of anxiety with ASD has been frequently reported, but the evidence for anxiety modulating emotion recognition in ASD is still lacking. The current research was therefore designed to explore emotion recognition in individuals with significant autistic traits, taking into account uni- and multimodal presentations as well as the co-occurrence of anxiety, which is not included in the ASD criteria but which is frequently associated with ASD. Fifty individuals, 25 with high autistic traits (HAQ) and 25 with low autistic traits (LAQ), performed recognition of the six basic emotion states (happiness, anger, surprise, sadness, disgust, fear) and one neutral state were assessed using unimodal (face or voice) and multimodal (face-voice) pairs. Results suggested that individuals with high autistic traits were able to recognise emotions displayed across different modalities, suggesting a lack of general deficit in emotion perception among them. The presence of comorbid anxiety appeared to counteract the effects of autistic traits in the recognition of emotions (e.g. fear, surprise, anger), and this effect tended to be different for the two groups. More specifically, for the recognition of fear expression, greater anxiety was associated with less probability of correct responses in the HAQs but more probability of correct answers in the LAQs. As for the reaction times in other emotions, anxiety tended to be significantly associated with longer response latencies in the HAQ group,

but shorter response latencies in the LAQ group for the recognition of emotional expressions, for negative emotions in particular (e.g. anger, fear, and sadness), and this effect of anxiety was not restricted to specific modalities.

16:45pm – 17:00pm **Paper 4: Multimodal Emotion Recognition Ability and Links to Social, Affective and Cognitive Traits**

Hannah L Connolly[1], Carmen E Lefevre[2], Andrew W Young[3] & Gary J Lewis[1]
[1]Royal Holloway, University of London, UK
[2]University College London, UK
[3]University of York, UK

Accurate recognition of others' emotions is a crucial skill for successful social interaction. Unsurprisingly, it has been the topic of interest for many years and striking individual differences in this ability have been noted. Despite this focus, the underlying architecture of this ability has not been well investigated and remains largely unknown, particularly concerning emotion recognition across sensory modalities. Recent research appears to indicate the existence of a general emotion recognition factor that underlies recognition from various sensory channels, but the structure of this 'multi-modal' ability remains unclear. Study 1 outlined the structure of individual differences in emotion recognition across three expressive domains: face, body and voice, through structural equation modelling. In an online sample, we observed strong evidence for a multi-modal emotion recognition factor, over and above domain-specific factors alone. Additionally, we found a significant moderate association between this multi-modal factor and alexithymia, but not autism-like traits or social anxiety. In Study 2, we determined that this multi-modal emotion recognition factor extends to more naturalistic stimuli and explored its association to face recognition abilities. Our findings suggest that multi-modal emotion recognition ability and face identification are two related but independent constructs. In Study 3, we tested whether the commonality between these two constructs reflects broader general intelligence. Implications and future directions are considered.

17:00pm – 17:15pm **Paper 5: Emotion Recognition Ability and Trait Emotional Intelligence of Arabic-English Bilinguals**

Nada Alqarni

Birkbeck, University of London, UK

An exposure to a second language and culture allows individuals to gain psychological advantages that would impact their emotional competence both in the L1 and L2 (Dewaele, 2016). This study considered the effect of trait emotional intelligence (trait EI; Petrides, Furnham & Mavroveli, 2007) on emotion recognition ability (ERA) of 609 participants in L1 and L2. The participants were divided into 205 Saudi Arabic-English bilinguals, 333 English monolinguals, and 71 Arabic monolinguals. The emotions included in this study were the six basic emotions (anger, fear, sadness, disgust, surprise, and happiness) (Ekman, 1972). The stimuli used to depict the six basic emotions were short audio-visual video clips in Arabic and English. Data were collected via a Web-based questionnaire. Participants were divided into three groups based on their trait EI scores (low, average, and high). Nonparametric statistical analyses revealed a significant difference in ERA between bilinguals and monolinguals; bilinguals identified emotions at higher rates than monolingual groups in both languages: Arabic and English. In addition, the results indicated a positive and significant effect of trait EI on ERA of bilinguals and English monolinguals; the four factors of trait EI (self-control, well-being, emotionality, and sociability) were positively and significantly correlated with ERA scores of bilinguals and English monolinguals. Participants with higher trait EI levels seem to find it easy to recognize the emotions of others and seem to be skillful in anticipating of others emotional states, which might function to allow smooth interactions between them. The present study thus adds to the evidence of the positive psychological and emotional effects of multilingualism (Dewaele, 2016).

