BAPS 2019

Annual Meeting of the Belgian Association for Psychological Sciences

Program
-
Abstract book

2019 BAPS Meeting
Liège, May 14th-15th, 2019

Local Organizing Committee

Christine Bastin (Université de Liège)
Arnaud D'Argembeau (Université de Liège)
Anne-Marie Etienne (Université de Liège)
Isabelle Hansez (Université de Liège)
Steve Majerus (Université de Liège)
Martine Poncelet (Université de Liège)
Frank Larøi (Université de Liège & University of Bergen)

Scientific Committee

Jan De Houwer (Universiteit Gent)
Wim Gevers (Université Libre de Bruxelles)
Olivier Luminet (Université Catholique de Louvain)
Steve Majerus (Université de Liège)
Mandy Rossignol (Université de Mons)
Eva Van den Bussche (KU Leuven)
Dinska Vangucht (Thomas More University of Applied Sciences)
Alain Van Hiel (Universiteit Gent)
Gilles Vannuscorps (Université Catholique de Louvain)
Tim Vantilborgh (Vrije Universiteit Brussel)
Johan Wagemans (KU Leuven)

The organization of the 2019 BAPS meeting is supported by

CONTENTS

Welcome from the BAPS president 6

Welcome from the BAPS 2019 organizing committee and practical information 8

Location & Rooms 10

Program at a glance 13

Abstracts Keynote & Lectures 16

Abstracts Parallel Sessions 1 - 7 19

S1 – Cognitive Development 20

S2 - Improving psychological science 25

S3 – Alexithymia: New Research 30

S4 – Intergroup psychology 35

S5 – Language & Cognition 40

S6 – Sleep & Cognition: A bi-directional relationship 46

S7 – Emotions in dyads 51

Abstracts Parallel Sessions 8 - 14 56

S8 – Social Cognition 57

S9 – Education & Work 63

S10 – Addiction & Anxiety 69

S11 – Social Identity 74

S12 – Language learning 80

S13 – Dynamics of Learning 85

S14 – Virtual Reality 91

Abstracts Parallel Sessions 15 - 21 97

S15 – Memory & Numbers 98

S16 – Work & Organization 103

S17 – Assessment in clinical psychology 108

S18 – Social cognition & Emotion 114

S19 – Cognitive control 119

S20 – Mental fatigue & Cognition 124

S21 – Clinical psychology & abuse 130

Abstracts Satellite Symposiums 135

Alexithymia – New Research Perspectives II 136

Human Visual Categorization 137

The journey of a memory: dynamics of learning and consolidation in maturation and ageing ... 138

Abstracts Poster Session 1 139

Clinical Psychology 140

Cognitive Neuroscience 155
Cognition 167
Language 191
Biological psychology & statistics 194
Social Psychology 198
Work-Organizational Psychology 201

Abstracts Poster Session 2 204
Clinical Psychology 205
Cognitive Neuroscience 218
Cognition 230
Language 255
Biological psychology & statistics 259
Social and Clinical Psychology 263

Awards 269

Best Master Thesis Award 2019 270

Best PhD Thesis Award 2019 271

Welcome from the BAPS president

Dear colleagues,

I am very happy to welcome you all to the annual meeting of the *Belgian Association for Psychological Science* in Liège. Last year in Ghent, we broke a record in terms of the number of submissions and attendance. There have been ups and downs in the BAPS meeting in the previous years. But I think we are now moving to a stable high attendance, as this year also we stay on very high levels with no less than 95 talks presented in 8 invited symposia and 13 submitted symposia and paper sessions, and 129 posters! These high numbers show that the annual BAPS meeting is becoming THE place for all researchers in psychological sciences in Belgium to meet and exchange new ideas and findings. This full day will offer you the opportunity to hear the best of the current research going on at the moment, to hear more about new methodological approaches, or to become more sensitive and involved in the different facets of open science.

This year, we continue the tradition of having one leading scholar giving the first keynote lecture. In Liège, the topic of memory will be honored with the presentation of Andy Yonelinas from UC Davis. Following a recent tradition, we will also have a second keynote lecture dedicated to an issue that interests all psychologists working in Belgium. We found that being updated about the new legislation and status regarding clinical psychology was of primary importance. We are therefore very keen to hear Anne-Marie Etienne and Stijn Vandevelde, two members of the Federal Council of Mental Health Professions. This initiative is showing once more that our association of researchers is highly connected to what happens for the profession of psychologists. BAPS is one of the founding associations of the Belgian Federation of Psychologists (BFP-FBP), where we have always being very active to connect the world of psychology practitioners with the one of psychology researchers.

Let me now congratulate warmly the scientific committee (Christine Bastin, Arnaud D'Argembeau, Anne-Marie Etienne, Isabelle Hansez, Steve Majerus, Martine Poncelet and Frank Larøi) for having been so efficient to build such an appealing program that will keep us very busy for the whole day! I want to address a special thank to Steve who, once more, accepted to coordinate the committee.

I would like to highlight two important innovations this year. The first one is the organization of satellite symposia on May 15th. These symposia were initiated by symposium organizers and conference participants. The goal is to discuss new research perspectives and research collaborations taking the opportunity of having a group of scholars in a specific domain being together in Liège. We had the feeling the previous years that interesting exchanges were initiated during sessions or breaks that were too short and therefore frustrating for participants. We hope this initiative will be successful and that we can continue or even extend it in the future. One idea we have in mind is that the second day of the annual meeting should also help fostering networking among young researchers. A first path in this direction will be to launch soon a junior BAPS committee that can best represent the priorities of young scientists

and can make concrete proposals for the 2020 meeting. The second initiative is the conference dinner that will take place in the wonderful hotel-restaurant "*Les Comtes de Méan*", just next to the Saint Martin's basilica, one of the jewels of the Liège historical center. The dinner will be another way to extend fruitful discussions and strengthen connections between Belgian researchers. Please give us feedbacks about these initiatives!

The BAPS annual meeting is an important moment to acknowledge the quality of psychological research in Belgium. There is already a long tradition to deliver an award for the best Master thesis. This year is also the second time an award will be given for the best PhD thesis. Every year, the applications we receive for these prizes show the quality and the variety of the research in psychological science in Belgium. They reveal new talents who will be the major scholars of our field in the near future. Please be present for this important moment when we will congratulate the winners, but also the shortlisted candidates.

In the summer, we will launch a new award for early career achievement. While many scientific associations are proposing awards for scientific excellence in their respective fields, there are few initiatives in Belgium aimed at honoring outstanding scientists, and even fewer in the psychological sciences. This award will recognize the scientific excellence of researchers in the psychological sciences up to 6 years after their PhD. The winner will be announced during the 2020 annual meeting. I am already happy to announce you that thanks to the recent involvement of BAPS in the board of scientific affairs at the European Federation of Psychologists' Associations (EFPA), we will appoint an international jury involving scholars in the areas of the hopefully numerous applicants.

Let me finish by a plea for a more active role that each of us can have for BAPS. I already mentioned the launch of a junior committee. If you are motivated to take part to it, please let us know by sending an e-mail to baps.be@gmail.com. Don't forget that you can now follow our activities on Twitter (@BAPSciences) or on Facebook. But the best way to support BAPS is to opt for annual membership rather than only register for the annual meeting. The membership fee is lower than in the past, although we provide even more advantages. To name a few, waving of the Psychologica Belgica open source publishing cost, eligibility to apply for our sponsorship support, eligibility to apply for our different prizes (best bachelor, best master, best PhD awards, and the forthcoming best early career award), and reduced membership to APS (free for first membership and 50% discount if you were already a member).

More than ever, BAPS will today be fulfilling its central goal, which is to *support and promote psychological science in Belgium*.

I wish you all one (or two) very fruitful and enjoyable day(s) in Liège!

Olivier Luminet
President of the *Belgian Association for Psychological Sciences*

Welcome from the BAPS 2019 organizing committee and practical information

Dear colleagues

The BAPS 2019 organizing committee welcomes you very warmly to Liège. We would like to thank the many participants from all fields of psychology for presenting their work at the 2019 meeting, and for having made possible the rich and high quality program you will find in this abstract book. The program reflects the many different research domains and research methodologies that characterize psychological sciences, from the study of individuals to groups and society, from the study of animals to humans, from the study of brain to behavior, from the study of emotion to cognition, from the study of normal to pathological and non-adapted behavior. The program also clearly reflects the multidisciplinary aspect of the field of psychology, by including research from cognitive, behavioral and social neuroscience. This meeting furthermore addresses current concerns about the quality of research methods in psychological sciences by including several presentations discussing current research and data analysis practices and proposing new ways for advancing psychological science at the methodological and epistemological level. This conference follows open science recommendations by providing to all participants the opportunity to share the files of their presentation via a public repository created for this conference (see below). Finally, we would like to emphasize the growing international appeal of BAPS meetings, with a significant proportion of participants from neighboring countries (The Netherlands, Germany, Luxembourg, France, UK, Italy).

Some practical information:

You will find in this program book a **map** that will guide you to the different conference rooms which are located in two different buildings (B31 and B33 buildings). Wifi access will be possible via the *eduroam* network. If your device is not yet setup, just follow this link for installation : https://cat.eduroam.org/#.

For **Oral sessions**: Depending on whether there will 4 or 5 talks per session, allotted time (including presentation and discussion) will be 20 or 15 minutes. The chairman will ensure that talks do not exceed allotted time. Symposium organizers should bring their own laptop with the different presentations already preloaded for timely start of the session and smooth transition between talks. For each session, there will be an IT assistant present in the room with a backup laptop in case of technical problems. For thematic sessions, a laptop or PC will be preinstalled in the room. You should bring your own pointer and adapters.

For **Poster sessions**: Posters should be in A0 format and portrait mode (Height: 119 cm; Width: 84 cm). Fixing material will be provided. Please check the timing of your poster session. Your poster needs to be removed immediately after your poster session.

For the **Conference dinner**: The conference dinner is open to those participants who have specifically registered for the dinner. The location of the restaurant is in the city center (Les

Comtes de Méan; rue du Mont St Martin 9/11, 4000, Liège). We will start at 7:45pm sharp. Please plan sufficient time to get from the university campus to the restaurant (about 45 minutes by bus, about 20 minutes by car).

Talk and poster sharing platform: For those of you wanting to share your slides or poster, we have set up the OSF page https://osf.io/yr2ek/ on which you can deposit your files.

Thanks to all for sharing your science and enjoy the meeting!

Steve Majerus
For the BAPS 2019 organizing committee

Location & Rooms

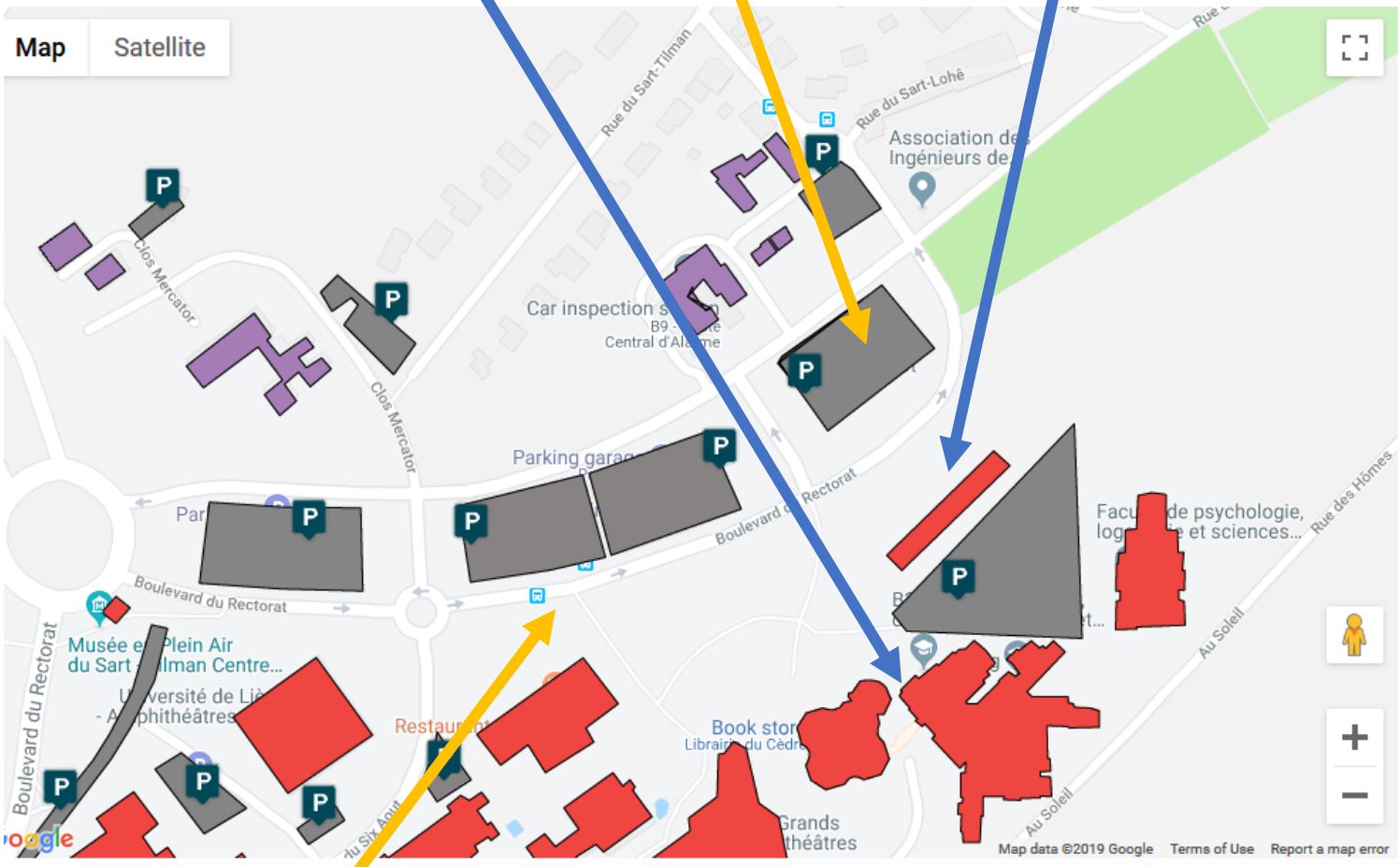
Location

ULiège, Campus du Sart Tilman
Boulevard du Rectorat 3 - Bât. B31 & B33
4000 Liège

B31 : Faculté de Droit, de Science politique et de Criminologie et Faculté des Sciences Sociales

B33 : Trifacultaire

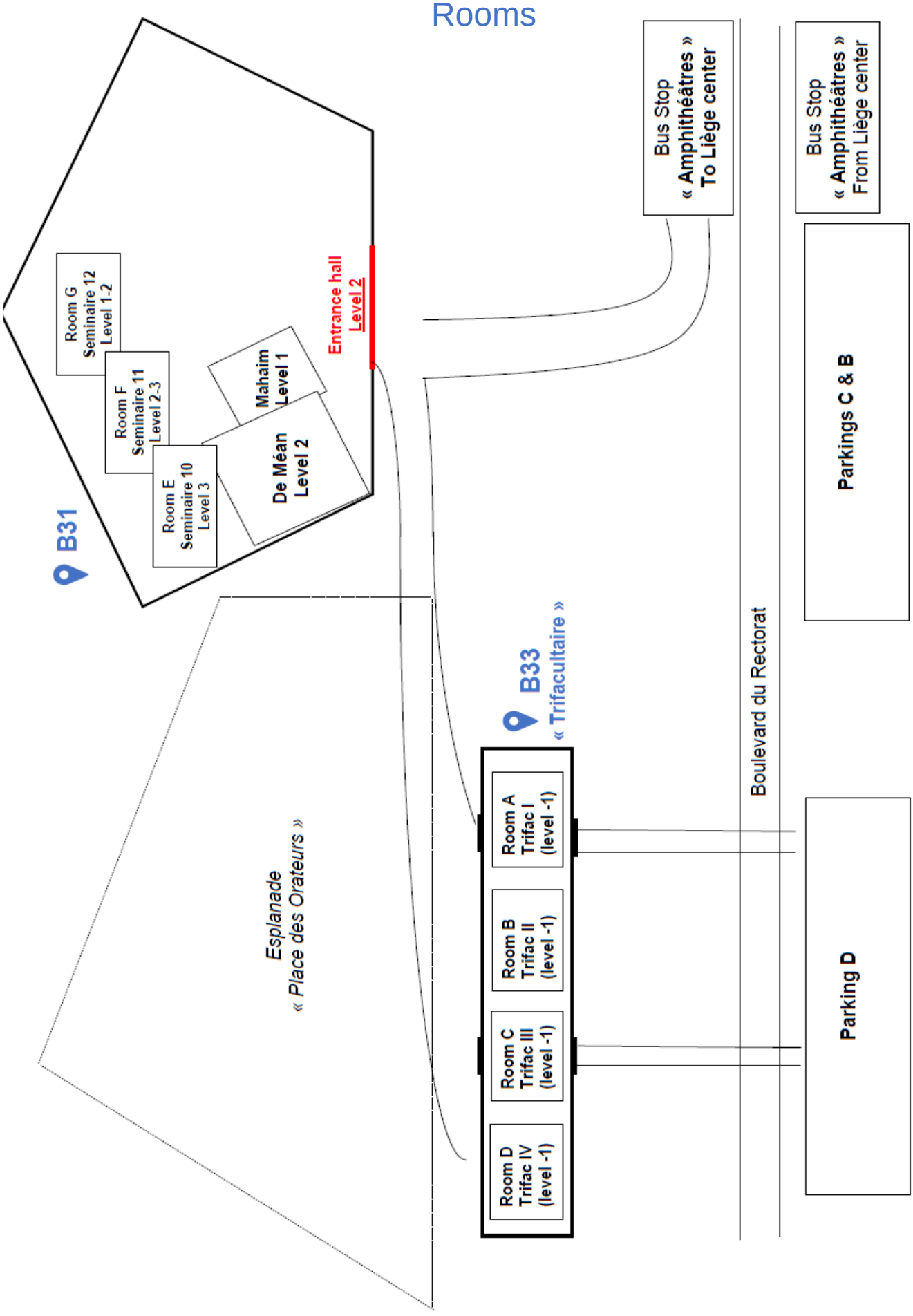
Public parking



Bus stop Amphithéâtres (Bus line 48)

See https://events.uliege.be/baps2019/access/ for further access information

Rooms


B31
Room G
Seminaire 12
Level 1-2
Room F
Seminaire 11
Level 2-3
Room E
Seminaire 10
Level 3
Mahaim
Level 1
De Méan
Level 2
Entrance hall
Level 2
Bus Stop
« Amphithéâtres »
To Liège center
Bus Stop
« Amphithéâtres »
From Liège center
Parkings C & B
B33
« Trifacultaire »
Room A
Trifac I
(level -1)
Room B
Trifac II
(level -1)
Room C
Trifac III
(level -1)
Room D
Trifac IV
(level -1)
Boulevard du Rectorat
Parking D
Esplanade
« Place des Orateurs »

Program at a glance

BAPS 2019 meeting – University of Liège - Program overiew - May 14

08:45	**Registration – Main entrance hall, B31 building, Campus Sart Tilman, Liège**						
09:20	**Welcome address – De Méan auditorium, B31**						
09:30	**Keynote I – Andy Yonelinas - De Méan auditorium, B31**						
10:15	**Coffee Break – Room Mahaim area, B31**						
10:40	Room A Trifac 1 B33	Room B Trifac 2 B33	Room C Trifac 3 B33	Room D Trifac 4 B33	Room E Séminaire 10 B31	Room F Séminaire 11 B31	Room G Séminaire 12 B31
	Cognitive development *S1 – Invited Symposium* (M. Geurten)	**Improving psychological science** *S2 – Symposium* (E. Van Geert)	**Alexithymia** *S3 – Invited Symposium* (O. Luminet)	**Intergroup psychology** *S4 –Invited Symposium* (B. Dardenne)	**Language & Cognition** *S5 –Thematic Session* (E. Van den Bussche)	**Sleep & Cognition** *S6 –Invited Symposium* (C. Schmidt)	**Emotion in dyads** *S7 –Symposium* (A. Schouten)
12:00 – 13:00	**POSTER SESSION 1 & LUNCH - Room Mahaim and surrounding area, B31**						
12:30	**General Assembly (BAPS executive committee & BAPS members) Room E, B31**						
13:00	**Social cognition** *S8 –Symposium* (H. Bukowski)	**Education & Work** *S9 – Thematic Session* (T. Vantilborgh)	**Addiction & Anxiety** *S10 – Thematic Session* (Mandy Rossignol)	**Social identity** *S11 –Symposium* (J. Veldman)	**Language learning** *S12 – Invited Symposium* (R. Hartsuiker)	**Dynamics of learning** *S13 – Symposium* (Ph. Peigneux)	**Virtual reality** *S14 – Invited symposium* (J. Simon)
14:20 – 15:20	**POSTER SESSION 2 & Coffee Break - Room Mahaim and surrounding area, B31**						
15:20	**Memory & Numbers** *S15 – Thematic Session* (Wim Fias)	**Work & Organization** *S16 – Invited Symposium* (H. de Witte & I. Hansez)	**Assessment in clinical psychology** *S17 –Symposium* (M. Walentynowicz)	**Social cognition & Emotion** *S18 –Thematic Session* (Pierre Maurage)	**Cognitive control** *S19 – Invited Symposium* (W. Gevers)	**Mental fatigue & Cognition** *S20 – Symposium* (F. Collette)	**Clinical psychology & Abuse** *S21 –Thematic Session* (Dinska Van Gucht)
16:40	**Awards ceremony – De Méan auditorium, B31**						
17:05	**Keynote II – Stijn Vandevelde & Anne-Marie Etienne – De Méan auditorium, B31**						
17:45	**Reception – Main entrance hall, B31**						
19:45	**Conference dinner – Hotel Comte de Méan, Liège City Center**						

BAPS 2019 meeting – University of Liège - Program overiew - May 15

Public Satellite Symposium	**Alexithymia – New Research Perspectives II** 9:00 – 12:00 Trifac I B33 Organizer: O. Luminet **THIS SYMPOSIUM IS OPEN TO ANYONE INTERESTED**
Private Satellite Symposium	**Human visual categorization** 9:30 – 14:30 Trifac II B33 Excellence of Science (EOS) HUMVISCAT consortium (coordinator: J. Wagemans)
Private Satellite Symposium	**The journey of a memory: dynamics of learning and consolidation in maturation and ageing** 10:00 – 17:00 Trifac III B33 Excellence of Science (EOS) MEMODYN consortium (coordinator: Ph. Peigneux)

Abstracts

Keynote & Lectures

Keynote Lecture

9:30 – 10:15

Building : B31 | Room : De Mean auditorium

THE EFFECTS OF EMOTION AND ACUTE STRESS ON EPISODIC MEMORY

Andy Yonelinas

Department of Psychology, University of California Davis, USA

A growing body of research has indicated that emotion and acute stress can enhance episodic memory. However, why these effects occur and how they are related to different regions in the medial temporal lobes is still poorly understood. One dominant explanation of these effects is the 'emotional consolidation' account which assumes that over time the amygdala selectively enhances the consolidation of emotional and stressful episodic memories that are supported by the hippocampus. An alternative 'emotional binding' account is that the hippocampus supports memory for item-context bindings, whereas the amygdala supports complementary item-emotion bindings. Recent results from behavioral, lesion and neuroimaging studies examining the effects of emotion and acute stress on episodic memory are found to challenge the consolidation account and preferentially support the predictions of the emotional binding hypothesis.

Keynote Lecture

17:05 – 17:45

Building : B31 | Room : De Mean auditorium

THE NEW LAW ON CLINICAL PSYCHOLOGY IN BELGIUM: SHOULD RESEARCHERS AND NON-CLINICAL PSYCHOLOGIESTS WORRY?

Stijn Vandevelde[13] & Anne-Marie Etienne[23]

1 - Universiteit Gent, Belgium
2 - Université de Liège, Belgium
3 - Federal Council of Mental Health Professions, Belgium

The Federal Council of Mental Health Professions (Ministry of Health) of Belgium has elaborated a scientific frame of reference that defines the competencies of the clinical psychologist and the clinician in orthopedagogy, in the context of the new law on clinical psychology and orthopedagogy. We will present the main content of the law and of the definition of competencies in both domains. A major focus will be the discussion of the possible implications of this new law on other psychological domains such as work and organizational psychology, social psychology, experimental psychology and neuropsychology. We will consider in detail the concern that has been raised about the overlap of professional activities carried out by clinical psychologists and clinicians in orthopedagogy, as defined by the new law, and those carried out by non-clinical psychologists, neuropsychologists and researchers in psychology and cognitive neuroscience.

Abstracts

Parallel Sessions
1 - 7

May 14
10:40 – 12:00

S1 – Cognitive Development

Falling head over heels for developmental psychology: How to better understand learning?

10:40 – 12:00

“Room A” | Building: B33 | Room: TRIFAC 1

Invited Symposium

Organizer: Marie Geurten

Chair: Marie Geurten

Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium

During infancy and beyond, infants and children have to learn a massive amount of information and skills. Importantly, the way they will acquire new knowledge and/or new abilities will have a major impact on both their cognitive and social functioning. This probably explains why, despite decades of extensive research, learning is still a key theme in developmental psychology even today. In this context, the main goal of this symposium is to provide information about how infants and children acquire new abilities and how a better understanding of different learning mechanisms could help us to develop intervention programs aiming at supporting learning throughout childhood. Specifically, after exploring the ability to extract statistical regularities present in the environment as a central mechanism in infants’ learning, the role of metacognition as a key factor to understand individual differences in various cognitive domains such as arithmetic and spelling will be investigated. Finally, we will examine whether early cognitive intervention programs targeting either arithmetic skills or executive functions could have a positive effect on young children’s cognitive and social performance.

S1.1- Learning of visual regularities in infancy

Julie Bertels

Center for Research in Cognition and Neurosciences (CRCN), Université Libre de Bruxelles, Belgium

Extracting the statistical regularities present in the environment is a central learning mechanism in infancy. The present study investigated whether infants can learn the association between a target location and the context in which it is presented. To this end, we used a visual associative learning procedure inspired from the contextual cuing paradigm, with infants from 8 to 12 months of age. In two experiments, in which we varied the complexity of the stimuli, we first habituated infants to several scenes where the location of a target (a cartoon character) was consistently associated with a context. Second, we examined if infants learned the covariation between the target location and the context by measuring looking times at scenes that either respected or violated the association. Results showed that infants learned the target-context associations, as they looked longer at the familiar scenes than at the novel ones. In particular, infants selected clusters of co-occurring contextual shapes and learned the covariation between the target location and this subset. These results support the existence of a powerful and versatile statistical learning mechanism that may influence the orientation of infants' visual attention toward areas of interest in their environment during early developmental stages.

S1.2- Finger games to improve precursors of arithmetic learning in preschool children

Line Vossius, Maëlle Neveu, Christelle Maillart, Florence Binamé, Boris Jidovsteff, & Laurence Rousselle

Childhood research unit, Université de Liège, Belgium

When children start preschool their numerical ability varies considerably. One of the school mission of is to reduce these inequalities. In different countries, numerical learning is increasingly highlighted in preschool programs and has become one of the national priorities. Indeed, a strong relationship has been found between numerical knowledge in preschool and children's arithmetical performance in primary school, and beyond. In this study, 3 groups of pre-schoolers (n=85) aged between 48 and 60 months old were recruited: 37 benefitted from a numerical program based on finger game activities targeting precursors in the development of early mathematical skills, a pedagogical intervention for ten weeks, five times a week. Twenty-eight benefitted from a shared reading program targeting precursors in the development of reading and writing skills. Finally, twenty-nine participated in a global motor training. In the short-term, the first results showed that children who participated in the numerical program improved their performances in cardinality processing more than in the other groups, particularly using number gestures. These children also showed a better performance in early arithmetical skills than the other groups. In the long-term, children who were in the numerical program could develop arithmetical skills more rapidly than children in the other groups.

S1.3 - Inhibition and social cognition training in preschoolers

Alexandra Volckaert & Marie-Pascale Noël

Psychological Sciences Research Unit, Université Catholique de Louvain, Belgium

Externalized Behaviors problems (EB) play an important role in clinical practice in young pre-schoolers (3-5 years). Various risk factors are associated with it, including a deficit in executive functions (EF), and in particular inhibition. Our presentation will examine the relationships between EF and EB in young children. We will see that, among the different EF, inhibition seems to be the most related to EB. We will observe the efficiency of an inhibition training, its impact on the other EF, but also on EB. This intervention was first tested on a population of typically developed children (Volckaert & Noël, 2015) and showed that this in inhibition training increased inhibition capacities and also impacted on other EF. More importantly, it also led to a decrease of EB. This intervention was then tested with children with EB problems (Volckaert & Noël, 2017). The results showed that, although EF improvement was observed only for children with poor inhibition capacities, improvements in EB was clearly observed. In addition, training inhibition skills would improve emotional regulation and social adjustment (Houssa, Volckaert, Nader-Grosbois & Noël, 2017). Finally, we will present our new research, targeting EF but also socio-emotional competencies, in schools of Belgium.

S1.4- Online metacognition in children's arithmetic

Elien Bellon, Wim Fias, & Bert De Smedt

Parenting and Special Education Research Unit, KU Leuven, Belgium

We investigated the role of the domain-general factor metacognitive monitoring in individual differences in arithmetic, in addition to the role of the domain-specific factor numerical magnitude processing. To date, there is a lot of ambiguity about the specific and unique roles of these factors in addition to each other, as well as about their predictive roles. Metacognition was found to be a stable and unique predictor of arithmetic performance in both second and third grade, and predicted the growth between the grades in 120 typically developing children. These data stress the importance of children's metacognitive monitoring, which should be considered as an important variable in studies on children's arithmetic performance and at the level of (mathematics) education, where children can be learned to identify their own errors and consequently learn from their mistakes. We further investigated in 147 typically developing third graders whether this role of metacognitive monitoring was specific to arithmetic or whether it was also the case for spelling.

S2 - Improving psychological science

10:40 – 12:00

“Room B” | Building: B33 | Room: TRIFAC 2

Symposium

Organizers: E. Van Geert[1] & I. Grahek[2]

Chair: E. Van Geert

1 - Department of Brain and Cognition, KU Leuven, Belgium
2 - Department of Experimental Clinical and Health Psychology, Universiteit Gent, Belgium

In recent years psychology has faced a replication crisis: large-scale replication projects have failed to replicate many prominent results in social and cognitive psychology. This crisis has often been framed as a methodological crisis. The aim of this symposium is to broaden this view, and show that the lack of replication of psychological findings might be in part due to a lack of rigorous theory development and evaluation. We bring together researchers at the forefront of this advocacy for better or different theories, who will provide multiple perspectives on the relationship between the current replication crisis and the state of theory in psychology. In that sense, this symposium opens an important discussion on acknowledging current issues related to replicability and theory in psychology, and outlines possible ways in which improving psychological theory may improve psychological science.

S2.1 - The historical meaning of the crisis in psychology

Fred Hasselman[1,2]

1 - Behavioural Science Institute: Learning & Plasticity, Radboud Universiteit, The Netherlands

2 - School of Pedagogical and Educational Science, Radboud Universiteit, The Netherlands

The current crisis of confidence in the empirical record of psychological science and other disciplines has led to suggestion and implementation of a number of reforms, most of which pertain to improving quality of research methods and statistical inference. One of the more popular reforms that has been widely adopted as “best practice", is the preregistration of confirmatory tests of hypotheses. The main problem addressed by preregistration is “HARKing”; Hypothesising After the Results Are Known. I will argue that the fact that preregistration is widely considered an absolute necessity for resolving the crisis implies that the field acknowledges the true cause of the crisis is a lack of solid theories. That is, if psychological science produced theories from which predictions could be deduced unambiguously, preregistration would not be necessary. I will provide arguments from the history of the modern empirical sciences that reveals the current crisis is indeed a theoretical crisis and give a rough sketch of the kind of reforms that would be required to resolve it.

S2.2 - The replication crisis and causal theories in psychology

Markus Eronen

Department of Theory and History of Psychology, Rijksuniversiteit Groningen, The Netherlands

In the replication debate, the focus has been mainly on statistical and methodological issues, but in recent years, more and more authors have also highlighted the lack of good theories as an important cause for the crisis. In this talk, I discuss what a good psychological theory would look like, and why developing such theories is so difficult. First, taking the life sciences as the model, I argue that successful psychological theories should describe local causal mechanisms, thus allowing for prediction and control of domain-specific phenomena. I then show that in light of state-of-the-art models of causal inference, finding such causal mechanisms faces great obstacles in psychology. The core of the problem is that due to the complexity of the mind and the lack of direct ways of intervening on mental states, it is not possible to manipulate specific variables and to control for confounders in the same way as in other fields. Thus, theory development as such will not be the solution to the replication crisis. Instead, it is more fruitful at this stage to focus on the detection of robust (and replicable) patterns, which can also be very useful for both theory and practice.

S2.3 - Psychology is in crisis not because some results do not replicate but because it is not clear what its goals are

Jan De Houwer

Department of Experimental Clinical and Health Psychology, Universiteit Gent, Belgium

Although the replicability crisis in psychology needs to be tackled and has already led to many improvements in psychological research, arguably it is not the main problem that psychology is currently facing. When conceiving of science as a goal-directed activity, it is vital that psychological researchers have clear ideas about what their aims are, how they can realize those aims, and how they can verify whether those aims have been reached. In first instance, there needs to be clarity about the ultimate, distal goals. Once these have been established, it can be evaluated which more immediate, proximal goals could serve those distal goals. Different researchers can have different distal goals and debates should not focus on which distal goals are best. There is merit in discussing the range of goals that psychologists aim for (if only to delineate psychological science from other sciences). However, without some sense of direction, plan of action, and ways to assess progress, psychology will continue to fail as a cumulative science.

S2.4 - From theories to models to predictions with Bayesian model comparison

Julia Haaf

Department of Psychological Methods, Universiteit van Amsterdam, The Netherlands

Most psychological theories provide verbal predictions for data that entail ordinal constraints. For example, Craik and Lockhart (1972) predicted that deeper processing – such as thinking about the meaning of a word – improves memory performance as compared to more shallow processing – such as counting the vowels of a word. This prediction provides an ordinal constraint: The authors expect that deeper processing would improve memory, not that deeper processing would weaken memory. When distinguishing between competing theories, it is oftentimes necessary to impose multiple ordinal-level predictions simultaneously. Using a Bayesian model comparison approach we may 1. develop models that instantiate the constraints derived from theory, and 2. provide Bayes factors as relative evidence between these models. This approach is applied to dual- and single-process theory in recognition memory. These different theories lead to different sets of predictions on data, and the resulting sets of predictions can be formalized as statistical models that in turn can be tested using Bayesian model comparison. I highlight how the approach leads to more meaningful hypothesis testing, and how it can be expanded to test for individual differences.

S3 – Alexithymia: New Research

10:40 – 12:00

“Room C” | Building: B33 | Room: TRIFAC 3

Invited Symposium

Organizers: Olivier Luminet[1,2] & Katharina Goerlich[3]

Chair: Olivier Luminet

1 - Psychological Science Research Institute, Université catholique de Louvain, Belgium
2 - Fund for Scientific Research (FRS-FNRS), Belgium
3 - Department of Biomedical Sciences of Cells & Systems, University Medical Center Groningen, Rijksuniversiteit Groningen, The Netherlands

Alexithymia is a multifactor construct that involves: 1) difficulty identifying feelings and distinguishing between feelings and the bodily sensations of emotional arousal, 2) difficulty describing feelings to other people, 3) a reduced capacity to engage in fantasy, 4) a stimulus-bound, externally oriented cognitive style. Together, these factors reflect a deficit in the cognitive processing and regulation of emotional states, which can then impact mental and physical health. In the past 20 years, there has been a burgeoning of research on the alexithymia construct. This symposium will highlight important developments in the field and illustrate some current approaches that are considered to better understand the emotional and cognitive deficits involved in alexithymia.

S3.1 - Autonomic reactivity in alexithymia: A meta-analysis

Elke Vlemincx [1], Myria Ioannou [2], Maria Panteli [2], Olivier Luminet [3,4], & Georgia Panayiotou [2]

1 - Queen Mary University of London, England
2 - University of Cyprus, Nicosia, Cyprus
3 - Université catholique de Louvain, Belgium
4 - Belgian Fund for Scientific Research (FRS-FNRS)

Research shows strong links between alexithymia and physical and mental illness. It has been hypothesized that this link, in part, is due to physiological dysregulation in alexithymia, both tonically during baseline and phasically in response to emotional stimuli. Yet, research findings on autonomic (re)activity in alexithymia are mixed. First, some research has shown autonomic hyperreactivity during baselines in alexithymia, whereas other research has reported no autonomic baseline differences depending on levels of alexithymia. Second, both autonomic hypo- and hyperreactivity in response to emotional stimuli have been reported in alexithymia. Consistent with dysregulation caused by accumulated allostatic load, we predicted that alexithymia would be characterized by autonomic hyperactivity during baseline and autonomic hyporeactivity to emotional stimuli. As autonomic measures of (re)activity, the meta-analysis focused on (a) skin conductance, a measure of sympathetically mediated arousal, and (b) heart rate, a measure of sympathetic and parasympathetic influences of both emotional arousal and valence. Meta-analytic statistics showed significant baseline hyperactivity and significant hyporeactivity to emotional stimuli, pronounced most strongly in electrodermal measures. These results confirm that alexithymia is associated with baseline hyperarousal and emotional hypo-arousal, suggesting high allostatic load in alexithymia, desensitizing physiological systems, and increasing vulnerability to physical and mental illness.

S3.2. Neuroscientific evidence for different facets and dimensions of alexithymia

Katharina S. Goerlich[1,2]

1 - Department of Biomedical Sciences of Cells & Systems, Rijksuniversiteit Groningen, The Netherlands
2 - University Medical Center Groningen, The Netherlands

Alexithymia is a personality construct that can be divided into two dimensions: a cognitive dimension, i.e. the individual ability to identify, verbalize and analyse one's feelings, and an affective dimension, i.e. one's imaginative capacities and one's individual degree of arousal in response to emotional events. In the past decade, neuroscientific research has begun to acknowledge the multifaceted nature of alexithymia by investigating the neural and electrophysiological signatures of its different facets and dimensions. Here, I review findings provided by structural and functional magnetic resonance imaging studies and electroencephalography studies that differentiated between different facets and dimensions of alexithymia. I then provide a synopsis of the current neuroscientific evidence for distinguishable neural and electrophysiological substrates of different alexithymia facets and dimensions. In the end, I discuss potential clinical implications of these findings and provide directions for future research.

S3.3 - Are emotion identification and verbalization protective for heart rate variability in stress conditions?