17:15pm – 17:30pm **COLLECT POSTERS**

17:30pm – 18:15pm **BUSINESS MEETING** (Bute Hall)

19:30pm – Midnight **GALA DINNER & CEILIDH** (Òran Mór)

OPEN PAPER SESSION 10: MORALITY

Thursday 5th April, 16:00pm – 17:15pm

Senate Room

Chair: Hongbo Yu, University of Oxford, UK

16:00pm – 16:15pm **Paper 1: Angered or Disgusted by Immoral Behavior? Antecedents and Consequences of Distinct Moral Emotions**

Catherine Molho, Joshua M. Tybur & Daniel Balliet
Vrije Universiteit Amsterdam, The Netherlands

Previous research on distinct moral emotions has focused on the relations between the content of moral offenses and the emotions they elicit. Yet, little work has elucidated the reasons underlying variability in responses to identical moral offenses. Empirical patterns suggest that, in response to the same moral violation, some people report experiencing more anger and others report experiencing more disgust. The present work tests whether such differences in emotional responses to moral offenses reflect idiosyncratic preferences for how to communicate outrage (an equivalence account) or differences in people's underlying motivational states (a socio-functional account). Whereas equivalence accounts suggest that anger and disgust represent interchangeable expressions of condemnation, socio-functional accounts suggest that they have distinct antecedents and consequences. We test these two accounts by investigating (a) whether people's emotional responses differ depending on the self-relevance of a moral violation and (b) whether the intensity of anger versus disgust predicts preferences for different types of punishment tactics. Results across four studies—including three online experiments (Ns = 201, 819, 347) and an experience sampling study (N = 1252)—favor functional distinctions. Participants report more anger in response to self-relevant offenses, but they report more disgust in response to offenses that target another person. Anger—an emotion typically associated with approach tendencies—relates to preferences for high-cost, directly aggressive tactics. Disgust—an emotion typically associated with avoidance—also predicts tendencies to punish, but preferentially by using low-cost, indirectly aggressive tactics.

16:15pm – 16:30pm **Paper 2: Relational Models and Moral Emotions**

Diane Sunar[1], Sevim Cesur[2], Beyza Tepe[3] & Zeynep Ecem Piyale[4]
[1]Bilgi University, Turkey
[2]Istanbul University, Turkey
[3]Bahçeşehir University, Turkey
[4]Isik University, Turkey

Earlier investigations have paired different other-blaming emotions (anger, contempt and disgust) with different moral domains or "ethics" (Shweder et al. 1997; Rozin et al. 1999); we propose that these emotions can also be more meaningfully paired with the relational model in which a violation occurs (Fiske, 1992; Fiske & Rai, 2011). Two studies were carried out using 20 vignettes portraying moral violations in four RMs. In Study 1,190 university students (165 female) judged the severity of each violation and rated the intensity of emotions they would have felt if they had personally witnessed the events portrayed. All violations were strongly disapproved, with mean wrongness ratings near 6 on a 7-point scale. Wrongness ratings were significantly correlated with intensity of the three other-blaming moral emotions in all RMs. In Study 2, we proposed that self-blaming emotions in the perpetrator (shame and guilt) may form complementary pairs with the other-blaming emotions experienced by the victim. Expectations were that: violations in communal sharing (CS) will produce more observer disgust and perpetrator shame; in authority ranking (AR), more observer contempt and perpetrator shame; and in both equality matching (EM) and market pricing (MP), more observer anger and perpetrator guilt. 220 students (186 female) rated the emotions likely to be experienced by both perpetrator and victim in the same 20 vignettes. The complementary emotions hypothesis received partial support. In AR, emotions differed sharply depending on whether the perpetrator occupied a dominant or subordinate position, a finding that needs further investigation. Focusing moral psychology on the relationship using relational models can help clarify the functions of the moral emotions and the relational bases of moral domains and foundations.

16:30pm – 16:45pm **Paper 3: Testing Moral Foundation Theory: Are Specific Moral Emotions Elicited by Specific Moral Transgressions?**

Helen Landmann[1] & Ursula Hess[2]
[1]University of Hagen, Germany
[2]Humboldt-Universität zu Berlin, Germany

Moral foundation theory posits that specific moral transgressions elicit specific moral emotions (Haidt & Joseph, 2004, 2008). To test this claim, participants (N = 195) were asked to rate their emotions in response to moral violation vignettes. We found that compassion and disgust were associated with care and purity respectively as predicted by moral foundation theory. However, anger, rage, contempt, resentment and fear were not associated to any single moral transgression. Thus, even though the type of moral violation matters for the type of emotion that is elicited, the link between moral foundations and moral emotions seems more complex than moral foundation theory suggests. Rather, the findings suggest that there are both emotion-specific foundations (i.e. care and purity) and emotion-unspecific foundations (i.e. fairness, authority, and loyalty).

16:45pm – 17:00pm **Paper 4: The Role of Anger in Moral Courage**

Julia Sasse[1], Anna Baumert[1,2], Anna Halmburger[3]
[1]Max-Planck-Insitute for Research on Collective Goods, Germany
[2]Technical University Munich, Germany
[3]University of Koblenz-Landau, Germany

Moral courage describes behavior of bystanders who intervene against others' norm violations, despite potential financial, physical, or psychological costs to themselves. To date, we know little about the psychological processes promoting or preventing such interventions. We aim to shed light on the role of anger in these processes and propose that bystanders experience anger in response to perceived norm violations and express anger to communicate disapproval, hence the latter being a first step towards intervention. Further, we test whether dispositional tendencies to regulate anger affects anger expression and intervention behavior. In Study 1 (N = 68), participants witnessed a (staged) theft in the laboratory and anger experience and expression were assessed in a multi-method approach. As expected, detecting the norm violation elicited anger, and its expression was more closely associated with intervention than was experience. In Study 2, we use a staged fraud in the laboratory and a multi-method approach (N ï,» 150) to explore why experienced anger in response to norm violations does not always translate into anger expression and intervention behavior by looking at dispositional coping mechanisms and approach avoidance orientation. Together, these studies contribute to our understanding of the important role of anger in morally courageous behavior in response to norm violations and in doing so stress some of the beneficial effects anger can have.

17:00pm – 17:15pm **Paper 5: The Facial Expression of Guilt: Production and Perception**

Eglantine Julle-Daniere, Aldert Vrij, Jamie Whitehouse, Erik Gustafsson & Bridget M. Waller
University of Portsmouth, UK

Guilt is a negative emotion that has a potentially crucial function of stimulating pro-social behaviours towards and from others. However, even though people often believe they can detect such feelings in others, it is currently unknown whether there is a specific expression of guilt that can be reliably identified by others. Here we explored the production and interpretation of guilty expressions in two different cultures known to differ in

the propensity for guilt – Europeans and East-Asians. In a first study, guilt was induced through a novel, ecologically valid method which allowed us to identify a pattern of facial expressions reliably associated with subjective feelings of guilt. In a second study, we presented footage of guilty individuals extracted from our production experiment to naïve participants (i.e. judges) in order to understand whether these facial expressions are also identified as guilt. Judges from different cultures were able to reliably evaluate the intensity of guilty feelings experienced by participants (regardless of cultural differences between the actor and judge). However, although there were some universal patterns (Facial Action Coding System Action Units 1+2) there were also some differences between the two cultures (AU4+FaceTouch in Westerners; AUs 4+10+FaceTouch in East Asians). The findings suggest that there is a facial expression of guilt that can be recognised universally, but that there are also some subtle cultural differences. The findings are discussed in light of universal and cultural theories of emotion.

17:15pm – 17:30pm **COLLECT POSTERS**

17:30pm – 18:15pm **BUSINESS MEETING** (Bute Hall)

19:30pm – Midnight **GALA DINNER & CEILIDH** (Òran Mór)

OPEN PAPER SESSION 11: COMMUNICATION

Thursday 5th April, 16:00pm – 17:15pm

Gilbert Scott Conference Suite (Room 253)