Elise Batselé & Carole Fantini-Hauwel

Université Libre de Bruxelles, Belgium

Heart rate variability (HRV) is considered as an objective measure of stress response because it reflects autonomic nervous system (ANS) characteristics. Some researchers suggest that alexithymia is associated with lower resting HRV but very few studies have examined the links between alexithymia and HRV under stress conditions, and the existing results are inconclusive. The aim of this study was to explore the links between HRV and emotion identification as well as emotion verbalization using an interpersonal stressor. Participants (N= 68, females= 55, mean age= 21.35 ± 1.23) fulfilled the emotion identification and verbalization subdimensions of the Profile of Emotional Competence. HRV was measured during resting, reactivity and recovery to an interpersonal stressor. Results showed that participants with difficulties in emotion verbalization continued to exhibit a reduced HRV after the stressor, while those with fewer difficulties returned to their resting HRV level more rapidly (b = .13, z = 3.40, $p \leq .01$). In conclusion, we suggest that one central component of alexithymia, difficulty in verbalizing feelings, might have a deleterious effect on the ANS recovery following a stressor. These results suggest that one path explaining the association between alexithymia and health disorders could occur through a deficit in recovery of the ANS.

S3.4 - Alexithymia as a moderator of affective modulation of symptom reporting in functional somatic syndromes

Maaike Van Den Houte[1,2], Katleen Bogaerts[2,3], Ilse Van Diest[2], Lukas Van Oudenhove[4], & Omer Van den Bergh[2]

1 - Psychological Science Research Institute, Université Catholique de Louvain, Belgium
2 - Health Psychology, KU Leuven, Belgium
3 - Rehabilitation Research Center, Universiteit Hasselt, Belgium
4 - Laboratory for Brain-Gut Axis Studies, KU Leuven, Belgium

Functional somatic syndromes (FSS), such as Chronic Fatigue Syndrome (CFS) and fibromyalgia, are characterized by chronic and debilitating somatic symptoms that are insufficiently explained by structural organic dysfunction. It has been suggested that alexithymia might contribute to the experience of symptoms in FSS because the inability to correctly identify, classify, and interpret emotions is related to an increased confusion between changes in bodily states accompanying negative emotions and changes in bodily states that are a sign of disease. To investigate this, patients with fibromyalgia and/or chronic fatigue syndrome (CFS; N=81) and healthy controls (HC, N=41) viewed series of neutral, positive and negative affective pictures. After every picture series, participants filled out a somatic symptom checklist. Alexithymia was measured with the “difficulty identifying feelings” (DIF) subscale of the Toronto Alexithymia Scale. We found that negative affective states elicited elevated somatic symptom reports in patients experiencing fibromyalgia and/or CFS, but not in healthy individuals. Interestingly, this difference between patients and controls disappeared when controlling for DIF as a full mediator of this effect, indicating that the exaggerated affective modulation of symptom reporting in FSS patients can be explained by higher average levels of alexithymia in FSS patients.

S4 – Intergroup psychology

10:40 – 12:00

“Room D” | Building: B33 | Room: TRIFAC 4

Invited Symposium

Organizers: Benoit Dardenne and Michel Hansenne

Chair: Benoit Dardenne

Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium

The symposium on « intergroup relationships: new research and perspectives » brings together experts in personality and social psychology. This symposium is a unique occasion to let the experts as well as the broader scientific community learn about recent developments in the study of terrorism and attitudes toward outgroups, racial bias in empathy, collective memory, and on the distinction between implicit and explicit compensation.

S4.1- Attitudes towards outgroups before and after terror attacks

Jasper Van Assche & Kim Dierckx

Department of Developmental, Personality and Social Psychology, Universiteit Gent, Belgium

In light of the recent terrorist attacks in Paris and Brussels, the aim of the current set of studies was to examine if attitudes towards terrorists and - by extension - uninvolved outgroups (i.e., Muslims, refugees, and immigrants) changed before *vs*. after these attacks. In a Belgian student sample (Study 1a), we investigated the impact of the Paris attacks on various facets of outgroup attitudes: feelings towards terrorists, Muslims, and refugees, immigrant trust, immigrant threat, and immigrant prejudice. The impact of the Brussels attacks was studied in a Belgian adult sample (Study 1b), specifically focusing on feelings towards refugees, refugee trust, refugee threat, and avoidance of contact with refugees. Results from frequentist and Bayesian analyses in both samples revealed no significant short- and long-term longitudinal changes in outgroup attitudes after both the Paris (Study 1a) and Brussels (Study 1b) attacks. We discuss these findings and connect them to the alleged refugee crisis, another recent event that polarized European societies.

S4.2- Racial bias in affective empathy

Omar Bajouk & Michel Hansenne

Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium

Empathy researches demonstrated that participants preferentially share the emotional states of in-group stimuli, reflecting a racial bias in empathy (RBE). It has been reported that the RBE could be modulated by high cognitive demand tasks, and Event-Related Potentials (ERPs) studies have suggested that RBE is mainly the result of the affective component of empathy indexing by the early stage and that the cognitive component would be unbiased. The present study investigates whether watching pain expressions of own-race and other-race individuals under cognitive load affected early and/or late processes. Caucasian participants observed painful or neutral emotions displayed by in-group or out-group members under high or low working memory (WM) condition. The ERP results showed that RBE was observed in N100, as Caucasian pain elicited a positivity shift in the frontal electrodes. This bias was reduced under a high WM condition, demonstrating that cognitive load modulated RBE in the early stage. Moreover, RBE was not found in P300, suggesting that the cognitive component was unaffected even when cognitive resources were occupied. Together, these results show that RBE was observed in the affective but not in the cognitive component of empathy and was modulated by cognitive load in the early stages.

S4.3- The benefits and costs of mobilizing collective victimhood memories for claiming minority group's recognition

Simona Lastrego & Laurent Licata

Université Libre de Bruxelles, Belgium

Through collective memories, minority group members can cast their in-group in a moral category, which can be instrumental in obtaining social recognition from the majority (De Guissmé & Licata, 2017). We hypothesized that presenting a minority group as a historical victim (vs. benefactor) should bring social psychological benefits, but also costs, to the minority group. Participants (N = 136) were exposed to two collective memories mobilized by a representative of the Moroccan immigrants of Belgium: (1) the Victim condition emphasized how Moroccan immigrants were mistreated upon their arrival; and (2) the Benefactor condition emphasized their contribution to Belgium's economic development. Results show that Belgian participants (majority) expressed more collective guilt in the Negative Patient than in the other condition ($F (1, 136) = 5.22$, $p = .02$, $\eta 2 = .04$). However, they perceived Moroccans as warmer and more similar to them, and the social distance was perceived as lower, in the Benefactor than in the Victim condition. These results suggest that claiming social recognition as a victim group can bring benefits as it induces more collective guilt from the majority but, paradoxically, this comes with a social cost as it induces more prejudice from the majority.

S4.4- Implicit and explicit compensation among observers and group members

Mathias Schmitz & Vincent Yzerbyt

Université Catholique de Louvain, Belgium

Compensation takes place when one of two targets, i.e., a person or a group, is favoured on one of the two fundamental dimension (i.e., warmth or competence), while the other target is favoured on the second dimension (Yzerbyt, 2016). Research has shown that compensatory judgments is likely motivated by self-affirmation among low-status group members, and the desire to appear non-discriminatory among high-status members (Cambon & Yzerbyt, 2018). Interestingly, the vast majority of compensation studies have focused on explicit measures. In three experiments, we tested whether compensation would also arise at the implicit level. Experiments 1 and 2 relied on the Brief-IAT. Experiment 1 revealed that uninvolved observers confronted with unknown groups compensated explicitly as well as implicitly. In Experiment 2, low-competence group members compensated both implicitly and explicitly. In contrast, high-competence group members compensated at the explicit level but showed in-group favouritism at the implicit level. In Experiment 3, we further tested compensatory judgments among high-status members using implicit measures derived from the Linguistic Category Model. The results replicated those obtained in Experiment 2. As a set, our findings shed new light on the relationship between explicit and implicit compensatory judgments in terms of judges' status.

S5 – Language & Cognition

10:40 – 12:00

“Room E” | Building: B31 | Room: Séminaire 10

Thematic Session

S5.1 - The role of case marking and word order in cross-linguistic structural priming in late L2 acquisition

Merel Muylle[1], Sarah Bernolet[2], & Robert J. Hartsuiker[1]

1 - Universiteit Gent, Belgium
2 - Universiteit Antwerpen, Belgium

Several studies found priming of syntactic structures between languages with various language combinations. This priming is considered to reflect the sharing of syntactic representations between prime and target language. But which factors are crucial for the presence or absence of this sharing? Here, we investigated the role of two important domains of language variation: case marking and word order. We varied these language features in an artificial language (AL) learning paradigm using three different language versions that were equally distributed across subjects (n=144).Priming was assessed between Dutch (no case marking, SVO word order) and a) a baseline AL version with SVO word order, b) a case marking AL version, and c) an AL version with SOV word order. There was similar within-language and cross-linguistic priming in all versions for transitive sentences, indicating that cross-linguistic structural priming was not hindered. In contrast, for ditransitive sentences there were similar within-language priming effects for all versions, but for none of the language combinations cross-linguistic priming was obtained. A previous study using this paradigm in a multiple-session design only found ditransitive priming between languages from the second day on. This suggests that ditransitives need more time than transitives to be shared across languages.

S5.2 - The effect of connective on structural priming

Chi Zhang[1], Sarah Bernolet[2], & Robert J. Hartsuiker

1 - Universiteit Gent, Belgium
2 - Universiteit Antwerpen, Belgium

Speakers tend to spontaneously repeat sentence structures they have experienced (i.e., structural priming). A multifactorial account posits an implicit learning process and an explicit memory-related process jointly contributing to structural priming. Specifically, implicit learning leads to long-term, abstract priming, whereas explicit memory causes a short-lived, cue-dependent effect, especially when there is lexical overlap. The multifactorial account further assumes that speakers encode sentence structure in explicit memory to maintain/monitor the coherence of discourse. We therefore hypothesized that speakers are more likely to retrieve previous sentence structures when there is coherence between primes and targets. We tested this hypothesis by varying the presence or absence of connectives in a structural priming experiment. Forty-eight native Dutch speakers read (double object vs. prepositional object) prime sentences and described target pictures. We manipulated prime structure, lexical overlap, and critically, presence of a connective (*en* meaning *and*) joining primes and targets. There was a structural priming effect, which was stronger with lexical overlap. Most importantly, there was stronger priming when the connective was present, but only when there was no lexical overlap. These findings suggest that speakers temporarily hold sentence structure in explicit memory to help maintain discourse coherence.

S5.3 - How precise are verbal working memory representations? Evidence from phonological and semantic similarity

Marion Bouffier & Steve Majerus

Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium

In contrast with the visual working memory (WM) domain, the notion of WM precision has been poorly explored in the verbal WM domain. WM precision is defined as the resolution at which items are represented in WM, in addition to the quantity of items that can be maintained. In this study, which included 51 young adults, we assessed the sensitivity to different degrees of phonological (Task 1) and semantic (Task 2) proximity between memory and probe items as a potential index of verbal WM precision. In both tasks, the participants were presented auditory lists of 6 words. After each list, a probe word was presented, and the participants had to decide whether or not it had been in the list. In Task 1, negative probes showed different degrees of phonological proximity with the target memoranda, while in Task 2, negative probes showed different degrees of semantic proximity with the target item. Using Bayesian ANOVA, we observed robust evidence for a gradual influence of phonological proximity on recognition performance. This was also observed, although to a lesser extent, for semantic proximity. This study indicates that phonological and semantic proximity may be promising tools for exploring WM precision in the verbal domain.

S5.4 - Aha! Under Pressure: Is the Aha! Experience Constrained by Cognitive Load?

Hans Stuyck[1, 2], Axel Cleeremans[2], & Eva Van den Bussche[1]

1 - Laboratory of Experimental Psychology, KU Leuven, Belgium
2 - Center for Research in Cognition and Neurosciences, Université Libre de Bruxelles, Belgium

In our daily lives most of the activities that we perform tap into our ability to creatively solve problems. Although this is generally a conscious endeavour, sometimes we are struck by a sudden epiphany. The felt component of such an experience is popularly known as the Aha! experience or insight. Although there is general consensus on the phenomenological characteristics of the Aha! experience, there remains considerable debate on its underlying mechanisms. One way to address this, is to study insight under cognitive load. If insight is the result of the same explicit process that we use to solve everyday problems, it should be influenced by cognitive load in a similar way. However, if it constitutes a different, more implicit process, cognitive load might not affect it at all. Using a dual-task paradigm where participants solved word puzzles under different memory loads, we found that word puzzles solved with insight were more accurate and led to higher solution confidence. When memory load increased, only puzzles solved without insight were solved more slowly. The fact that solution retrieval with insight was unaffected by memory load, implies that insight relies on a process that does not compete for limited cognitive resources.

S5.5 - What am I allowed to remember and transmit? Stories of resistance and collaboration during World War Two in Belgium

Aline Cordonnier & Olivier Luminet

Université Catholique de Louvain, Belgium

Autobiographical memories as well as family stories can help people construct a sense of self in history. It allows them to know where they come from and anchor their past within a broader family narrative. However, social and cultural norms often infiltrate the transmission process. This is particularly true when investigating memories that are bound up with specific historical narratives and strong social identities. In our Transmemo Project, we examine the intergenerational transmission of WWII events in families with an ancestor who committed acts of resistance or who was convicted for collaboration. For each family, we endeavoured to interview three members of different generations and estimate how much of the family's past had been transmitted to them. Current stereotypes in Belgium describe Wallonia has having resisted while Flanders collaborated. In our results, we perceive the impacts of these collective narratives at the family and individual level, as we encounter a resounding silence around the topic of collaboration in Wallonia. We discuss how internalized norms of a socially imposed taboo have penetrated the family boundaries and have blocked the usual intergenerational transmission of memories.

S6 – Sleep & Cognition: A bi-directional relationship

10:40 – 12:00

“Room F” | Building: B31 | Room: Séminaire 11

Invited Symposium

Organizers: Christina Schmidt[1] & Olivier Mairesse[2]
Chair: Christina Schmidt

1 - GIGA-CRC in Vivo Imaging and Psychology & Neuroscience of Cognition research units, Université de Liège, Belgium
2 - Brain, Behavior and Cognition, Vrije Universiteit Brussel, Belgium

Insufficient, unsatisfying, but also mistimed sleep has been associated with performance decrements in a series of cognitive domains. Importantly, the amplitude of performance loss depends on the investigated cognitive domain, the individual’s vulnerability to sleep loss but also the time of day at which performance is challenged. Moreover, sleep has been shown to play a key role in memory and specific sleep features have been associated with the consolidation of declarative but also procedural memories. In the same vein, targeted memory reactivation during sleep was found to improve subsequent recall performance. This symposium aims at providing an overview on the impact of sleep parameters on cognitive performance.

S6.1- The Dark Night Rises: Sleep and performance in prolonged exposure to isolation, confinement and extreme environments

Olivier Mairesse[1,2,3], Daniel Neu[3], Eoin McDonald-Nethercott[4], & Nathalie Pattyn[1,2,5]

1 - Brain, Behavior and Cognition, Vrije Universiteit Brussel, Belgium
2 - Vital Signs and Performance, Royal Military Academy, Belgium
3 - Sleep Laboratory and Unit for Clinical Chronobiology, CHU Brugmann, Belgium
4 - Princess Alexandra Hospital, United-Kingdom
5 - Faculty of Physical Education and Physiotherapy,Vrije Universiteit Brussel, Belgium

On Earth, polar environments serve as space-analogues to study human adaptation in the eventuality of manned interplanetary travel, yet few studies include polysomnography (PSG) due to operational constraints. To date, this study represents the largest body of data on sleep and performance recorded in humans residing in Antarctica. PSG, subjective sleep, sleepiness and fatigue and psychomotor vigilance were tested every 6 weeks in 13 males (Hivernauts) during 13 months at Concordia (Antarctica) and compared to controls (n=13; 2 females) at sea level. Hivernauts presented with periodic breathing, increased sleep onset latency, reduced sleep efficiency and increased sleep fragmentation. REMS latency appeared to be shorter, REMS duration increased and light sleep decreased. Reaction speed was reduced in Hivernauts and lapsing increased. Subjective sleepiness was moderate in Hivernauts, but higher than in controls. Crewmembers with fixed schedules went significantly earlier to bed, rose later and had longer sleep latencies than participants with variable schedules, especially during the polar winter, but no significant differences were observed in PSG parameters. Over time, all PSG, chronometric and questionnaire variables showed significant and stable inter-individual variability. In conclusion, space-analog conditions affect human sleep and performance, but individual responses to these conditions show large differences and remain relatively stable under prolonged exposure.

S6.2- Impact of sleep-wake regulation on cognitive performance and its cerebral correlates

Christina Schmidt[1,2], Fabienne Collette[1,2], Carolin F. Reicher[3], Michele Deantoni[1], Mathilde Reyt[1], Micheline Maire[4], Giulia Gaggioni[1], Gilles Vandewalle[1], Christian Cajochen[3], Gregory Hammad[1], & Vincenzo Muto[1]

1 - GIGA-CRC in Vivo Imaging, Université de Liège, Belgium
2 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium
3 - Psychiatric University Hospital, Universität Basel, Switzerland
4 - Institute of Primary Health Care (BIHAM), Universität Bern, Bern, Switzerland

Temporal organization of sleep-wake states is fundamental to brain function and prone to disruption by the ageing process. We show results providing functional significance of sleep-wake regulation onto cognition and its cerebral correlates. In a next step, the impact of age on those modulations will be discussed. There is evidence that performance of older adults is less impaired by sleep deprivation compared to young adults. We will present data indicating that such reduced age-related responsiveness to sleep loss and circadian phase are also detectable at the cerebral level, both by probing task-dependent brain activity using functional magnetic resonance imaging and cortical excitability using transcranial magnetic stimulation. Finally, we will address more specifically the putative role of the temporal framework of sleep-wake regulation on cognitive and brain fitness in the aged. First data reveal large variability in circadian sleep-wake modulation over the 24-h day that is linked to working memory performance. In the same vain, preliminary results suggest an association between circadian integrity and MRI-derived brain volume and surface measures in healthy older participants. Overall, the data suggest that the temporal organization of sleep and wakefulness should be taken into account when assessing a putative link between sleep and cognition.

S6.3 - Modulating the neurophysiological processes supporting sleep-related motor memory consolidation to enhance performance

Geneviève Albouy

Motor Control and Neuroplasticity research group, KU Leuven, Belgium

Research of the past two decades has consistently demonstrated that sleep benefits memory consolidation. In the motor domain in particular, the behavioural correlates of the sleep-related consolidation process have been extensively studied. In contrast, the neural correlates of this process have only more recently been examined. In this presentation, I will review human functional neuroimaging studies investigating the neural correlates of sleep-related motor memory consolidation. I will present studies from our group showing that, similar to what is observed in the declarative memory domain, sleep-dependent motor memory consolidation depends on the recruitment of hippocampus as well as on the functional interaction between the hippocampal and the striatal systems. I will conclude with recent studies aiming at modulating these neurophysiological processes in order to influence the sleep-related motor memory consolidation process. Specifically, I will present a set of studies showing that non-invasive brain stimulation, experimentally-induced stress and behavioural manipulations are viable avenues to modulate motor memory consolidation.