Chair: Bhismadev Chakrabarti, University of Reading, UK

16:00pm – 16:15pm **Paper 1: Laughter in Context**

Magdalena Rychlowska, Gary McKeown, Ian Sneddon & William Curran

Queen's University Belfast, UK

Laughter is a ubiquitous and important social signal but its nature is yet to be fully explored. One of the open empirical questions is establishing whether laughter can function as a linguistic-like signal and convey specific

feelings to the listener – or whether it is inherently ambiguous and used to induce or accentuate specific emotions in other individuals. We test this question using a new methodological approach that combines audio and video recording with a state-of-the art synchronizing software. This new platform allows non-intrusive recording of natural instances of laughter during social interactions and thus addresses an important limitation of previous research on laughter. We used the technique in two large studies (N = 101; N = 404), first to record laughter in groups talking about pleasurable emotions and experiences, and then to alter the recorded sequences. Specifically, the original laughter sequences were replaced by other instances of laughter taken from a different point in the same conversation. The intensities of the substituted recordings were either matched to or different from the original intensities. Participants watched the unaltered and the modified laughter videos and judged the genuineness of each interaction. Interchanging the laughter sequences did not have a negative impact on perceived genuineness, as long as the intensity of the substituted clips matched the intensity of the original recordings. In other words, the same instances of laughter could be flexibly used across different contexts. This finding suggests that laughter does not convey specific information about the sender's state, but rather accentuates emotions and motives induced by specific contexts, consistently with affect-induction theories of laughter. Future studies will use the same methodological framework to explore recordings of spontaneous laughter occurring in social situations associated with amusement, embarrassment and Schadenfreude, building on recent social-functional theories of smiles and previous research on laughter.

16:15 – 16:30pm **Paper 2: Gender Differences in Emotional Communication Reflect Sex-Specific Social Strategies**

Marc Mehu
Webster Vienna Private University, Austria

One way that emotions help individuals adapt to their environment is by making communicative signals more efficient at regulating interactions with others. Previous research suggests that men and women use emotional signals differently, as sex-specific reproductive strategies imply different approaches to social interaction. I will present data that support the hypothesis that men and women differ in their use of various intensities of emotional displays to achieve material and relationship goals. Sixty-five pairs of unacquainted men and women were observed in same-sex dyadic interactions consisting of a mixed-motive negotiation exercise. Micro-analysis of smiling behavior was performed on the first 30 seconds of each interaction. Overall, the reciprocation of low intensity smiles was associated with lower material outcomes for the pair, but the opposite was true for high intensity smiles. A closer look at interactive dynamic revealed gender differences in the reciprocation of smiling.

While women tended to engage in longer bouts of reciprocal smiling, men were more responsive to the dynamic changes in their partner's smiles. In addition, different intensities of smiling were related to different relationship outcomes in men and women. Reciprocation of low intensity smiles in women was correlated with a perceived competitive and somewhat negative atmosphere. On the other hand, reciprocation of high intensity smiles was positively correlated with mutual evaluations that the partner demonstrated a cooperative attitude and that the negotiation atmosphere was friendly. The opposite was found in men, for whom the reciprocation of higher intensity smiles was positively correlated with the mutual perception of a tense negotiation atmosphere. These results will be discussed in relation to signaling theory, whereby emotional costs incurred at the beginning of an interaction likely forecast negotiation style and further behavioral investments towards material and relationship benefits.

16:30pm – 16:45pm **Paper 3: Dynamic Face Movements Communicate Emotion Intensity**

Chaona Chen[1], Oliver G. B. Garrod[1], Philippe G. Schyns[1,2], Daniel S. Messinger[3] & Rachael E. Jack[1,2]

[1]Institute of Neuroscience and Psychology, University of Glasgow, UK

[2]School of Psychology, University of Glasgow, UK

[3]Department of Psychology, University of Miami, USA

Communicating the intensity of a message is crucial for all species because it is a key component of signal accuracy and receivability (e.g. Bradbury et al., 1998). Since humans often use facial expressions to communicate messages such as emotions, a key question is understanding which specific face movements convey emotional intensity (e.g. Ekman, et al., 1990; Messinger, et al., 2012). However, due to the complexity of human face movements, it is difficult to measure individual face movements in dynamic facial expressions at a range of intensities. Thus, the function of the majority of face movements in indexing intensity remains unknown. To address this knowledge gap, we used a data-driven psychophysical method that agnostically sampled dynamic face movement (i.e. Action Unit – AU) patterns and asked observers to categorize them by the six classic emotions – 'happy,' 'surprise,' 'fear,' 'disgust,' 'anger' and 'sadness' – and rate their intensity. Sixty white, Western observers each completed 2400 trials. To identify which face movements are associated with judgments of emotional intensity, we used an information theoretic analysis to build a statistical relationship between each observer's emotion and intensity judgments and the dynamic AU patterns on each trial. Our analysis revealed that specific AUs – Lip Corner Puller, Cheek Raiser, Mouth Stretch, Lip Stretcher, Eyes Closed, and Nose Wrinkler – communicate emotional intensity for 'happy,' 'surprise,' 'fear,' 'sadness,' 'disgust' and 'anger' respectively. Our results support existing knowledge of how face movements communicate aroused

states (e.g. Fernández-Dols, et al. 2011; Jack et al., 2016) and intense feeling (e.g. Darwin, 1872/1998; Messinger et al., 2012), with advances of further insights into the form and communicative function of dynamic face movements. We anticipate our results with broad implications for clinical assessments (e.g. Montagne, et al., 2007) and social robots (e.g. Ochs, et al., 2015).

16:45pm – 17:00pm **Paper 4: Teaching Emotion: Emotion as a Bi-Product of Research, Equipping Social Scientist to Manage This Data**

Jo Ferrie
University of Glasgow, UK

This paper examines how social researchers USE emotion, rather than a focus on what emotion. Qualitative data (as sometimes with quantitative) is a social engagement that requires emotional energy to produce it, in terms of building rapport for example. Further it produces emotional energy as the research empathetically absorbs the data produced. Traditionally (Kleinman & Copp, 1993; Bellas, 1999) this is distilled down to produce discursive evidence, but this sterilising of social data leaves emotion as outside of forms of data recognised as 'credible' (Fine, 1994). This paper considers the value of including emotional data and considers ways of managing this. Further it considers the 'burden' on researchers who 'feel' the emotional pressure of collecting data, and considers how pedagogically, research methods training must adapt to train students in resilience and "emotion managers." At once this paper explores opportunities to communicate the emotional properties of data to an academic audience (e.g. drawing on Camacho, 2016); but also, to manage the psychological impact of 'emotional data' on the researcher (drawing on Hume, 2007). This paper draws on my work researching the lived experience of adults with a life-limiting condition (Ferrie et al, 2013). Further it draws upon experiences teaching early career researchers about managing the emotional elements of their work (Dickson-Swift et al, 2009), and how to write about this in academic outputs.

17:00pm – 17:15pm **Discussion/Q&A**

17:15pm – 17:30pm **COLLECT POSTERS**

17:30pm – 18:15pm **BUSINESS MEETING** (Bute Hall)

19:30pm – Midnight **GALA DINNER & CEILIDH** (Òran Mór)

OPEN PAPER SESSION 12: REGULATION 2

Thursday 5th April, 16:00pm – 17:15pm

Lecture Theatre G466

Chair: Holly Scott, University of Glasgow, UK

16:00pm – 16:15pm **Paper 1: Affect Regulation on Social Networking Sites: The Case of Facebook**

Carmina Rodriguez Hidalgo[1], Ed Tan[1] & Peeter Verlegh[2]

[1]University of Amsterdam, The Netherlands

[2]Vrije Universiteit, The Netherlands

The present work examines affect regulation processes during socially sharing of emotions (SSE) on Facebook. One way in which individuals seek to regulate their emotions is by engaging in SSE (Rimé, 2013). Emotional disclosure is a core feature of Facebook (Manago, Taylor, & Greenfield, 2012). However, understanding the process of affect regulation online is missing. The present study presents a step-to-step model of online affect regulation, tested in two experiments. Two experiments (N = 172, 230) examine affect regulation in three stages: 1) sharing by the initiator; 2) feedback to sharing; and 3) the initiator's reaction to feedback. Affect intensity was measured at each stage, and the elicitation of emotion regulation strategies (stabilization and reappraisal) was assessed after feedback. Study one (N = 173, 65% female) was a lab experiment (emotion: sadness, feedback type: affective, cognitive). Study two (230, 54% male), was an online experiment with two factors, 2 (emotion type: happiness, sadness) x 2 (feedback type: affective, cognitive). In both studies the factors were between subjects. Study 2 (N = 230) replicated the sadness condition for further confirmation of study 1 results and added happiness as a between subjects factor. Affect was measured right after reading an emotional vignette (T1). Afterwards participants shared the episode in a status update. Then, affect intensity was measured (T2). Affect was measured right after feedback (T3). Dependent variables were affect intensity, suppression, cognitive reappraisal. All items were answered on a 7-point Likert scale. Emotion intensity decreased both after sharing and feedback, with sadness decreasing more than happiness. Cognitive feedback elicited cognitive reappraisal.

Results provide evidence of emotion suppression from SSE in SNSs and underscore the role of prosocial feedback in eliciting beneficial emotion regulation strategies.