S6.4 - Interpersonal brain synchronization with instructor compensates for learner's sleep deprivation in interactive learning

Yafeng Pan[1,2], Camille Guyon[1], Guillermo Borragán[1], Yi Hu[2], & Philippe Peigneux[1]

1- ULB Neurosciences Institute, Université Libre de Bruxelles, Belgium
2- School of Psychology and Cognitive Science, East China Normal University, Shanghai, China

How sleep interacts with interactive learning mechanisms remains obscure. We investigated whether and how sleep deprivation (SD), that potentially impacts both social interactions and learning abilities, modulates interpersonal brain synchronization (IBS) during learning. Using functional NIRS, brain activity was simultaneously recorded in sleep rested (SR) instructors and in either SD or SR learners during the teaching of numerical reasoning strategies. SD learners initially performed below baseline level, but the learning improvement was comparable in the SR and SD conditions after an interactive learning session with the instructor. IBS within the instructor-learner dyads was higher in the SD than in the SR condition in the left inferior frontal cortex, and correlated with performance improvement. Granger Causality analyses revealed biased causality with higher instructor-to-learner than learner-to-instructor directionality in brain signal processing. These results indicate that SD-related learning deficits can to some extent be compensated via interactions with the instructor, and that compensatory neural mechanisms are mostly triggered by increased instructor-dominant IBS.

S7 – Emotions in dyads

10:40 – 12:00

“Room G” | Building: B31 | Room: Séminaire 12

Symposium

Organizer: Anna Schouten

Chair: Anna Schouten

KU Leuven, Belgium

Relationship partners, may it be two friends, two siblings, or a married couple, are bound to encounter difficult situations together: Partners may occasionally run into disagreements (e.g. about the distribution of household chores) or may need to support each other after an upsetting event (e.g. family loss, personal failure). The cognitive and emotional processes that unfold between partners play an important role in dealing with these difficult situations, and may consequently impact the relationship in either positive or negative ways. In this symposium, we will present recent findings on the cognitive (online thought) and emotional processes (social sharing and support, emotion suppression, and positive and negative affect patterns) during interactions that might underlie relational (dys)functioning. Our symposium will put a particular emphasis on work studying relationship processes in standardized dyadic interactions in the lab, and discusses findings from different cultural contexts (Netherlands, Belgium, Japan). Taken together, the presented work highlights the importance of emotional and cognitive *interpersonal* processes for dyadic interactions and relationships.

S7.1 - Empathic accuracy and cognition during conflict: An in-depth analysis of partners' understanding scores

Liesbet Berlamont[1], Céline Hinnekens[1], Alan Sillars[2], Lesley L. Verhofstadt[1], & Eva Ceulemans[3]

1 - Universiteit Gent, Belgium
2 - University of Montana, United-States of America
3 - KU Leuven, Belgium

Empathic accuracy research indicates that partners achieve only poor to moderate success at reading each other's thoughts during couple communication. The current study identifies specific patterns of online thought that contribute to empathic inaccuracy during conflict interactions. Married/cohabiting partners of 158 couples participated in a conflict interaction task and, afterwards, reported their own thoughts during video-assisted recall of the interaction, while also inferring the thoughts of the other partner. Content analysis of these online thoughts revealed a high degree of mindfulness about the process of communication, along with a perspective bias, in which partners tended to construe their own communication as constructive and the other partner's communication as avoidant or confrontational. Men reported mostly positive thoughts and saw themselves as engaging constructively in the conversation. However, women underestimated these positive thoughts by men, overestimated negative thinking by their male partners, and saw men as wanting to avoid and disengage. Specific mind reading errors linked to both the thematic content and affective tone of online thought predicted lower overall empathic accuracy.

S7.2 - The dynamics of interpersonal emotion regulation: Determinants of support provision

Lisanne S. Pauw, Disa A. Sauter, Gerben A. van Kleef, & Agneta H. Fischer

Universiteit van Amsterdam, The Netherlands

More often than not, emotion regulation takes place at an interpersonal level, including telling others about emotional experiences (social sharing). Paradoxically, although people typically perceive social sharing as beneficial, it often fails to promote emotional recovery. This may be partially explained by sharers seeking - and thereby eliciting - support that is not actually helpful in the long term. Here, we examined the role that sharers themselves play in eliciting the support they desire. Participants were randomly assigned to the role of sharer (who was asked to discuss an upsetting situation) or listener (who was instructed to respond naturally). Afterwards, both sharer and listener independently watched the interaction on video in 20-second fragments. For each fragment, sharers rated their experienced emotional intensity and socio-affective and cognitive support needs, while listeners rated their perception of the sharer's emotional intensity and their own support provision. Results showed that both sharers' support needs, as well as listeners' accurate emotion perception predicted adequate support provision. The more accurate listeners perceived sharers' distress level, the more able they were to fulfil sharers' socio-affective support needs. These findings illuminate how the way in which sharers communicate their needs and feelings shapes listeners' support provision.

S7.3 - Emotion suppression in Belgian and Japanese couples: A new functional model

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

1 - KU Leuven, Belgium
2 - Kyoto University, Japan

Although emotion suppression is considered an ineffective way of dealing with emotions in Western cultures, this idea does not hold in most non-Western cultures. In fact, previous research demonstrates that emotion suppression is more common and has fewer negative consequences in non-Western than in Western cultural contexts. The current study revisits the question of cultural differences in the prevalence and consequences of emotion suppression, focusing particularly on emotion suppression in couple interactions. It also offers the complementary view that larger cultural differences in emotion suppression may be found for some emotions than for others. *N*=58 Belgian couples and *N*=80 Japanese couples participated in a 10 minute conflict interaction that was video recorded. Continuous self-reports of emotions and emotion suppression were obtained using video-mediated recall. The findings indicate that Japanese couples suppress more than Belgian couples, especially when experiencing disengaging rather than engaging emotions. Also, emotion suppression had a negative impact on conflict resolution and no impact on relationship satisfaction in Belgian couples, whereas the opposite was found for Japanese couples. Overall, these results provide evidence for a new functional model that predicts cultural differences in the level, the particular emotions subject to, and the relational consequences of emotion suppression.

S7.4 - We move, we stay, together: Interpersonal patterns of affect in Belgium and Japan

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

1 - KU Leuven, Belgium
2 - Kyoto University, Japan

The idea that satisfied and dissatisfied relationships can be distinguished by their emotional patterns during interactions is central in Western relationship research (Gottman & Notarius, 2000). However, as relationship practices and emotion norms differ between cultures, so might the ways that interactions unfold and the affective patterns that characterize fulfilled relationships. Our study studies cultural differences in affect and relationships by comparing the course of emotional interactions of Western and East-Asian romantic couples. 58 Belgian and 80 Japanese couples participated in a standardized conflict discussion, before reporting their positive and negative feelings during the interaction. Cultural differences emerged especially for positive and neutral feelings: Belgian couples were relatively more likely to seek out and prolong positive affect states, whereas Japanese couples were relatively more likely to move towards and remain in neutral affect states. Furthermore, higher relationship satisfaction predicted different affective patterns across cultures, with satisfied Japanese couples emphasizing the resolution of negative feelings, and satisfied Belgian couples emphasizing the experience of both less negative and more positive affect. Our results fit the role of positive and negative feelings in in Western and East-Asian close relationships, and highlight the importance of culture in assessing the characteristics of fulfilled romantic relationships.

Abstracts

Parallel Sessions
8 - 14

May 14
13:00 – 14:20

S8 – Social Cognition

Intentionality attribution: From neurotypical functioning to autism and schizophrenia

13:00 – 14:20

“Room A” | Building: B33 | Room: TRIFAC 1

Symposium

Organizer: Henryk Bukowski
Chair: Henryk Bukowski

Université Catholique de Louvain, Belgium

S8.1 - Social touch observation in adults with autism

Haemy Lee Masson

KU Leuven, Belgium

Individuals with autism spectrum disorder (ASD) exhibit impairments in the use of nonverbal communication such as social and reciprocal touch. Despite the importance of interpersonal touch in social communication and the pervasiveness of touch aversion in ASD, the neural basis underlying these difficulties is largely unknown. Here, we identify the neural basis of social impairment related to socio-affective touch processing in individuals with ASD. Twenty-one high-functioning individuals with ASD and twenty-one well-matched neuro-typical (NT) participants assessed the valence and arousal of 75 video clips showing social and non-social touch events, followed by participating in fMRI scanning sessions during which they watched the same videos. Using multi-voxel pattern analysis (MVPA) and multiple regression analysis, we predicted neural data based on the perceived overall affect (a combination of valence and arousal ratings) of stimuli. MVPA results indicated that the overall affective meaning of touch was well represented in the core theory-of-mind brain area in both groups. Conversely, we found significant group differences in the somatosensory regions as individuals with ASD did not show affective representations in these areas, suggesting spared social reasoning but the lack of embodied somatosensory resonance in the ASD group.

S8.2 - The sensory-motor basis of mindreading

Francois Quesque

Universiteit Gent, Belgium

Through a series of experiments performed on dyads and using motion capture, we investigated how the social scope of intentions is grounded in the interaction between our motor abilities and the environment. In a first experiment, we found that social context subtly influences the execution of object-oriented motor actions. In particular, we observed that the spatial and temporal characteristics of object-oriented movements are exaggerated when the aim is to displace an object for a partner rather than for the actor herself. In a second experiment, we found that naïve observers spontaneously perceive these informative social cues borne by action: indeed, individuals implicitly take advantage of these kinematic cues in order to guide their own motor productions. Interestingly, participants' ability to access others' mental states from variations in motor action is strongly related to their explicit mindreading performance, as measured via classical tests. Considered together, these data suggest that our ability to predict others' actions and ascribe intention and mental states to others is strongly linked to sensorimotricity and grounded in the interaction between our body and the social environment.

S8.3 - Perceived intentionality as a Gestalt phenomenon: Grouping and global motion processing determine whether we see ‘chasing’ in simple shapes

Benjamin van Buren

KU Leuven, Belgium

Even simple geometric shapes appear alive and goal-directed when they move in certain ways. Psychologists have long marvelled at these percepts, but there have been few efforts to precisely study how they arise. I will propose that properties such as animacy and intentionality are computed from the incoming sensory data in a similar fashion to other visual features, and that we may use psychophysical methods to uncover the laws governing the perception of animacy. To demonstrate this approach, I will present five experiments that measured observers’ ability to detect ‘chasing’ under different display conditions. These experiments consistently showed that the perception of chasing depends deeply on the analysis of *global* visual information — such that our ability to detect one disc chasing another depends not just on how those discs move, but also on (1) their motion relative to other display features, and (2) observers’ ability to segment the discs from their surroundings and to group them together. I will discuss the implications of these findings for our understanding of perceptual animacy as a Gestalt phenomenon, as well as recent work that has used this paradigm to investigate the perception of ‘minds in motion’ in autism and schizophrenia — with surprising results.

S8.4 - Intentionality in schizophrenia and schizotypy proneness

Romina Rinaldi

Université de Mons, Belgium

Impairment in Theory of mind (TOM) has frequently been associated with schizophrenia and with schizotypy. Studies have found that a tendency to over-attribute intentions and special meaning to events and to people is related to positive psychotic symptoms. Further, it has been suggested that this intentionality bias may be due to a broader deficit in context processing (CP). We will develop a theoretical account of context processing in schizophrenia and schizotypy and introduce several study results that provide insight into how these processes might underlie intention attribution in patients as well as in individuals with higher proneness to schizotypy (Rinaldi et al. 2018). Our model offers a nuanced view of the relationship between CP and TOM in clinical populations and neurotypicals, as it makes a firm distinction between implicit and explicit context-processing. Ongoing experiments and future directions for research in the field of intentionality in schizophrenia will also be discussed.

S8.5 - Is there an autist – neurotypical – schizophrenic continuum in social cognition? A critical review of theories and evidence

Henryk Bukowski

Université Catholique de Louvain, Belgium

Autism and schizophrenia are distinct spectrum conditions sharing notable impairments in social cognition. Several theories have attempted to identify a dysfunctional mechanism underpinning both autism and schizophrenia or to posit their respective symptoms as expressions along a clinical-subclinical continuums. This talk will provide a synthesis of these theories and critically examine their empirical validity and their potential for inspiring future studies.

S9 – Education & Work

13:00 – 14:20

“Room B” | Building: B33 | Room: TRIFAC 2

Thematic Session

S9.1 - A pilot study on the use of immersive technologies in the teaching of automotive technology students

Dieter Struyf, Sam Willems, Tom Van Daele, & Bruno Coninkx

Thomas More University of Applied Sciences, Belgium

Immersive technologies like virtual reality (VR) and 360° videos have typical applications in the entertainment industry. However, recent studies have shown the potential use of these tools for teaching and training purposes. In this pilot, we explored the use of VR in teaching students the basics of assembling a motor block. Students were randomly assigned to one of three conditions: a VR condition, a 360° movie condition, or a traditional movie condition. In each condition, students were guided through the different steps required to assemble a motor block. Afterwards, experienced immersion (i.e., personal involvement, experienced realism, and spatial awareness) and acquired knowledge were assessed using an online questionnaire. Results showed no significant difference in acquired knowledge across the three conditions. However, when subjects felt more personally involved within the VR condition, their performance rose significantly. Experienced realism and spatial awareness had no impact on the test scores. This pilot showed that the use of immersive technologies can result in at least similar testing scores and could be used complementary to traditional teaching styles. Nevertheless, the discussion on how to implement and use these technologies to their full potential in these settings is still ongoing.

S9.2 - Interest in academic careers, doctoral persistence and wellbeing: A longitudinal investigation

Nicolas Van der Linden[1], Benoît Galand[1], Assaad Azzi[1], Olivier Klein[1], & Mariane Frenay[2]

1 - Center for Social and Cultural Psychology, Université Libre de Bruxelles, Belgium
2 - Psychological Science Research Institute, Université Catholique de Louvain, Belgium

Because universities have fewer new academic positions available, young researchers are increasingly faced with the prospect of an extended period of career insecurity with non-transparent career progression, resulting in stress and stretch issues in doctorate holders' careers both inside and outside academia (Ratinckx et al., 2016). However challenging this context may be, candidatures remain driven by interest in academic careers (Edwards, Bexley, & Richardson, 2011), whereas supervisors continue to direct their doctoral students on the path to an academic career (Sauermann & Roach, 2012). Insights about the role of interest in academic careers on doctoral persistence have been offered but research on its role on wellbeing is lacking (but see Levecque et al, 2017). Moreover, the question of when interest in academic careers predicts doctoral persistence and/or wellbeing has been underexplored. Finally, most studies on these topics are cross-sectional. We address these limitations using longitudinal data collected among doctoral students from two Belgian universities (*N*=402; see Van der Linden et al., 2018). Preliminary analysis show opposing relationships: interest in academic career is positively related to doctoral persistence and negatively related to wellbeing. Implications of the results for policy measures for academic and non-academic careers of doctorate holders will be discussed.

S9.3 - Work Motivation Questionnaire: Development and validation in a personnel (selection) context

Steven Vanmarcke

Center for Basic Interactive Research, Kortenberg, Belgium

Work motivation and emotional stability affect the way in which individuals allocate their resources during work. We formulated three distinct research goals: (1) to disentangle the main determinants of work motivation in a personnel (selection) context, (2) to examine group-level differences in candidate outcomes and (3) to link our findings to recent operationalisations of burn-out in the work place. The Work Motivation (VaMot) Questionnaire was developed and tested on a large sample of Belgian job applicants. This allowed us to validate its internal factor structure and examine group-level differences. We also translated the dynamic model of burn-out, formulated by Desart and colleagues (2017), into the item structure of the VaMot to calculate an at-risk prevalence ratio for burn-out within a separate group of employees. Our results indicate a 2-factor solution (work motivation and emotional stability) with reliability estimates between 0.87-0.91 and test-retest reliability between 0.69-0.70. Meaningful group-level differences were found for age and vocational group, but not for educational level and gender. This indicates that the VaMot provides us with a psychometrically valid instrument which can be used within a personnel (selection) context. The questionnaire can also be used as a screening instrument to detect at-risk employees within an organization.

S9.4 - Why do affective responses to psychological contract breach differ – the role of need satisfaction

Yang Yang & Tim Vantilborgh

Vrije Universiteit Brussel, Belgium

The psychological contract is a mental schema that employees use to assess their employment experience. Psychological contract fulfilment is associated with positive reactions whereas under-fulfilment is associated with a variety of negative reactions. Such reactions harm the employee-employer relationships and may even negatively impact the overall performance of the organization. However, we still lack a comprehensive understanding of the mechanisms through which employees react differently to psychological contract breach (both under- and over-fulfilment). We examine how need satisfaction and frustration mediates the relationship between breach perceptions and employees' affective response, how inducement valuation moderates need satisfaction and frustration, and how inducement valuation and affect evolve over time in case of repeated psychological contract breach. We collected monthly measures of the valuation, breach and fulfilment perceptions, and employees' affective response of 26 inducements. Furthermore, we investigated the two dimensions of affect – valence and arousal respectively to provide more insight on the effects of breach perceptions on affect. We advance psychological contract research by showing how need satisfaction and frustration and inducement valuation influence employees' affective experience at work. We anticipate our study to be a starting point for studying the mechanisms through which psychological contract breach results in differential affects.

S9.5 - Does social account timing buffer the emotional response to psychological contract breaches?

Safâa Achnak & Tim Vantilborgh

Work and Organizational Psychology, Vrije Universiteit Brussel, Belgium

Psychological contracts describe an employee's perception of the mutual obligations between her- or himself and an employer. A large body of research has established that perceptions of psychological contract breach—that is, the perception that the employer is not fulfilling certain obligations—triggers a host of negative reactions of employees, such as decreased job satisfaction, performance, and commitment. In this study, we zoom in on the emotional and stress-related reactions to perceptions of breach. In particular, we explore how the timing of social accounts may buffer these reactions, effectively testing a key proposition from the post-violation model of psychological contracts. We use an experimental design to manipulate perceptions of breach (breach versus fulfilment) and of social account timing (early, middle, late, or no social account). Throughout the experiment, we measure heart rate, skin conductance levels, and fEMG indicators of positive and negative valence. In addition, participants rate their experienced emotions before and after the experiment. Our results show that breach and social account timing did not influence physiological indicators but impacted subjectively experienced emotions. Offering a social account appeared to offset the negative emotional consequences of breach. However, the timing of the social account did not impact emotional reactions.

S10 – Addiction & Anxiety

13:00 – 14:20

“Room C” | Building: B33 | Room: TRIFAC 3

Thematic Session

S10.1 - Video Game addiction and emotional states: confusion between pleasure and happiness?

Lucio Gros, Nicolas Debue, Jonathan Lette, & Cécile van de Leemput

Université Libre de Bruxelles

In the last years, the significant boom in using video games has been raising health issues that remain insufficiently understood. The extent of this phenomenon has led the World Health Organisation to include *gaming disorders* in the list of mental health conditions. Several studies show converging findings that highlight the common brain activities between substance use disorders and behavioural addictions. Addiction specialists observed that addict subjects tend to confuse *pleasure* with *happiness* when linking emotional states to their addictive activities. This study aims at unravelling the affective states, namely *pleasure* and *happiness*, that addict users associate with their video games activities. A mixed design lab-based study (N = 30) was carried out to compare between video games addicts and non-addicts (between-subject), and video games-related activities and neutral activities (within). Emotional reactions were gauged by self-reported scales and physiological data acquired through a range of biosensors: Relaxation EEG and Hearth Rate (IBI). Overall, several indices resulting from this study constitute a bundle of arguments that argue in favour of the confusion between *pleasure* and *happiness* made by addict users when associating their affective states to video gaming.

S10.2 - Exploring the dimensions of involuntary phenomena with videogame content

Angelica B. Ortiz de Gortari & Frank Larøi.

Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium

Involuntary phenomena range from episodic everyday sensory, perceptual and cognitive distortions/intrusions to recurrent symptoms of mental/neurological disorders that provoke distress and dysfunction. These are called Game Transfer Phenomena (GTP) in the videogame context. Aim: Examine the underlying dimensions of GTP by grouping different phenomena (e.g., perceptual distortions, dissociations, misperceptions, hallucinations), prevalence/incidence, and characteristics of GTP. Method: Survey (N=1,305; 83.2% male; Mage= 28.11, S.Dage=7.409; Mplaying hrs/day =3.88). Most did not have a mental disorder (21.9%) or used drugs (36.4%). 46-items assessed GTP: sensory/perceptual, thoughts, dissociations, including voluntary/involuntary actions/behaviours, internal/external localization; triggered/not triggered by association. The prevalence of GTP was 95.6%. At least half reported inner music/sounds, words/phrases, mind visualisation/closed eyes hallucinations, persistent thoughts, inner-speech. Factor analysis showed: i) voluntary and involuntary behaviours clustered independently, ii) perceptual distortions/open eyes hallucinations, dissociations, and misperceptions/mind visualisations mind/closed eyes clustered independently, iii) hearing music/sounds or voices externalised clustered with dissociations, not with inner auditory phenomena, iv) source monitoring errors and false expectations clustered with dissociations not with thoughts, v) all perceptual distortions clustered together independently of the sensory channel. The examination of GTP opens novel pathways to elucidate the effects of videogame playing and underlying physiological, perceptual and cognitive mechanisms across various involuntary phenomena.

S10.3 - The presentation of problematic internet use in newspapers, Flanders, 2014 & 2018

Marc Roelands[1] & Magdalena Marczak[12]

1 - Thomas More University of Applied Sciences, Belgium
2 - Coventry University, UK

The concept of Problematic Internet Use (PIU) encompasses a number of behaviours people engage in on the Internet. These, among others, include cyberbullying, sexting, watching pornography, internet gambling, gaming or using social media, and may result in developing addictive behaviours. The available information on the amount and nature of the media coverage on problematic internet use is scarce, yet it can play an influential role in framing people's attitudes and approaches to preventing and addressing it. The aim of this study was to investigate how newspapers in Flanders represent problematic internet use.We analysed the content of daily newspapers during the five weekdays of the 2nd week of the subsequent months of 2014 and 2018. This is a total of 60 days. The six most important newspapers in Flanders were included: 'De Morgen', 'De Standaard', 'Gazet van Antwerpen', 'Belang van Limburg', 'Het Nieuwsblad', and 'Het Laatste Nieuws'. Content analysis was used to analyse the characteristics of the text, the author, the actors, and the audience. Fifty-five relevant articles were found. Results will be presented on the conference as analysis is going on. This study is part of an ongoing project "media monitoring" within COST Action on PIU.

S10.4 - Augmented reality and animal phobia: The potential of the Phobos AR smartphone app to elicit feelings of anxiety

Tom Van Daele[1] & Fernando Tarnogol[2]

1 – Thomas More University of Applied Sciences, Belgium
2 - PsyTech LLC, Buenos Aires, Argentina

Augmented reality (AR) merges virtual elements into the physical world. This study aims to explore the potential of a smartphone application in the context of animal phobia treatment. A first goal was to evaluate whether 'Phobos AR' could elicit feelings of anxiety in a non-clinical population. A second goal was to explore whether means of delivery (iPhone versus iPad) impacted self-reported anxiety. One hundred eleven first-year students of applied psychology were exposed to one animal of their choosing for which they reported some discomfort. Participants were randomly allocated to either smartphone (N=55) or tablet (N=56) condition, after which they ran through three 3-step behavioural approach tasks of increasing intensity. Self-reported anxiety during each of the different steps was the variable of interest. Results showed a gradual increase of that anxiety within each of the 3 BATs, $135.77<Fs(2, 220)< 185.37$, $ps< .001$, and a significant increase between the first ($M=.98$, $SD=1.28$) and the last rating ($M=4.56$, $SD=2.88$), $t(1,110)=16.15$, $p<.001$. No significant differences were found between both conditions. In conclusion, this study demonstrates that an AR application can induce self-reported anxiety in a non-clinical population. Further research has to compare this technique to other approaches and explore its potential in clinical populations.

S10.5 - The impact of trauma exposure with and without life threat on attentional networks: Alteration of executive control and orientating system

Wivine Blekic[1,2], Nicholas Van Dam[3], Erika Wauthia[1,2], Mandy Rossignol[1], & Kim Felmingham[3]

1 - Laboratory of Cognitive Psychology and Neuropsychology, Université de Mons, Belgium
2 - Human Sciences Research Fund (FRESH), Belgium
3 - Melbourne School of Psychological Sciences, University of Melbourne, Australia

Being confronted to a traumatic event is known to be a serious risk factor for the development of post-traumatic stress disorder (PTSD) or other mental health issues. Considering the importance of attentional processes in PTSD and the specific effect of trauma exposure per se on responses to stress, 455 participants (mean age = 38.37) completed the Attentional Network Task. Three groups were composed according to previous trauma exposure: Trauma Naïve (TN, N = 152), Not-Threatening Event (NTE, N = 60) and the Trauma Exposed (TE, N = 235) groups. A repeated measures ANOVA highlighted group differences on (1) the Conflict Index (CI, $F(1,445) = 4.78$, $p = .009$), the TN group presenting a smaller CI than both the TE ($p = .030$), and the NTE group ($p = .028$) and (2) the Orienting Index (OI) with NTE presenting a higher OI than the TE ($t(292)=2.072$, $p=.039$). These results could indicate that the confrontation to a trauma that is not life-threatening put the individual in a state of hypervigilance which could impair his executive control. Closer evaluation of reaction times will allow to specify those results. Furthermore, analyses of the corresponding fMRI data will be performed on a second study.

S11 – Social Identity

13:00 – 14:20

“Room D” | Building: B33 | Room: TRIFAC 4

Symposium

Organizer: Jenny Veldman
Chair: Jenny Veldman

KU Leuven, Belgium

This symposium brings together scholars discussing the latest research on the role of social identities in important societal processes and outcomes. The first 3 presentations focus on people’s evaluations of others depending on their social identity: Menea discusses the assumptions people make about women’s functioning in mixed-gender negotiations and how their prescriptive beliefs are influenced by their gender ideology. Toma presents research showing that US/British participants projected their in-group values onto the out-group. This social projection increased their accuracy in judging Chinese outgroup members, in turn increasing their interest in future relationships with the outgroup. Nera discusses research examining effects of conspiratorial (vs. trivial) explanations of negative events on social judgments of groups, and how conspiratorial explanations can maintain a positive group image. The final 2 presentations focus on the influence of people’s social identities on their own outcomes: Dierckx demonstrates that ethnic minorities interpret institutional procedural fairness from the perspective of their social identity, hence leading to lower perceived discrimination and, in turn, increasing their social trust. Veldman shows that lower experienced compatibility between social background and university identities is one of the reasons that adjusting to university is more difficult for first- compared to continuing-generation students.

S11.1 - Topic, norms and gender ideology in mixed-gender negotiations

Claudia-Neptina Manea, Stephanie Demoulin & Vincent Yzerbyt

Université Catholique de Louvain, Belgium

Several studies found women to be at a disadvantage when negotiating with a male counterpart. We argue that gender effects in negotiation are a function of people's gender ideologies (i.e., their view that gender should be acknowledged or be ignored) along with such factors as the negotiating topic. In two studies, we investigate people's general beliefs regarding the way women would and should handle gender differences at the negotiation table as a function of negotiation topic (feminine versus masculine versus neutral). We hypothesize that beliefs regarding the endorsement of sex-blindness (according to which gender should be ignored) would be highest in all conditions. Second, because negotiation is considered a masculine activity, we argue that prescriptions regarding what women should do would commonly favour assimilationist (the belief that women need to assimilate to male norms) over sex-awareness (the belief that gender differences should be acknowledged and celebrated). Nevertheless, we argue that, when a feminine topic is considered, people assume that women would fail to follow norm prescriptions and display gender-enhancing strategies (i.e., sex-awareness behaviours). We discuss our results in terms of the consequences for women at the bargaining table.

S11.2 - Pathways to intercultural accuracy: Social projection processes and core cultural values

Claudia Toma[1], Shira Mor[2], Martin Schweinsberg[3], Daniel Ames[4]

1 - Solvay Brussels School of Economics and Management, Université Libre de Bruxelles, Belgium
2 - Faculty of Business, Ono Academic College, Kiriat Ono, Israel
3 - European School of Management and Technology, Germany
4 - Columbia Business School, Columbia University, USA

The present research examines intercultural accuracy—people's ability to make accurate judgments about outgroup values—and the role of social projection processes. Across four studies, U.S. and British participants showed low overall levels of intercultural accuracy for Chinese students' individualistic and collectivistic values. In line with recent changes towards individualism in China, we observed different levels of intercultural accuracy, hinging on whether the criterion values of Chinese were assessed before (2001) or after (2015) this shift. Important for the study of social projection, we observed that U.S./British participants projected their values onto the outgroup. Social projection tendency (measured in Study 2 and manipulated in Study 3) was associated with greater intercultural accuracy. The relationship between projection and accuracy also depended on the shifts in individualistic values of Chinese. Important for the study of intergroup relations, accuracy was positively associated with interest in future relationships with the Chinese.

S11.3 - The benefits of believing, and the costs of being wrong: Belief in conspiracy theories as a positive distinctiveness strategy

Kenzo Nera[1], Olivier Klein[1,2], Karen Douglas[3]

1 – Université Libre de Bruxelles, Belgium
2 – Fonds de la Recherche Scientifique FNRS, Belgium
3 - University of Kent, UK

Up to now, the research on conspiracy theories (CTs) has focused on their negative consequences and neglected their potential psychological benefits. Adopting a social identity paradigm, we investigate the impact of conspiracy explanations on group impressions. In a first experiment, we will examine how a conspiratorial (vs. trivial) explanation of a negative event affects social judgement about groups. Participants will be exposed to a narrative describing a context of intergroup competition between a powerful group (i.e., the “Elite”) and a low status group. The latter experiences a negative event (e.g., an explosion causing several deaths) explained either by a conspiracy hatched by the Elite group or by an unintentional cause (i.e., an accident). Our general hypothesis is that after experiencing collective harm, a conspiratorial explanation helps to maintain a positive image of the victim group. In a second experiment, participants will read a scenario in which the two competing explanations are given to the negative event. At the end, the conspiracy hypothesis is either proven right or wrong. We hypothesize that being proven wrong will be associated with deleterious consequences regarding the victim group’s image.

.

S11.4 - Making ethnic diversity work: Procedural fairness reduces perceptions of discrimination and sustains social trust among minority members

Kim Dierckx

Universiteit Gent

In this presentation, I describe the relationship between procedural fairness enacted by societal institutions and minority members' social trust. Building on the racial identity development hypothesis (Helms, 1990), I argue that procedural fairness represents a racial socialization experience, which influences how minorities perceive discrimination. Perceived discrimination, in turn, has consequences for experienced social trust. The results of four studies (two surveys and two experiments) with African-American samples corroborated the hypothesized mediation model. In Study 1 (N = 523) we showed that minority members distinctly perceive fairness enacted by institutions and the discrimination they are submitted to by fellow citizens. Studies 2 (N = 91) and 3 (N = 101) were experiments, in which we demonstrated that (1) manipulating procedural fairness influenced perceptions of discrimination in an adapted "attribution-to-racism" paradigm, and (2) manipulating perceptions of discrimination subsequently lowered trust in an allocation game. Finally, in Study 4 (N = 390) we obtained cross-sectional evidence for the full model. In the final part of the talk, I elaborate on our findings' theoretical relevance and highlight two noteworthy practical implications.

S11.5 - Social background-university identity incompatibility: Consequences for adjustment to and coping at university

Jenny Veldman[1,2], Colette van Laar[1], & Loes Meeussen[1,2]

1 - KU Leuven, Belgium
2 - Research Foundation Flanders, Belgium

Going to university is an important life-transition that is more difficult for first-generation students, whose parents did not attend higher education. For example, they show lower academic achievement at university compared to continuing-generation students. In the present work, we take a social identity approach to this issue and examine lower experienced compatibility between their social background and university identities as one of the reasons that the transition is more difficult for first-generation students. Two longitudinal studies were conducted among first-year university students. Findings showed that first-generation students indeed experienced lower social background-university identity compatibility than continuing-generation students. In turn, identity incompatibility predicted lower academic and particularly lower social adjustment at university – and this lower social adjustment partly explained the achievement gap between first- and continuing-generation students. Findings also showed that students actively cope with the experience of identity incompatibility: Students who experienced lower compatibility between their social background and university identities reported to conceal their social background identity more at university, particularly when they were concerned about their university adjustment. However, this coping strategy incurred costs for their well-being. These findings show the importance of experiencing compatibility between social background and university identities in the transition to university.

S12 – Language learning

Implicit and explicit processes in language learning

13:00 – 14:20

“Room E” | Building: B31 | Room: Séminaire 10

Invited Symposium

Organizers: Rob Hartsuiker[1] & Sarah Bernolet[2]

Chair: Rob Hartsuiker

1 - Universiteit Gent, Belgium
2 - Universiteit Antwerpen, Belgium

S12.1- Priming of logical representations in Dutch and French monolingual and bilingual language comprehension

Mieke Slim[1], Peter Lauwers[2], & Rob Hartsuiker[1]

1 - Department of Experimental Psychology, Universiteit Gent, Belgium
2 - Department of Linguistics, Universiteit Gent, Belgium

It is widely accepted that specific memory processes, such as serial-order memory, are involved in written language development and predictive of reading and spelling abilities. The reverse question, namely whether orthographic abilities also affect serial-order memory, has hardly been investigated. In the current study, we compared 20 illiterate people with a group of 20 literate matched controls on a verbal and a visuospatial version of the Hebb paradigm, measuring both short- and long-term serial-order memory abilities. We observed better short-term serial-recall performance for the literate compared with the illiterate people. This effect was stronger in the verbal than in the visuospatial modality, suggesting that the improved capacity of the literate group is a consequence of learning orthographic skills. The long-term consolidation of ordered information was comparable across groups, for both stimulus modalities. The implications of these findings for current views regarding the bi-directional interactions between memory and written language development are discussed.

S12.2- The contribution of explicit (declarative) and implicit (nondeclarative) memory to syntactic priming

Katrien Segaert

School of Psychology and Centre for Human Brain Health, University of Birmingham, UK

Syntactic priming, the phenomenon in which participants are influenced by previous linguistic behaviour, is widely used in psycholinguistics to investigate syntactic operations. Syntactic priming supports language learning throughout the lifespan, from childhood to older adulthood. Although the phenomenon is well documented, the memory system that supports the retention of syntactic information long enough to influence future utterances, is still a matter of debate. To shed light on this issue, I will present data on active-passive syntactic priming tasks from patients with Korsakoff's amnesia and from healthy older adults. Patients with Korsakoff's syndrome display deficits in declarative memory, yet their nondeclarative memory remains intact. Our finding of robust syntactic priming in the patient group suggests that syntactic priming can rely solely on the nondeclarative memory system. Data on healthy ageing can further specify which components of nondeclarative memory support syntactic priming. Subcomponents of nondeclarative memory age differently, with only conceptual memory showing age-related decline. We investigated how different components of structural priming vary across the lifespan and found no change in short-term priming magnitude and performance on perceptual tasks, whereas both long-term priming and conceptual memory vary with age. Together, these findings have important implications for theoretical accounts of structural priming.

S12.3- Implicit and explicit memory effects in second language learning

Sarah Bernolet[1], Merel Muylle[2], Robert Hartsuiker[2]

1 - Universiteit Antwerpen, Belgium
2 - Universiteit Gent, Belgium

In recent years, many syntactic priming studies have shown that syntactic priming effects consist of a component that is caused by the implicit learning of syntactic structures. In many cases, however, an explicit memory component adds to this effect: The facilitatory effects caused by the repetition of syntax are stronger in immediate than in delayed conditions, and not only when the syntactic head of the construction is repeated in prime and target sentences. What does this mean for studies using syntactic priming to investigate the mental representations that are used during syntactic processing? Recently, we put forward a theoretical account of late second language syntactic acquisition, which predicts a differential contribution of implicit learning processes and explicit memory processes to syntactic priming effects at different stages of L2 syntactic development. Results of a syntactic priming study using a miniature language only partially confirm our hypotheses. I will discuss plans for real-life language learning studies with a longitudinal design to further investigate our developmental model and production experiments using keystroke-logging software to disentangle strategic and automatic effects in response tendencies.

S12.4- Adaptive processing of syntactic structures by bilingual adults and children

Gerrit Jan Kootstra

Radboud Universiteit, The Netherlands

Language use is experience-driven and adaptive: based on previous linguistic experiences, language users develop processing preferences which they continuously adapt to the ongoing linguistic environment. In other words, language processing and language learning inherently go hand in hand. One key mechanism in this experience-based adaptation is structural priming, i.e., the facilitated processing and/or production of recently processed syntactic structures. Interestingly, structural priming does not only occur within languages but also across languages in bilinguals and second language learners, and this cross-language structural priming has been hypothesized to explain processes of cross-language interactions such as code-switching and syntactic transfer as well as linguistic adaptation in multiple language use and learning. In this talk, I will present ongoing research that further elucidates this role of structural priming and cross-language adaptation in both bilingual adults and children. In particular, I will present results showing (1) how bilingual adults and children with different first-language processing preferences process second-language Dutch ambiguous sentences, and (2) to what extent their processing preferences are modulated by both short-term and cumulative structural priming within and across languages. Results will be discussed in terms of current theories on priming, implicit learning, and cross-linguistic interactions in bilinguals.

S13 – Dynamics of Learning

MEMODYN: Dynamics of learning and consolidation from short- to long-term memories

13:00 – 14:20

“Room F” | Building: B31 | Room: Séminaire 11

Symposium

Organizer: Philippe PEIGNEUX

Chair: Philippe PEIGNEUX

Université Libre de Bruxelles

S13.1- Spatial attention in verbal working memory: An EEG study

Vesal Rasoulzadeh[1], Muhammet Ikbal Sahan[1], Jean-Philippe van Dijck[1,2], Elger Abrahamse[1,3,4], Tom Verguts[1], & Wim Fias[1]

1 - Department of Experimental Psychology, Universiteit Gent, Belgium
2 – Thomas More University of Applied Sciences, Antwerpen, Belgium
3 - Basque Center on Cognition, Brain and Language, San Sebastian, Spain
4 - IKERBASQUE, Basque Foundation for Science, Bilbao, Spain

Recent evidence suggests that mechanisms of spatial attention operate in verbal working memory. van Dijck et al (2013) reported that, while maintaining the serial order of digits in WM, selection of the relevant information from the sequence is driven by an attentional search across an internal mental space being oriented from left to right with the first items on the left and the last items on the right. We investigated the neural signature of the shifts of spatial attention that are induced by the retrieval of an item at a specific location in serial order WM. We found that lateralized attention-related ERP components (EDAN and ADAN) and alpha activity (responsible for inhibition of the irrelevant information) depend on whether the last or the first item of the memorized sequence was retrieved, in a way that is analogous to visuospatial shifts of attention. In sum, we provide neural evidence for the involvement of visuospatial attention in serial order WM in verbal domain. Our findings substantiate the crossover processes between visuospatial and verbal domains in WM. This challenges the classical models of WM where separate components are assumed for visuospatial and verbal domains.

S13.2- Neural patterns in linguistic cortices discriminate the content of verbal working memory

Benjamin Kowialiewski[1,2], Laurens Van Calster[1,3], Lucie Attout[1], Christophe Phillips[1,2], & Steve Majerus[1,2]

1 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium
2 - Fund for Scientific Research – FRS-FNRS, Belgium
3 - Université de Genève, Switzerland

Verbal working memory (WM) is characterized by the presence of psycholinguistic effects, whereby items associated with richer linguistic representations are usually better recalled, such as words vs. nonwords (lexicality effect). This effect is accounted for by language-based models, assuming a direct and obligatory involvement of lexical linguistic knowledge at all stages of WM processing or by redintegration models considering that lexical linguistic knowledge only intervenes during post-memory trace reconstructive processes. We contrasted these two accounts in functional neuroimaging experiment by assessing to what extent and at what WM stage word and nonword memoranda can be distinguished based on their multivariate neural patterns in linguistic cortices. fMRI scans were obtained from 28 healthy young adult participants. The participants were invited to encode lists composed of word or nonword items presented at a very fast rate (2 items/s) and to maintain the items over a 6-second delay or not, followed by a probe recognition phase. Multivariate voxel pattern analyses successfully decoded word and nonword stimuli during the encoding phase in all conditions, as well as during the maintenance phase but only during the active maintenance condition. This study supports language-based WM models assuming continuous support of linguistic knowledge during all WM stages.

S13.3- Learning to synchronize: How biological agents can couple neural task modules for dealing with the stability-plasticity dilemma

Pieter Verbeke & Tom Verguts

Department of Experimental Psychology, Universiteit Gent, Belgium

Artificial and biological agents alike face a critical trade-off between being sufficiently adaptive to acquiring novel information (plasticity) and retaining older information (stability); this is known as the stability-plasticity dilemma. The current project combines computational modelling and empirical EEG to investigate how this problem is tackled in the human brain. The model, combines two prominent computational neuroscience principles, namely Binding by Synchrony and Reinforcement Learning. More specifically, it learns to synchronize task-relevant neural modules, while also learning to desynchronize currently task-irrelevant modules. As a result, old (but currently task-irrelevant) information is protected from overwriting (stability) while new information can be learned quickly in currently task-relevant modules (plasticity). We combine learning to synchronize with several classical learning algorithms (backpropagation, Boltzmann machines, Rescorla-Wagner). For each case, we demonstrate that our combined model has significant computational advantages over the original network in both stability and plasticity. Crucially, the model provided some empirically testable hypotheses which are currently investigated in an EEG study. Here, human subjects are tested on a probabilistic reversal learning task. Hypotheses are tested concerning prefrontal theta-power and phase-amplitude coupling of prefrontal theta phase and gamma-amplitude of posterior cortical sites.

S13.4- The role of sensorimotor GABA levels in motor learning and memory processes in healthy older adults

R. King Bradley, J.J. Rumpf[2], K.F. Heise[1], N. Dolfen[1], N.A.J. Puts[3], R.A.E. Edden[3], J. Doyon[4], J. Classen[2], G. Albouy[1], & S.P. Swinnen[1]

1 - Department of Movement Sciences, Leuven Brain Institute, KU Leuven, Belgium
2 - Department of Neurology, University of Leipzig, Germany
3 - The Johns Hopkins University School of Medicine & Kennedy Krieger Institute, Baltimore, USA
4 - McGill University Montreal, Canada

Research in young adults has demonstrated that the successful learning of a motor skill is critically linked to modulations in the level of gamma-aminobutyric acid (GABA; the primary inhibitory neurotransmitter) in the sensorimotor cortex. These modulations can be triggered via the learning process itself or interventions such as transcranial direct current stimulation (tDCS). Given known ageing-associated decreases in GABA levels, we hypothesized that: a) older individuals will not exhibit the same learning- and tDCS-induced modulations in GABA as previously observed in young adults; and, b) the inability to modulate GABA will be linked to age-associated deficits in motor learning and memory processes. GABA-edited magnetic resonance spectroscopy (MRS) data were acquired from the sensorimotor cortices of 36 healthy older adults at three time points (baseline, post-motor learning/tDCS and after a 6hr consolidation interval). At the group level, GABA concentrations were not significantly modulated by motor learning or tDCS. Critically, individual changes in GABA from baseline to post-learning were significantly and negatively correlated with both baseline GABA and motor learning magnitude. These data indicate that motor learning-related reductions in sensorimotor GABA levels in older adults are limited to those individuals with the greatest amount of learning and with “young-like” baseline GABA levels.

S13.5- Sleep- and memory-dependent changes in post-topographical navigation resting state functional connectivity

Michele Deantoni[1,3], Thomas Villemonteix[2,4], Evelyne Balteau[1,3], & Philippe Peigneux[1,4]

1 - Université de Liège, Belgium
2 - Université de Vincennes, France
3 – GIGA research unit, Université de Liège, Belgium
4 - Université Libre de Bruxelles, Belgium

Sleep-related consolidation effects have been mainly studied probing dependent changes during task-based functional magnetic resonance imaging (fMRI). Resting state fMRI (rfMRI) allows investigating the offline evolution of the cerebral correlates of the processing of recently learned information without confounding effects of concurrent task practice. We investigated sleep- and wake-dependent effects on the brain correlates of topographical memories using rfMRI, under a regular sleep (RS, n = 16) or sleep deprived (SD; n = 15) condition. rfMRI was recorded in four 5-minutes sessions: immediately (i) before and (ii) after topographical learning, (iii) 4 days later after RS vs. SD on the first post-learning night, and (iv) after topographical relearning. Functional connectivity (FC) and Amplitude of Low Frequency Fluctuation (ALFF) changes were computed. At Day 4 during the first rfMRI session (iii), RS participants exhibited higher functional connectivity between striatum and frontal areas. Conversely, functional connectivity increased from pre- to post-relearning at Day 4 in the SD condition between retrosplenial and superior frontal, retrosplenial and middle frontal, and entorhinal and superior frontal gyri. Resting fMRI results suggest that post-learning SD modulates intrinsic functional connectivity within brain circuits responsible for navigation strategies, and increases the need for frontal recruitment at relearning.

S14 – Virtual Reality

Immersive virtual reality in psychological research: Perspectives and applications

13:00 – 14:20

"Room G" | Building: B31 | Room: Séminaire 12

Invited Symposium

Organizers: Jessica Simon[1] & Anne-Marie Etienne[2]

Chair: Jessica Simon

1 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium
2 - Health and Society research unit, Université de Liège, Belgium

An increasing number of researchers and clinicians consider to use virtual reality technology or immersive videos to understand complex behavior while ensuring a high level of experimental control, on the one hand, and to assess and to treat mental disorders such as anxiety, specific phobia, post-traumatic stress disorder, addiction or eating pathology, on the other hand. The purpose of this symposium is to illustrate the diversity of currently existing virtual reality applications for research and clinical psychology.

S14.1- Clinical usefulness of virtual reality: Illustration through case studies

Aurélie Wagener[1,2]

1 - Health and Society research unit, Université de Liège, Belgium
2 - Psychological and Speech Therapy Clinic, Université de Liège, Belgium

Virtual reality has been developing since the sixties. Its use in clinical practice dates from 1992: researchers from the Virtual Reality Technology Laboratory used this novel technology to treat a patient suffering from fear of flying. Since then, virtual reality applications' in clinical practice spread importantly out, especially in the treatment of anxious disorders (i.e., virtual reality exposure therapy). The first studies in "cyberpsychology" were published in 1999 and their number grows constantly since. Overall, results highlight that virtual reality is – at least – as efficient as the classical psychological treatment (i.e., exposure therapy). Nonetheless, virtual reality presents several advantages such as its flexibility, the creation of standardized experiences as much as time and money saving. Consequently, this technology seems promising in clinical practice. Then, this talk aims at discussing its use and its usefulness across different anxious disorders through case studies (e.g., fear of flying, arachnophobia, dog phobia). These case studies concern adults suffering from anxious disorders whose author treats through virtual reality exposure therapy in the Psychological and Speech Clinic of the Faculty of Psychology, Speech and Language Therapy, and Education. Pre- and post-treatment data as well as the course of treatment will be presented and discussed during the symposium.

S14.2- Real enough: A virtual classroom can induce an increase in anxiety and speech disfluencies in adolescents

Anne-Lise Leclercq, Céline Duwernell, & Ophélie Delaite

Childhood research unit, Université de Liège, Belgium

Virtual reality (VR) enables the user to navigate and interact in real time with computer-generated 3D environments. There is an increasing interest in using virtual environments to study psychological phenomena such as anxiety (Wiederhold & Bouchard, 2014). In this study, we assess the feasibility of a virtual classroom to evoke anxiety and speech disfluencies in adolescents. Twenty adolescents who do not stutter or suffer from social anxiety disorder, were asked to talk for approximately four minutes in front of the examiner, in a virtual classroom and in a VR neutral environment. They repeatedly rated their level of anxiety while speaking. Our results show an increase in speech disfluencies when speaking in front of a virtual classroom compared with speaking to the examiner. Moreover, we observed higher levels of anxiety when speaking in a virtual classroom than when speaking in an empty apartment. These preliminary results underline the capacity of a virtual classroom to induce anxiety and speech disfluencies in youth. These results alongside previous research into adults (Brundage & Hancock, 2015; Brundage et al., 2006, 2016) are encouraging for the clinical use of VR environments to assess and treat anxiety and speech disfluencies in people who stutter.

S14.3- Experimental investigation of decision-making processes in daily physically active behaviors using a virtual reality set-up

Alexis Ruffault[1,2], Marc Cloes[3], Michael Schyns[4], Stéphane Bouchard[5], Jean Fournier[6], Cyril Bossard[7], Quentin Valembois[4], Sébastien Czernichow[8,9], & Anne-Marie Etienne[2]

1 - Institut National du Sport, de l'Expertise et de la Performance, France
2 - Health and Society research unit, Université de Liège, Belgium
3 - Movement Sciences Department, Université de Liège, Belgium
4 - Business School, Université de Liège, Belgium
5 - Laboratory of Cyberpsychology, Université du Québec en Outaouais, Canada
6 - UFR STAPS, Université Paris Nanterre, France
7 - UFR STAPS, Université de Bretagne Occidentale, France
8 - Nutrition pole, Hôpital Européen Georges-Pompidou, France
9 - Faculté de Médecine, Université Paris Descartes, France

The aim of this study is to identify the decision-making processes implicated in daily physical activity (PA) when time and effort to reach an objective (e.g., a meeting) vary. 23 participants were randomized to one of two experiments after filling out questionnaires measuring habits regarding PA, motivational, and volitional factors of PA adoption. Experiment 1 used a virtual replication of a business school, where previous knowledge of the building (8 vs 8 participants), disposition of the stairs (hidden/visible) vary. Experiment 2 (n=7) used a modified version of the building, where a stairwell and an escalator provide access to the first floor, using implicit (steps on the floor) and explicit (motivational messages) as point-of-decision prompts or no prompt. Generalized mixed effect models showed a significant interaction between effort and time when predicting stairs-taking, and that knowledge of the building increases model's adjustment. Intention to take the stairs in real life was the only predictor of stairs-taking in virtual reality. Previous visits of a building, having time before a meeting, less effort to reach a room, and prior intentions to take the stairs seem to be facilitators of stair-taking in virtual reality. More investigations are needed to increase statistical power.

S14.4- Immersive virtual reality videos: A new tool to assess the impact of craving on motor inhibition in alcohol dependence?

Caroline Quoilin & Julie Duque

Institute of Neuroscience, Université Catholique de Louvain, Belgium.

Converging lines of evidence suggest that both alcohol craving and impaired inhibitory control contribute to the maintenance and relapse of alcohol dependence. However, whether craving worsens inhibitory performance is still unclear. Here, we aimed at studying whether the induction of craving, by means of 360° immersive videos (bar compared to library), alters the strength of motor inhibition in alcohol-dependent (AD) patients. Motor inhibition was evaluated using a standard procedure consisting in measuring motor-evoked potentials elicited by single-pulse transcranial magnetic stimulation over primary motor cortex during a choice reaction time task. Our data indicate a strong shortage of motor inhibition in AD patients relative to control subjects, consistent with an inhibitory deficit. Importantly, this deficit was comparable following videos placing patients in a bar or in a library. Accordingly, we found that the former video did not induce craving in the patients. This result is surprising given that we previously demonstrated that the same video was effective in eliciting alcohol craving in young social drinkers. Interestingly, the level of presence experienced during the immersion was lower in patients compared to controls and social drinkers, which may indicate that patients deployed some strategies to avoid being impacted by the immersive videos.

S14.5- An overview of human-computer interaction research related to virtual reality at imec-mict-UGent

Klaas Bombeke & Wouter Durnez

Imec & Universiteit Gent

Research group imec-mict-UGent investigates the interaction between user, society and technology and is at the forefront of user-centric research into the use and potential of digital media technologies. Involving end-users in all stages of innovation development, different research methodologies are used, including both subjective (e.g., interviews, focus groups, co-creation, surveys) and objective measures (e.g., EEG, skin conductance, heart rate, eye tracking). Since virtual and augmented reality are emerging technologies whose market is forecast to grow exponentially as platforms become more mainstream, imec-mict-UGent has also various research trajectories on this topic. In this presentation, we will discuss the value of psychophysiological markers (EEG) in the measurement of flow states during VR gaming, the use of VR in anxiety exposure therapy, and the implementation of VR in social facilitation and inhibition research. Finally, we will discuss an approach for quality of experience (QoE) modelling of storytelling in VR experiences.

Abstracts

Parallel Sessions
15 - 21

May 14
15:20 – 16:40

S15 – Memory & Numbers

15:20 – 16:40

“Room A” | Building: B33 | Room: TRIFAC 1

Thematic Session

S15.1 - Why does the relation between order processing and arithmetic change through development?

Helene Vos [1], Delphine Sasanguie[1,2], & Bert Reynvoet[1,2]

1 - Research Unit Brain & Cognition, KU Leuven, Belgium
2 - Faculty of Psychology and Educational Sciences, KU Leuven, Belgium

Throughout development individual differences in children’s arithmetic performance become more strongly related to order processing, i.e., the ability to decide whether a sequence of numbers is presented in an order. Previous studies suggested that this relationship emerges because retrieval from long-term memory becomes more important during both order judgements and arithmetic. The current study further examined this assumption by investigating the behavioural effects in an order judgement task and its relation with arithmetic in children of first and sixth grade. Results showed that order processing was strongly related with arithmetic in children of sixth grade but not in children of first grade. Additionally, children of first grade processed ascending sequences more accurately than descending sequences. However, no reaction time differences and similar reversed distance effects were observed comparing ascending and descending sequences, indicating that children did not rely yet on retrieval strategies. In contrast, children from sixth grade processed ascending sequences faster than descending sequences and the reversed distance effect was also larger for ascending than for descending sequences, mimicking findings obtained in adults and suggesting that sixth graders rely on retrieval during the order judgement task resulting in a stronger relation with arithmetic.

S15.2 - Spatialization of order in working memory: What are the roles of visuo-spatial and linguistic experience?

Jean-Philippe van Dijck[1,2], Vesal Rasoulzadeh[1], Elger Abrahamse[3], & Wim Fias[1]

1 - Universiteit Gent, Belgium
2 - Thomas More University of Applied Sciences, Antwerpen, Belgium
3 - Basque Science Center on Cognition, Spain

The ability to keep arbitrary sequences mind contributes to major cognitive faculties, such as language and mathematics. Research suggests that serial order in working memory (WM) is grounded in the spatial attention system and is mentally organized according to reading habits (e.g. Guida et al., 2018). Here we zoom in on the developmental conditions of the link between serial order WM and space by investigating the necessity of early visuo-spatial experience and the impact of reading direction. Data of different groups were collected and/or reanalysed: 5-year-old (illiterate) children, early and late blind adult Italians who are able to read Braille (from left to right) and groups of sighted adults who differ in reading direction (Belgians and Iranians). The results indicate that visuo-spatial experience before the age of 3 is needed to set the stage for the (horizontal) spatial coding of serial order in WM. However, it is only after formal reading education that serial order is horizontally mapped in a systematic orientation across subjects according to the reading habits.

S15.3 - The neural substrates of serial order for short-term and long-term memory in children and their specific links with learning abilities

Lucie Attout[1], Laura Ordonez Magro[2], Arnaud Szmalec[2], & Steve Majerus[1]

1 - Université de Liège, Belgium
2 - Université Catholique de Louvain, Belgium

Both short-term and long-term memory for serial order have been shown to predict learning abilities such as lexical, reading and calculation abilities. However, the more specific role of short-term versus long-term memory for serial order in learning abilities remains poorly understood, at both behavioural and neural levels. In this study, we assessed short-term serial order recognition and Hebb serial order learning abilities in 49 children aged from 7 to 12 years while they performed the tasks in an fMRI scanner. Moreover, we assessed vocabulary, reading and calculation abilities outside the scanner. The two serial order memory tasks elicited distinct brain activity patterns, with involvement of the intraparietal sulcus in short-term memory for serial order and involvement of hippocampal, cingulate and inferior frontal cortices in Hebb serial order learning. Intraparietal sulcus activity levels in the short-term serial order memory task correlated with individual differences in calculation abilities while hippocampal activity during the Hebb serial order learning task was specifically associated with reading abilities for irregular words. These results show that short-term and long-term memory for serial order and their respective neural substrates predict distinct aspects of learning abilities in school-age children.

S15.4 - The power of children's sleep - Improved memory consolidation performance in children compared with adults

Anna Peiffer[1,2], Maud Brichet[1,2] , Xavier De Tiège[2], Philippe Peigneux[1], & Charline Urbain[1,2]

1 - Center for Research in Cognition and Neurosciences (CRCN) and ULB Neuroscience Institute, Université Libre de Bruxelles, Belgium
2 - Laboratoire de Cartographie Fonctionnelle du Cerveau, Hôpital Érasme Bruxelles, Belgium

Post-learning slow wave sleep (SWS) supports declarative memory consolidation. As SWS is more abundant in children than in adults, we surmised that sleep-dependent memory consolidation could occur at a faster pace during development. After learning new associations between non-objects and their functions and tested for immediate retrieval (IR) performance, 34 children and 34 adults were randomly assigned to a Sleep (16 adults, 23 ± 2,48 years, 10F; 15 children, 9,64 ± 1,64 years, 7F) or a Wake (18 adults, 24,5 ± 1,86 years, 11F; 15 children, 9,87 ± 1,92 years, 10F) condition. Delayed retrieval (DR) was assessed either after a night of sleep (Sleep condition) or a day awake (Wake condition). The ANOVA conducted on retention indices (% correct responses DR minus % correct responses IR) with between-subject factors AGE (Children vs. Adults) and CONDITION (Sleep vs. Wake) showed a significant interaction [$F(1,60)=4,85$; $p<.03$]. Post-hoc analyses highlighted higher retention in children than adults in the Sleep ($p<.00003$) but not in the Wake condition. These results suggest that sleep-dependent declarative memory consolidation processes are more efficient in children compared to adults, an effect potentially ascribed to more abundant and deeper SWS during childhood.