16:15pm – 16:30pm **Paper 2: Investigating the Cognitive Costs and Temporal Dynamics of Cognitive Reappraisal Using EMG and EEG Techniques**

Karolina Czarna, Jason R. Taylor, Rebecca Elliott & Deborah Talmi
University of Manchester, UK

Cognitive reappraisal (CR) is said to be an adaptive emotion regulation strategy that has positive cognitive consequences such as emotional memory improvement (Kim and Hamann, 2012) However, the regulation process may result in cognitive costs on tests that are sensitive to cognitive load, such as the performance of a concurrent task. In Experiment 1 (N = 43) participants viewed pictures and regulated emotions while performing an auditory discrimination task (ADT). Valence and arousal self-reports, as well as RTs in the ADT, were measured. Electromyographic activity was recorded. Only up- but not down-regulating emotions resulted in longer RTs ($F(1, 37) = 4.14$; $p = .049$) compared to the control condition suggesting that only increasing emotions is cognitively costly. In Experiment 2 (N = 63) we investigated cognitive costs of CR and whether they change over the time-course of emotion regulation. Participants took more time to perform the ADT when down-regulating emotions and this effect was time-dependent. RTs in the ADT were longer to tones presented after 2.5s from the pictures onset ($t(52) = 2.74$; $p = .024$) but not earlier (after 0.5s) or later (after 4.5s). In order to investigate whether and how emotion regulation changes over time, in Experiment 3 (N = 33) we asked participants to down-regulate emotions via CR and recorded their brain responses. Time-frequency analyses showed that CR differs from the control condition across frequency bands and that time is an important factor for these differences. The results suggest that both increasing and decreasing emotions via CR may have cognitive costs and that these costs vary over time.

16:30pm – 16:45pm **Paper 3: Increasing Regulatory Choice Flexibility Through an Eight-Week Mindfulness-Based Workshop**

Alon Alkoby[1], Ruthie Pliskin[2], Ziv Ardi[1], Eran Halperin[1] & Nava Levit-Binnun[1]
[1]Interdisciplinary Center (IDC) Herzliya, Israel
[2]Institute of Psychology, Leiden University, The Netherlands

For a long time, the leading notion in emotion regulation research was that employing cognitive reappraisal as a means to regulate emotion leads to healthier outcomes and greater psychological well-being than other, less engaging strategies, such as distracting from emotional information. Recently, however, there is a growing understanding that a regulatory strategy that is adaptive in one context can prove less adaptive or even maladaptive in a different context. This has given rise to the notion of regulatory choice flexibility – the ability of individuals to move between engaging and disengaging emotion regulation strategies as per contextual demands. Recent studies have demonstrated that greater regulatory choice flexibility is associated with greater mental health and resilience. However, individuals differ in the ability to flexibly and adaptively choose the most beneficial emotion regulation strategy from moment to moment, warranting the development of interventions to increase such flexibility. We hypothesized that a mindfulness-based intervention would fulfill this goal. At its very essence, mindfulness practice involves developing skills for dealing with negative thoughts and emotions in an adaptive and flexible manner, described as "Right Effort" in Buddhist texts. To test our hypothesis, 111 college students either participated in an 8-week mindfulness workshop or joined a waiting list. After the workshop's completion, all participants completed a computerized task examining their regulatory choice flexibility when exposed to emotional-laden stimuli. The regulatory choice patterns of participants who underwent mindfulness training were found to be more flexible than those of participants who had not yet completed the workshop, with the former more likely than the latter to favor an engaging emotion regulation strategy (i.e. reappraisal) when faced with low-intensity stimuli and a disengaging strategy (i.e. distraction) when faced with high-intensity stimuli. We will also report upon a pilot study (N = 42) assessing physiological measures during the regulatory choice task.

16:45pm – 17:00pm **Paper 4: Different Effects of Depression and Anxiety Mood on Reward and Punishment-based Probabilistic Learning**

Alexandra Antonesei, Kou Murayama & Ciara McCabe
University of Reading, UK

Individuals in a depressive mood display impaired responses to positive and negative reinforcers in probabilistic learning tasks. Depressive mood is often co morbid with anxiety mood which makes it difficult to disentangle which symptoms contribute to particular dysfunctions. Therefore, this study aimed to examine the particularities of depressive and anxiety mood on learning of positive and negative reinforcers in participants with high (HD) vs. low depression (LD) levels. Eighty-six LD participants and 78 HD participants filled in measures of

depression and anxiety mood and took part in four probabilistic learning tasks with primary rewards and punishments. Two tasks evaluated reward learning as a function of fixed vs. incremental reward ratio; punishment was added to two other tasks to measure the effects of performance-based vs. probabilistic punishment on reward learning. We measured accuracy to identify a target (more rewarded stimulus) and the propensity to incorrectly report the target (FA: false alarms) as a function of previous reward and punishment. Mixed ANOVA models showed that the HD group relative to the LD group had better accuracy for the non-target vs. the target; partial correlations correcting for anxiety mood showed a negative relationship between depressive mood and target accuracy as a function of fixed reward ratio. Moreover, trial-by-trial analysis indicated that the HD group compared to the LD group improved their target accuracy after performance-based punishment; interestingly, this behaviour response was positively correlated with higher anxiety mood, while the depressive mood had an opposite effect, i.e. less target accuracy after punishment. We provide novel evidence for how the depression and anxiety mood differentially modulate behaviour based on positive and negative reinforcers. Results are discussed within the approach-avoidance paradigm, whereby depressive mood is linked to decreased approach of rewards (and punishments), while anxiety is linked to increased avoidance of punishment.

17:00pm – 17:15pm **Discussion/Q&A**

17:15pm – 17:30pm **COLLECT POSTERS**

17:30pm – 18:15pm **BUSINESS MEETING** (Bute Hall)

19:30pm – Midnight **GALA DINNER & CEILIDH** (Òran Mór)

OPEN PAPER SESSION 13: INTERGROUP & INTERPERSONAL 2

Thursday 5th April, 16:00pm – 17:15pm

East Quadrant Lecture Theatre

Chair: Maja Fischer, University of Leuven, Belgium

16:00pm – 16:15pm **Paper 1: Resolving Guilt with Gifts: The Effectiveness of Giving Apology Gifts in Hurt Relationships**

Ilona E. de Hooge[1] & Laura M. Straeter[2]
[1]Wageningen University, The Netherlands
[2]Maastricht University, The Netherlands

After having hurt others and experiencing guilt feelings, transgressors frequently show apologizing behaviours to make amends (Baumeister, 1994; De Hooge et al., 2011). One such regularly shown apologizing behaviour is gift giving. Indeed, gift giving is a way to express emotions (Cheal, 1988; De Hooge, 2014), and such emotion expressions are positively evaluated by gift recipients (Ruth et al., 2002). The present research, however, questions whether giving gifts to express guilt feelings has positive effects on hurt relationships. We posit that gift recipients do not like to receive such apology gifts, and that transgressors experiencing guilt might be better off apologizing without an apology gift. Previous research has indicated that empathy gaps often lead to self-other differences in valuation (Kurt & Inman, 2013; Van Boven et al., 2013). With multiple studies we show that such an empathy gap also occurs with apology gifts. With an autobiographical recall procedure, Study 1 reveals that transgressors who give gifts expect their gift to be more positively evaluated than gift recipients actually do. Scenario studies 2-5 show that gifts are less positively evaluated and more likely to be re-gifted when they are given as an apology compared to when they are given without a motivation. The studies also indicate that apology gifts do not have the intended positive effect because hurt recipients experience a relational inequity and anger feelings that are not fully resolved by apology gifts. Finally, a behavioral experiment supports the ecological validity of our findings, showing that hurt respondents accept apology gifts less often compared to non-hurt respondents who receive spontaneous gifts. In sum, it appears that apology gifts work insufficiently to repair transgressions. Apology gifts are not as positively evaluated as guilt-experiencing transgressors expect, and insufficiently repair hurt relationships with angry recipients.

16:15pm – 16:30pm **Paper 2: Social Threats as a Catalyst for Women's Negative STEM Memories and Aversion**

Chad E. Forbes, Rachel Amey, Adam Magerman & Mengting Liu
University of Delaware, USA