S15.5 - Verbal memory performance in the Flemish population: normative data for the Buschke Selective Reminding Test

Hella Thielen[1], Gregory Verleysen[2], Sophie Huybrechts[3], Christophe Lafosse.[3,4,5] & Céline R. Gillebert[1]

1 - Brain & Cognition, KU Leuven, Belgium
2 - Faculty of Psychology and Educational Sciences, Universiteit Gent, Belgium
3 - Department Clinical Neuropsychology, RevArte Rehabilitation Hospital Edegem, Belgium,
4 - Department of Psychology, KU Leuven, Belgium
5 - Thomas More University of Applied Sciences, Antwerpen, Belgium

A well-functioning memory is essential in our everyday life and fundamental to learning. Unfortunately, memory is also susceptible to impairment in several neurological and psychiatric conditions. The Buschke Selective Reminding Test (SRT) is a verbal memory assessment tool with high clinical relevance. In contrast to conventional neuropsychological tests, the SRT allows for a distinction between retrieval from the short and long term memory. The distinction has clinical relevance, as short and long term retrieval can be impaired independently from one another. The purpose of this study was to provide normative data for a Flemish SRT, quantified through percentile ranks and stratified by age, sex and education level. Data were obtained in 3257 neurologically healthy adults (1627 men and 1630 women, age range = 18-94 years). Effects of age, sex and education on SRT performance were assessed. Results indicated age-associated verbal memory impairment: SRT performance decreased with age. Interestingly, the results suggested an accelerated decline in SRT performance in men compared to women. Lastly, an effect of education was found favoring participants who completed a higher education.

S16 – Work & Organization

New insights into burnout and health care: Strategies of diagnosis and intervention

15:20 – 16:40

“Room B” | Building: B33 | Room: TRIFAC 2

Invited Symposium

Organizer: Hans de Witte[1] & Isabelle Hansez[2]

Chair: I. Hansez

1 - KU Leuven
2 - Université de Liège, Belgium

In Belgium, the long-term disability rate and the total number of persons on disability increased (INAMI-RIZIV, 2017, 2018). This is partly due to the increase of the mental disorder rate among active workers (35% in 2016). According to some sources, nearly 10% of workers suffer from burnout, even though exact prevalence rates of burnout are unknown at the moment. At the same time, the conceptualisation of burnout is debated, and a call to measure burnout in a contemporary manner has been advanced. This call is also made by the government, policy makers and practitioners. To answer these calls, the symposium will present the results of four Belgian studies, related to: (a) the conceptualisation of burnout and validation of the newly developed Burnout Assessment Tool (KU Leuven), (b) the interest of a joint use of two diagnostic tools of burnout (clinical judgements from physicians and scores from a self-reported measure of burnout) (Université de Liège and UGent), (c) an analysis of moral demands at work as predictor for Burnout (UGent), (d) an assessment of the biological correlates of burnout (KU Leuven).

S16.1- The construction and psychometric qualities of the Burnout Assessment Tool

Steffie Desart[1], Wilmar Schaufeli[1,2], & Hans De Witte[1,3]

1 - KU Leuven, Belgium
2 - Universiteit Utrecht, The Netherlands
3 - Optentia, North-West University – South Africa

The current study develops a new definition for burnout and investigates the psychometric properties of the Burnout Assessment Tool (BAT). First, 49 practitioners were interviewed about their conceptualization of burnout. Using a deductive, as well as inductive approach, four core dimensions – exhaustion, mental distance, and impaired emotional and cognitive control – and three secondary dimensions – depressed mood, psychosomatic and psychological distress complaints – emerged which constitute the base of the BAT. The psychometric characteristics of the BAT are investigated in a representative sample of 1500 Flemish employees, focusing on factorial validity, reliability, and construct validity. Results demonstrate the assumed four-factor structure for the core dimensions, which is best represented by one general burnout factor, and reveal a two-factor structure for the secondary dimensions. The BAT and its subscales reveal adequate reliability (Cronbach's alpha ranging from .87 to .97). Convergent validity and discriminant validity with other burnout measures is demonstrated, as well as discriminant validity with other well-being constructs such as engagement and workaholism. Finally, implications for practice as well as suggestions for future research are discussed. For instance, clinically validated cut-off points for each subscale and the BAT in general allowed us to calculate the prevalence of burnout in Flanders.

S16.2 - Interest of a joint use of two diagnostic tools of burnout: comparison between clinical judgements from physicians and scores from a self-reported measure of burnout

Céline Leclercq, Magali Jemine, Leon d'Hulster, Lutgart Braeckman, Julie Laurent, & Isabelle Hansez

Université de Liège, Belgium

This study compares burnout diagnosis between clinical judgement by physicians and t-scores of patients' burnout derived from the OLBI. Based on literature and focus groups, we developed a screening tool to measure the clinical judgement of burnout. During 3 months, 43 physicians completed this screening tool for each patient experiencing work-related suffering. The same patients completed the OLBI. We were able to match 127 clinical judgements (burnout or not) with the OLBI (low/medium/high scores) which were divided into 5 groups (medium OLBI - burnout diagnosis; high OLBI-burnout diagnosis; low OLBI – not-burnout diagnosis; medium OLBI – not-burnout diagnosis; high OLBI – not-burnout diagnosis). We contrasted the characteristics in these groups. Results show that two groups (low OLBI – not-burnout diagnosis; medium OLBI – not-burnout diagnosis) manifest in average less symptoms, less job demands and more job resources. Two groups (high OLBI – burnout diagnosis; high OLBI – not-burnout diagnosis) report in average more symptoms, job demands and fewer job resources. The last group (medium OLBI – burnout diagnosis) obtains intermediary results. Despite the small sample size, this exploratory research highlights the 'added-value' for combined diagnosis tools. This study is the first, in our knowledge, to compare burnout diagnosis between clinical judgement by physician and patient's responses.

S16.3 - Moral demands at work: a predictor for burnout?

Céline A. Baele & Johnny R. J. Fontaine

Department of Personnel Management, Work and Organizational Psychology, Universiteit Gent, Belgium

Moral distress (MD), first described by Jameton (1984) as *arising when one knows the right thing to do, but feels constrained to act*, has been identified as a major issue affecting a range of health care disciplines. The aim of this research project is to bridge the gap between IO psychology and the MD literature by 1) investigating the relation between *moral demands*, which form the key appraisals of MD, and burnout 2) determining whether moral demands have a unique contribution as a predictor for burnout, controlling for related concepts like illegitimate tasks, role conflict, and known work demands (e.g. physical, cognitive and emotional work demands). Two empirical studies (n=98 and n=102) were conducted (cross-sectional and repeated measures design), data for a bigger cross-sectional study is being collected (n= 135 to date). Preliminary analyses indicate that moral demands are associated with work engagement (r = -.40, p < .01), turnover (r = .34, p <.05), and burnout (r = .53, p < .01). Moreover, they show correlations with each of the subcomponents of burnout: moral demands are associated with higher levels of exhaustion and distancing and a diminished sense of professional competence.

S16.4 - Brain-derived Neurotrophic Factor as a potential biomarker of burnout

Jelena Bakusic[1], Manosij Ghosh[1], Wilmar Schaufeli[2], Stephan Claes[3], & Lode Godderis[1,4]

1 - Environment and Health, KU Leuven, Belgium
2 - Work, Organisational and Personnel Psychology, KU Leuven, Belgium
3 - Department of Psychiatry, University Hospital Leuven, Belgium
4 - IDEWE, External Service for Prevention and Protection at Work, Heverlee, Belgium

Despite an increasing amount of research on burnout, knowledge about its biological correlates is insufficient. One of the key processes in chronic stress is structural remodelling of neural architecture, and the main mediator is the Brain-derived neurotrophic factor (BDNF). Our aim is to investigate DNA methylation changes of the BDNF gene and the serum BDNF levels related to burnout. We conducted a cross-sectional study including individuals with burnout (N=61) and healthy controls (N=69). Burnout symptoms were assessed with Maslach Burnout Index General Survey (MBI-GS) whereas depressive symptoms were measured using the Beck Depression Inventory-II (BDI-II). Symptoms of distress were measured with Four-Dimensional Symptom Questionnaire (4DSQ). Methylation of the BDNF gene was significantly higher in the burnout group (p=0.015) and this difference remained significant when controlled for age (β=-0,365, p=0,033). Methylation % had a significant effect on the BDNF protein levels (β=-0,905, p=0,006). The cynicism scale of the MBI-GS was significantly correlated with BDNF gene methylation (β=0,181, p=0,025) whereas symptoms of depression (β=-0,248, p=0,000) and distress (β=-0,132, p=0,000) were significantly associated with the BDNF protein level. The results implicate that DNA methylation changes and the protein levels of BDNF could play a significant role in biological processes linked to burnout.

S17 – Assessment in clinical psychology

Benefits of daily diaries for research and clinical practice

15:20 – 16:40

“Room C” | Building: B33 | Room: TRIFAC 3

Symposium

Organizer: Marta Walentynowicz

Chair: Marta Walentynowicz

Université Catholique de Louvain, Belgium

S17.1 - Using experience sampling methodology to assess emotion dynamics

Yasemin Erbas[1], Eva Ceulemans[1], Elise K. Kalokerinos[2], & Peter Kuppens[1]

1 - Faculty of Psychology and Educational Sciences, KU Leuven, Belgium
2 - School of Psychology, University of Newcastle, Australia

Introduction: An important characteristic of our emotions is that they continuously change over time. Moreover, the processes underlying the changes in our emotions seem to be indicative of our mental well-being. The aim of this talk to show how emotion dynamics can be studied in the daily lives of individuals, and how these dynamical processes relate to indicators of well-being such as depression. Methods: I will briefly present two experience sampling studies that we have conducted. One is a 3-wave longitudinal measurement-burst study in which each wave included 7 days of experience sampling. The second is an experience sampling study that was conducted around a specific emotional event. In both studies, positive and negative emotions, emotion regulation strategies, and several indicators of mental well-being were assessed. Emotion ratings were used to compute a number of indices that give an indication of an individual's emotional functioning (such as emotion differentiation, emotional variability, and emotional inertia). We then assessed how these indices relate to well-being. Conclusion: The processes underlying the emotional fluctuations in our daily lives can be assessed with ESM, and are good indicators of our mental well-being.

S17.2 - Biases in retrospective self-report of emotions and pain: Evidence from studies using Experience Sampling Method

Marta Walentynowicz[1], Stefan Schneider[2], & Arthur A. Stone[2,3]

1 - Psychological Sciences Research Institute, Université Catholique de Louvain, Belgium
2 - Dornsife Center for Self-Report Science, University of Southern California, USA
3 - Department of Psychology, University of Southern California, USA

Introduction: Retrospective self-report ratings are prone to recall bias. Studies using Experience Sampling Method (ESM) showed that when asked to report on their experiences in the past week, individuals often recall them as more intense than initially reported. This presentation will focus on the characteristics and predictors of recall bias and discuss a recent study exploring recall bias for pain, negative affect (NA), and positive affect (PA) in chronic pain patients. Methods: In two ESM studies, patients rated the intensity of momentary pain, PA, and NA several times a day for two weekly periods. Recall ratings were collected at the end of each week. Results: 7-day recall was higher than the mean momentary ratings for all measures. Recall bias was moderately stable over time, but the cross-domain consistency was low. Recall bias was predicted by variability, peak experience, and state at the moment of recall (for pain and NA) and by trait anxiety (for PA and NA). Conclusions: Individual differences in recall bias were not consistent across domains suggesting that it is not a general phenomenon. However, the predictors of recall bias were similar for emotions and symptoms. This opens important avenues for future research regarding mechanisms underlying recall bias.

S17.3 - Employing the Experience Sampling Method in the daily lives of children and adolescents

Robin Achterhof

Center for Contextual Psychiatry, KU Leuven, Belgium

In order to understand human development, it is essential to learn more about the early formative years. However, traditional assessment methods fall short when aiming to capture the complexity and flux that is inherent to development in youth. With the Experience Sampling Method (ESM), fuller insights into the day-to-day lives of children and adolescents can be gained. ESM allows for the ecologically valid assessment of thoughts, emotions, and behaviour, all as they occur in the context of daily life. However, ESM has scarcely been used in young samples. In this presentation, contributions of previous ESM studies focused on child and adolescent psychology are discussed. In addition, the SIGMA-project is presented – a large-scale longitudinal study into the daily lives of Flemish adolescents, with a specific focus on social processes. The aim of the SIGMA-project is to identify potential mechanisms on the level of daily-life between risk factors such as bullying or maladaptive parenting, and the development of psychopathology. It uniquely assesses both offline and online social behaviour and experiences, thereby providing the opportunity to learn more about pertinent social processes in today's adolescents. Finally, some practical considerations are given when performing an ESM study in young populations.

S17.4 - Elevated stress sensitivity: A candidate mechanism linking adverse childhood experiences with youth mental health?

Christian Rauschenberg[1], Jim van Os[1,2,3], Matthieu Goedhart[4,5], Jan Schieveld[6], & Ulrich Reininghaus[1,7, 8]

1 - Department of Psychiatry and Neuropsychology, Universiteit van Maastricht, The Netherlands,
2 - Department of Psychiatry, University Medical Centre Utrecht, The Netherlands
3 - Psychosis Studies Department, King's College, UK
4 -Tilburg School of Humanities, Tilburg University, The Netherlands
5 - Mutsaers Foundation and Educational Institute Wijnberg, The Netherlands,
6 - Department of Psychiatry and Psychology, Universiteit van Maastricht Medical Center, The Netherlands
7- Department of Public Mental Health, Universität Heidelberg, Germany
8 - Health Service and Population Research Department, King's College, UK

Evidence has accumulated that links adverse childhood experiences (ACEs) with mental health problems, but studies investigating candidate mechanisms remain scarce. Elevated stress sensitivity may constitute a putative mechanism. Objective: The present study aimed to investigate whether exposure to ACEs (i.e. childhood trauma, bullying victimization, life events) amplifies stress sensitivity in daily life. The Experience Sampling Method (ESM) was used to measure stress sensitivity (i.e. the association of momentary stress with negative affect and psychotic experiences) in 42 help-seeking youths (service users), 17 siblings, and 40 comparison subjects (mean age 15 years). ACEs as well as depressive, anxiety, and psychotic symptoms were assessed. Service users exposed to high levels of various types of ACEs experienced more intense negative affect and psychotic experiences in response to stress compared to those with low exposure levels, whereas, in contrast, controls showed either less intense negative affect or no marked differences in stress sensitivity by exposure levels. Less consistent findings were observed in siblings. Findings suggest that stress sensitivity may constitute a risk and resilience mechanism linking ACEs and youth mental health. Transdiagnostic mHealth interventions for traumatized youth may be a promising novel therapeutic approach by providing treatment components in real-life.

S17.5 - The therapist in your pocket: Hype or standard practice?

Simone J.W. Verhagen[1], Naomi E.M. Daniels[1], & Philippe A.E.G. Delespaul[1,2]

1 - Department of Psychiatry and Neuropsychology, Universiteit van Maastricht, the Netherlands
2 - Mondriaan Mental Health Trust, Department of Adult Psychiatry, Heerlen, the Netherlands

Introduction: There is an imbalance between the prevalence of mental health problems and care needs, and available care provision. Shifts from illness to wellbeing and resilience require a different approach. Another challenge is to deliver services with a 24/7 impact. It is important to find innovative ways to provide care with a daily life impact. Mobile health technology can provide a solution. Objective: To discuss the current challenges in mental healthcare and how experience-sampling technologies (ESM) can be used for shared decision making focusing on individuals. Methods: ESM is adapted for functional analyses in clinical practice. Technological advantages allow an integration with mobile applications, facilitating its dissemination. To use ESM as a therapist in the pocket, data needs to be understandable. Graphs and figures are used to see mood variability related to contextual information. However, it still requires explanation and dedication. Results: Providing patients with individualized feedback seems beneficial and increases autonomy. However, implementation in regular care is difficult. Tools have to be redesigned and clinicians trained. Conclusions: ESM interventions are valuable instruments for accessible care with a 24/7 impact. It is necessary to invest in development and to make the method widely available and clearly understandable for clinical care.

S18 – Social cognition & Emotion

15:20 – 16:40

“Room D” | Building: B33 | Room: TRIFAC 4

Thematic Session

S18.1 - Evaluating constructs of affect

Mohammad Hossein Manuel Haqiqatkhah[1], Tim Loossens[1], Francis Tuerlinckx[1], & Paul De Boeck[2]

1 - Research Group on Quantitative Psychology and Individual Differences, KU Leuven, Belgium
2 - Department of Psychology, Ohio State University, USA

Among a wide spectrum of models of emotions, there is a consensus that the underlying core construct of affect consists of two dominant dimensions. This two-dimensional view is incorporated in the two major frameworks of affect: Russell’s (1980) valence-arousal circumplex (V-A); and the positive and negative activation systems, also known as positive and negative affect (PA and NA, respectively) (Watson et al., 1999). The PA-NA is believed to be an orthogonal 45° rotation of the valence-arousal circumplex. In this study, by analysing different experience sampling datasets of self-reported momentary emotions (Dejonckheere et al., in press), we investigated possible constructs for momentary affect. We used principal component analysis and various latent trait modelling methods, including item response theory. Preliminary results suggest that variability of momentary affect is different at the between-person level than the within-person level. Individual differences among participants can be explained by a two-dimensional construct (although not necessarily similar to V-A or PA-NA). At the within-person level, the latent structure is considerably simpler. This implies that the two-factor models of emotions that rely on valence and arousal (or their linear transformations, such as PA-NA) cannot account for both within- and between-person variability of momentary emotions.

S18.2 - The heartbeat counting task largely involves non-interoceptive processes: Evidence from both the original and an adapted counting task

Olivier Desmedt[1,2], Olivier Luminet[1,2], & Olivier Corneille[1]

1 - Psychological Science Research Institute, Université Catholique de Louvain, Belgium
2 - Fund for Scientific Research – Belgium (FRS-FNRS), Belgium

Interoception is the perception of internal bodily signals (Cameron, 2001). Many studies assume that high interoceptive abilities are related to better mental/physical health outcomes. For instance, one component of interoception, the objective capacity to detect internal signals (i.e., interoceptive accuracy; IAcc), is negatively associated with depression and obesity (Herbert & Pollatos, 2014; Dunn, Dalgleish, Ogilvie & Lawrence, 2007). However, concerns have been raised regarding the validity of the most used measure of IAcc, the heartbeat counting task (HCT; Schandry, 1981). In the present study, 123 healthy participants (76 females, Mage=22.3, SD=3.127) performed both the original task and an adapted version that stressed the importance of reporting only their perceptually felt heartbeats. In the original task, we found that participants report relying on three different strategies (i.e., detection of heartbeats in a specific body location, detection of heartbeats in a diffuse way and heart rate estimation) to complete the task. IAcc scores were reduced by half in the adapted−HCT (M=0.30, SD=0.225) as compared to the original−HCT (M=0.61, SD=0.18), $t_{120}=17.3$, $p < .001$, $d=1.57$. These findings confirm that the HCT is largely contaminated by the influence of non-interoceptive processes. Implications of these findings for research on interoception are discussed.

S18.3 - The social cerebellum - New sequencing tasks and cerebello-cortical connections

Elien Heleven & Frank Van Overwalle

Vrije Universiteit Brussel, Belgium

An increasing number of studies highlighted the importance of the cerebellum in social functioning, most often the posterior part (i.e., Crus 1 and 2). One hypothesis states that the basic function of the cerebellum -- to develop internal models of sequences involving motor elements for the planning and execution of movements -- extended during evolution to the development of internal models of purely mental element which facilitates event sequence processing. We introduce new tasks to investigate cerebellar involvement in the processing of different types of sequences, in which participants generated the correct chronological order of new or well known (non-)social event stories. The results of an fMRI study, showed strong posterior cerebellar activation during order generation for all event types compared to passive viewing or reading events, and even more so for new social events compared to routine (non-) social events. Using dynamic causal modelling, we reveal direct contra- and ipsilateral closed-loop connections between the bilateral posterior cerebellum and the bilateral temporo-parietal junction, a cortical area involved in mentalizing. These results confirm the critical role of posterior cerebellum in understanding orders of new social action sequences, and shows strong connection with social regions in the cortex.