From high school on, women STEM domains at disproportionate rates compared to men. One reason for this exodus may have its roots in the subtle expectations society holds for girls/women in math intensive courses. Social identity threat, and its performance-based instantiation stereotype threat (ST), are situational stressors targets of negative stereotypes experience when they fear their actions may confirm a negative group stereotype. These contexts engender negative emotions, physiological arousal and hypervigilance for mistakes. Research on emotional memory encoding suggests that situations like these can facilitate encoding of negative information specifically. Studies presented here utilize social, cognitive and neuroscience methodologies (including EEG-derived graph theory network analyses and startle probes) to provide evidence that identity threatening situations equate negative stereotype confirming information to a physiological threat. This threat biases attention to negative information, yielding non-linear amygdala responses and enhanced connectivity among regions in the emotional memory network, to facilitate encoding and recall of negative information. Negative memories, in turn, promote general anxiety, undermine performance and attenuates women's STEM identification and self-enhancement. Furthermore, biased encoding may lay the foundation for learned aversions towards STEM fields, e.g. pictures of men in lab coats evoke the same behavioral and neural responses as pictures of snakes among women in ST contexts. Aversive STEM responses were linked to distorting women's STEM recollections over time. The implications these mechanisms have on women's decisions to opt out of STEM fields will be discussed.

16:30pm – 16:45pm **Paper 3: Synchrony of Love: An fNIRS Study on Emotional Attunement in Romantic Couples**

Atiqah Azhari[1], Valerie Huanqui Teo[1], Li Ying Ng[1], Andrea Bizzego[2], Paola Rigo[1], Gianluca Esposito[1]
[1]Psychology Program School of Social Sciences, Nanyang Technological University, Singapore
[2]Fondazione Bruno Kessler (FBK), Italy

Sharing of emotional states serves as an essential foundation of dyadic relationships. This phenomenon has been shown to be reflected in the synchronization of brain activity. Romantic couples who are emotionally attuned to each other engage more easily with their partner's feelings and are more likely to experience sensitive emotional connectedness with their partner. In this study, relationship satisfaction (RS) from each partner of a romantic couple in a heterosexual relationship was obtained from a self-report measure (N = 17 couples). Next, Near-infrared Spectroscopy (NIRS) was utilised in hyperscanning mode to simultaneously measure prefrontal cortical (PFC) activities of both partners. Partners of a couple were seated next to each other and were presented with seven 1-minute long videos corresponding to the following emotional conditions: love, pride, happy, fear,

disgust, sadness and neutral. Synchronization of haemodynamic responses of the couple was calculated from inter-brain activity coherence using Dynamic Time Warping (DTW). DTW generates a scalar value for the extent of synchronization of PFC activity in each emotional condition. Since the DLPFC plays an integral role in the organization of social cognition and has been implicated in social perspective taking as well as in commitment in romantic relationships, we hypothesise that this brain area will be implicated in synchronization of brain activity in couples. Indeed, findings showed that couples where both partners reported higher RS exhibited greater synchrony in the left dorsolateral prefrontal cortex (DLPFC) during the "love" condition, and in the right DLPFC during the "happy" condition. These results suggest that RS is strongly associated to the sharing of positive emotional states, and this association is modulated by increased activation of the DLPFC. Partners with high RS tend to be more emotionally attuned to shared positive experiences. Findings from this study can be applied to social situations in everyday life, around the world.

16:45pm – 17:00pm **Paper 4: Positive Emotion in Social Encounters Can Have Negative Relational Consequences: Interdependent Self-Construal as a Moderator**

Konstantinos Kafetsios
University of Crete, Greece

How emotions are experienced and expressed in face to face social encounters can very much depend on a person's cultural orientation and the two can influence the quality of social relationships. The present research examined how a person (cultural orientation) by situation (emotion in social encounters) interaction can influence social well-being (relational outcomes) and by extent, cultural fit. For a period of seven days participants (N = 164) reported eight positive and eight negative emotions they experienced in naturally occurring social encounters together with indicators of quality of social interaction (satisfaction, attention to the other, others' perceived emotions). Experience of positive emotion was associated with lower quality in social interactions (lower satisfaction, attention for the other, other expressing less positive emotions) for persons higher -compared to lower- interdependent orientation. Negative emotion in the social encounters was associated with higher attention to the other person for persons higher on interdependent orientation. These effects were more robust when social anxiety was controlled, and social anxiety was highly associated with participants' interdependent orientation. The results are in line with socially-situated approaches to emotion and cultural constructions of the self and highlight emotions in social interaction in relation to one's cultural orientations as a significant indicator of cultural fit.

17:00pm – 17:15pm **Discussion/Q&A**

17:15pm – 17:30pm **COLLECT POSTERS**

17:30pm – 18:15pm **BUSINESS MEETING** (Bute Hall)

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