S18.4 - The emergence and evolution of ageist stereotypes in children

Allison Flamion

Université de Liège, Belgium

Stereotypes, prejudice, and discrimination based on age (ageism) have been shown in children as early as 3 years. However, scientific research on the mechanisms underlying the emergence of ageism is scarce. We have reviewed the development of views and attitudes toward older people across childhood along the cognitive developmental, social-cognitive developmental, social learning, and psychological approaches. The emergence of ageist stereotypes follows similar mechanisms as ethnic, racial, and gender stereotypes, reflecting the child's cognitive immaturity, influence of familial and environmental factors, and creation of a positive identity. Our research highlights four unique characteristics of ageist stereotypes. They are (a) well-accepted in the children's media and globally supported by parents until around 7-11 years (Piaget's operational thinking), (b) less subject to social identity and intergroup biases, (c) favourably affected by grandparents' contacts, and (d) directly linked to terror management theory. Developmental mechanisms (operational thinking, independence from environmental factors, increased self-control, and social desirability) underlie a progressive regression of negative ageist stereotypes from 3 to 17 years, with a dip around 9-11 years. Most of these aspects would deserve further empirical research, with the aim of developing methods to reduce ageism from a very young age, e.g. through intergenerational programs.

S18.5 - Can small dots challenge gender-science stereotypes? The implicit influence of gender-fair language

Youri Mora[1], Annique Smeding[2], & Olivier Klein[1]

1 - Université libre de Bruxelles, Belgium
2 - Université Savoie Mont Blanc, France

Gender-fair language (GFL) aims to fight women's invisibilization. To do so, new wordings are introduced or rediscovered and institutions are invited to adopt GFL policies. However, are these implementations effective? In many languages we observe that using GFL reduces the disproportionate representation of masculine referents carried by language structure. This research addresses the effect of GFL on gender stereotyping. A first experiment investigated with explicit measures whether GFL wording of stereotypically masculine (STEM) and feminine (Care) jobs would neutralize their perception. This approach is innovative since research on GFL does not address the masculinization of 'feminine' terms. We did not observe neutralization through the use of GFL: The GFL condition feminized both the Care and STEM jobs. The main novelty of this research lies in a preregistered adaptation of the Gender-Science Implicit Association Test. We hypothesized that the GFL job titles would reduce the IAT effect (facilitation for stereotypically congruent trials). This hypothesis was confirmed: The difference between the incongruent and congruent blocks was smaller when GFL stimuli were displayed. In these two studies, we observed different patterns: If GFL seems to feminize representations irrespective of gender stereotypy with explicit measures, GFL appears to reduce gender stereotyping with implicit measures.

S19 – Cognitive control

Electrophysiological contributions to cognitive control

15:20 – 16:40

“Room E” | Building: B31 | Room: Séminaire 10

Invited Symposium

Organisers: Mehdi Senoussi, Wim Gevers & Tom Verguts

Chair: Wim Gevers

Universiteit Gent, Belgium

Cognitive control unfolds at a millisecond timescale, while subjects are performing cognitive tasks at home or in the lab. Due to their fast sampling rate, electrophysiological methods provide a unique opportunity to measure unfolding cognitive control processes while subjects perform such tasks. In this symposium, four speakers discuss recent advances in studying cognitive control using two electrophysiological measures, namely electroencephalography (EEG) and electromyography (EMG), and how they can be employed to inform cognitive theory.

S19.1- Revealing cognitive control processes in normal impulsivity by electromyographic recordings

Clémence Roger, Fanny Grisetto, & Yvonne Delevoye-Turrell

SCALab, UMR CNRS 9193, Université de Lille, France.

Cognitive control is a necessary set of executive functions for the ability to adapt our goal-directed behaviours. Studied in conflictual tasks, cognitive control processes are classically investigated by behavioural measures (e.g. reaction times and error rates). However using electromyographic activity (EMG), small incorrect muscular activations (partial errors) are observed before the response in 20% of the correct trials (Hasbroucq, 1999). These partial errors, often ignored, uncover efficient reactive control processes (e.g. detection, inhibition and correction). This study aims to explore how impulsivity personality traits is associated with reactive control processes in a normal population. Thirty-five participants performed a Simon task (Simon, 1990) during which EMG was recorded. In particular, partial errors were detected to precisely investigate cognitive control abilities (detection and inhibition of errors). The BIS-11 questionnaire was used to assess impulsive personalities (Patton et al., 1995). Even though error rates do not differ between high and low-impulsive participants, EMG analysis shows a greater number of partial errors in high-impulsive participants. It seems that high-impulsive participants are more likely to engage in incorrect activations. However, this trend seems to be compensated by an efficient mechanism for correcting errors resulting in no adverse consequences on overall behaviour. We hypothesize that this compensatory mechanism may be absent in patients suffering from pathological impulsive behaviours.

S19.2- Metacognitive reports in the context of conflict tasks: an electromyographic study

Catherine Culot & Wim Gevers

Université Libre de Bruxelles, Belgium

Many situations require cognitive control to monitor and adapt our behaviour in situations of conflict. Adaptive behaviour requires the efficient detection of such conflicting situations. Participants use congruency and RT to infer the presence of conflict. Participants also rely on (incorrect) motor activation of the response hands. This can objectively be measured using electromyographic recordings. About 15% of correct responses are preceded by an early, subthreshold EMG burst from the incorrect hand. Such “partial-errors” objectively indicate the presence of response competition. Participants associate partial error trials with higher subjective experiences of conflict. However, when participants are asked if they made partial errors, many (about 70%) remain undetected. The central question of this presentation is whether detection of partial-errors is needed to impact subjective judgements. Participants were asked to detect their partial-errors but also to indicate the confidence they had in their judgments. First, when participants made a partial-error but this went undetected, participants reported lower levels of confidence in their judgments. Interestingly, even when a partial error was correctly detected, participants continued to report lower levels of confidence in their judgments. In other words, regardless of the detection, the presence of a partial error lowers the confidence in our judgments.

S19.3- A dynamic scenario towards mind wandering

Chie Nakatani

Brain and Cognition Research Unit, KU Leuven, Belgium

In our everyday life, we continuously generate and evoke thoughts. In particular, spontaneously generated thoughts have been discussed as the key factor for the process of mind wandering. When in the process, do spurious thoughts affect to the path of our mind? Do these thoughts disappear after the mind wandering state has passed? A study with repeated experience sampling showed that, in real life, the number of thoughts goes through regular 4-6 hour cycles in the wakeful hours. This suggests the involvement of a circadian rhythm generator. Mind wandering episodes tend to start about one hour after the cycle of thought generation begins to rise. Cognitive control, in contrast, dramatically falls after having been up for an extended period. When this occurs, mind wandering appears. After a mind wandering, the level of control goes through an unstable period and eventually returns to intermediate level. The result suggests that during a mind wandering process, dynamics of thought generation and cognitive control are in relative coordination (Nakatani, Ganschow, and van Leeuwen, under review). In this talk, I will present our recent EEG results to address in more details of the interaction between these dynamics.

S19.4- Controlled by the beat: Investigating the role of theta oscillations in cognitive control

Mehdi Senoussi, Pieter Verbeke, Esther De Loof, Durk Talsma, & Tom Verguts

Department of Experimental Psychology, Universiteit Gent, Belgium

Neural oscillations have been shown to be critically involved in cognitive control. More specifically oscillation in the theta band (4-8Hz) seem to play a key role as a top-down “conductor” from sensory or attentional sampling to memory retrieval. A recent computational model of cognitive control (Verguts, T. (2017)) proposes a theta-paced mechanism in which noise bursts are sent to synchronize, and therefore bind, task-relevant neural representations by communication-through-coherence (Fries, P. (2015)). This fast binding mechanism thus allows rapid set-up of functional brain networks which could underlie cognitive flexibility. In this talk I will present an EEG study designed to test this model. We used a stimulus-response mapping task in which participants were instructed to switch mappings on every trial. Using brain connectivity and multivariate pattern analyses, we confirm several predictions from the model at the behavioral and neural level. Finally, I will discuss how theta-paced binding could be a common mechanism across top-down processes and account for recent evidence of theta oscillations across working memory and attention.

S20 – Mental fatigue & Cognition

15:20 – 16:40

“Room F” | Building: B31 | Room: Séminaire 11

Symposium

Organizers: Fabienne Collette[1], Olivier Mairesse[2]

Chair : Fabienne Collette

1 - Université de Liège, Belgium
2 - Vrije Universiteit Brussel, Belgium

S20.1 - Fatigue revisited: Insights from sports science, sleep medicine and cognitive psychology

Nathalie Pattyn[1,2,3], Jeroen Van Cutsem[3,4], Emilie Dessy[1,2], & Olivier Mairesse[1,2,5]

1 - VIPER Research Unit, Royal Military Academy, Belgium
2 – Department of Experimental and Applied Psychology, Vrije Universiteit Brussel, Belgium
3 - Human Physiology and Sports Medicine, Vrije Universiteit Brussel, Belgium
4 - Endurance Research Group, University Of Kent, UK
5 - Sleep unit, CHU Brugmann, Brussels, Belgium

Fatigue is such a multifaceted construct it has sprouted specific research fields and experts in domains as different as exercise physiology, cognitive psychology, human factors and engineering, and medical practice. It lacks a consensus definition: it is an experimental concept, a symptom, a risk, a cause (e.g. of performance decrement) and a consequence (e.g. of sleep deprivation). This fragmentation of knowledge leads to slower dissemination of novel insights, and thus to a poorer research. Indeed, what may seem as a novel result in one field, may very well be old news in another, hence leading to this “innovation” being a scientific equivalent to the emperor’s new clothes. This talk aims to describe the common denominator in the different areas of expertise where fatigue is investigated. Indeed, rather than focusing on the differences in semantics and conceptualization, we hope that identifying common concepts may be inductive of easier multidisciplinary research. We have reviewed the fatigue concepts and research in these areas and report the ones that are used to describe the proposed common model to be further investigated.

S20.2 - The Brugmann Fatigue Scale: Fatigue revisited as behavioural propensity for rest

Olivier Mairesse[1,2,3], & Daniel Neu [3,4]

1 - Brain, Body and Cognition, Vrije Universiteit Brussel, Belgium
2 - Vital Signs and Performance, Royal Military Academy, Belgium
3 - Sleep Laboratory and Unit for Clinical Chronobiology, CHU Brugmann, Belgium
4 - Faculty of Medicine & Faculty of Motor Sciences, Université Libre de Bruxelles, Belgium

While often confused, fatigue (as opposed to sleepiness) mostly requires rest, not sleep, to recover from. Clinical evaluations of fatigue mainly rely on assessments of symptom intensity, however without taking into account the need to engage in behavioural countermeasures. We therefore developed an 8-item 4-point Likert scale (the Brugmann Fatigue Scale; BFS) sharing a similar conceptual background with the Epworth Sleepiness Scale (ESS), assessing mental and physical fatigue and focusing specifically on rest propensity. Out of 496 consecutive patients addressed to the sleep unit of an academic hospital, we selected a sample of 295 hypnotic-free subjects (122 females). Rasch analyses revealed that the BFS possesses sound psychometric characteristics (rating scale functioning, item fit, dimensionality and measurement invariance) allowing for valid, reliable, linear and unidimensional measurement of mental and physical rest propensity, irrespective of perceived sleep quality, age, or gender. In addition, the BFS was significantly correlated to periodic limb movements during sleep and inversely to REM sleep duration. For both mental and physical subscales, scores above 6 are proposed as cut-off values. In analogy to the ESS, the BFS shows to be a unique and precise instrument assessing symptomatic fatigue with respect to rest propensity.

S20.3 - Decreased prefrontal connectivity parallels cognitive fatigue-related performance decline after sleep deprivation. An optical imaging study

Hichem Slama, Guillermo Borragán, Carlos Guerrero-Mosquera, Celine Guillaume, & Philippe Peigneux

Centre de Recherches en Cognition et Neurosciences & ULB Neurosciences Institute, Université Libre de Bruxelles, Belgium

Fatigue induced by sustained cognitive demands (i.e., cognitive fatigue [CF]) often entails decreased behavioural performance and unavailability of brain resources, either due to reduced levels or impaired access. However, there is a large inter-individual variability in resistance to CF. Consequently, we designed the TloadDBack task, an adaptive working memory paradigm aimed at inducing CF while controlling for inter-individual variability (Borragan et al., 2017). In a recent study, we investigated the neural dynamics underlying behavioural performance after inducing CF with the TloadDBack task in a sleep deprivation (SD) condition in which resources are naturally compromised. Using functional near infrared spectroscopy (fNIRS), we recorded cortical brain activity in 16 participants during task-related CF induction in the evening (20h), in the middle of the night (2h) and early in the morning (7h). Although cortical oxygenation similarly increased over the 3 sessions, decreased intra-hemispheric connectivity between left anterior frontal and frontal areas paralleled a sudden drop in task performance in the early morning. Our data indicate that decreased sustained attention after the induction of CF in a situation of high sleep pressure results from impaired connectivity between left prefrontal cortical areas rather than from a mere modulation in brain resources.

S20.4 - How does cognitive fatigue affect Young, Middle-aged, and Older people? A distribution analysis of *Time-on-Task effect* by fitting the ex-Gaussian parameters to the response time distributions

Jessica Gilsoul[1,2], Vincent Libertiaux[3], & Fabienne Collette[1,2]

1 - GIGA-CRC in Vivo Imaging research unit, Université de Liège, Belgium
2 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium
3 - Research Center of the Faculty of Veterinary Medicine of Liège, Université de Liège, Belgium

Young people experiment cognitive fatigue with *Time-on-Task*, evidenced by increased response time (RT). Since RT data are often positively skewed, the ex-Gaussian function (characterized by parameters mu, sigma, and tau) properly fits RT data*.* In Young people*, tau (representing the extreme RT)* suffers from *Time-on-Task*. We tested *Time-on-Task* in Middle-aged and Older people. Twenty-one Young, 17 Middle-aged*,* and 17 Older performed a 160-min Stroop task comprising Facilitatory, Interfering, and Neutral items which was divided into four 40-min blocks. Ex-Gaussian parameters were fitted in each block for each item types. Measures (Facilitatory_mu, Interfering_mu, Neutral_mu, Facilitatory_tau, Interfering_tau, Neutral_tau) were analyzed with GLIMMIX repeated models. All mu were smaller for Young than Middle-aged and Older. Moreover, Older had a greater I_mu in Block4 as compared to Block1 and Block2. Facilitatory_tau: Middle-aged significantly increased between Block2 and Block4. I_tau: Middle-aged significantly increased between both Block1 and Block2 with Block4. NE_tau: Young significantly increased between Block1 and both Block3 and Block4 ($p<.01$); Middle-aged increased between both Block1 and Block2 with Block4; Older increased between Block1 and Block4. The three groups evidenced increases in their extreme RT (tau) with Time-on-Task. Very interestingly, Middle-aged people seemed the most cognitively fatigued by the task.

S20.5 - Subjective feeling of fatigue and cognitive performances: a specific link in multiple sclerosis

Camille Guillemin[1,2], Emilie Lommers[1,3], Gael Delrue[3,4], Estelle Gester[3,4], Pierre Maquet[1,3], & Fabienne Collette[1,2]

1 - GIGA-CRC In Vivo Imaging research unit, Université de Liège, Belgium
2 - Psychology & Cognitive Neuroscience research unit, Université de Liège, Belgium
3 - Department of Neurology, CHU of Liège Sart Tilman, Belgium
4 - Neurocognitive and speech rehabilitation unit, CHU of Liège Sart Tilman, Belgium

Fatigue is one of the most frequent and debilitating symptom of Multiple Sclerosis (MS). Previous studies suggested that fatigue might impacts cognition differently in MS than in healthy population. Consequently, we investigated the associations between cognition and subjective fatigue in MS patients and healthy controls (HC). 28 MS patients and 29 HC underwent a comprehensive neuropsychological assessment. Composite cognitive scores were defined to assess eight main cognitive functions (processing speed, attention, working memory, executive functioning, verbal and visual learning). Stepwise regression analysis were conducted separately for MS and HC to investigate the contribution of physical and cognitive scores at the Modified-Fatigue Impact Scale (M-FISphys and M-FIScog, respectively), as well as anxiety and depression on cognition. For MS patients, M-FIScog score was the only variable explaining significantly the variance in processing speed (R^2:0.15, $p<0.05$) and executive functioning scores (R^2 :0.15, $p<0.05$). M-FISphys score explained the variance in working memory score (R^2:0.14, $p<0.05$). None of the model reached significance regarding HC. These results confirm a disease specific expression of fatigue in MS. Indeed, cognitive fatigue appears deleterious for processing speed and executive control, while physical fatigue might interfere with working memory abilities, and no effect was found for HC.

S21 – Clinical psychology & abuse

15:20 – 16:40

“Room F” | Building: B31 | Room: Séminaire 12

Thematic session

S21.1 - E-mental health (research): Insights into opinions and attitudes of mental healthcare organizations in Flanders

Eva Van Assche, Bert Bonroy, Karolien Baldewijns, Lore Van den Broeck, Kimberly Desie & Tom Van Daele

Thomas More University of Applied Sciences, Antwerpen, Belgium

One of the most prevalent disorders in current society is depression. Limiting its ever-growing impact poses great societal challenges. E-mental health applications have the potential to provide a substantial contribution to conventional treatment. Although there is strong evidence for the efficacy and effectiveness of such tools, general uptake in the mental health sector remains limited. As implementation of e-mental health is influenced by many factors, it is important to gain insight in which of these factors might impede or facilitate implementation. In the current study, all psychiatric hospitals (N = 31) and psychiatric departments of general hospitals (N = 35) in Flanders were contacted to participate in an implementation study in which an e-mental health application is used in a blended depression treatment setting. They completed a questionnaire on their reasons for showing interest for participation or for choosing to refuse and on their attitudes towards technological applications in mental healthcare. This presentation presents the first results and discusses how this study helps to uncover which factors promote or hinder large-scale implementation of e-mental health applications in the mental healthcare sector.

S21.2 - When less is more: Vaping low-nicotine vs. high-nicotine e-liquid is compensated by increased wattage and higher liquid consumption

Dinska Van Gucht[1,2], Frank Baeyens[2], Martin Chaumont[3], Karolien Adriaens[2], & Jorien Smets[1]

1 - Thomas More University of Applied Sciences, Antwerpen, Belgium
2 - Faculty of Psychology and Educational Sciences, KU Leuven
3 - Erasme University Hospital, Université Libre de Bruxelles, Belgium

Certain evolutions with regard to technical aspects of vaping behavior were investigated. In recent years more powerful devices have become available, e-liquids with low nicotine concentrations have become the rule rather than the exception in the market supply, and the legislation has been adjusted, including a restriction on maximum nicotine concentrations to 20 mg/mL. Customers from a Dutch online vapeshop (also studied earlier) were contacted (to allow a historical comparison), as well as visitors from the Facebook group "Belgian Vape Bond" to compare between groups from different geographies and/or vaping cultures. Most results were in line with earlier findings: Almost all surveyed vapers were (ex-)smokers, had started vaping to quit smoking and reported similar positive effects of having switched from smoking to vaping. The resulting intake of the total quantity of nicotine did not differ between groups, a striking observation, however, was that whereas customers of the Dutch online vapeshop used e-liquids with a similar nicotine concentration as observed previously, the Belgian vapers used e-liquids with a significantly lower nicotine concentration, but consumed much more of it. These Belgian vapers may have a greater potential to expose themselves to larger quantities of harmful or potentially harmful constituents released during vaping.

S21.3 - Psychiatric patients' dehumanizing experiences and their associations with clinical outcomes

Sullivan Fontesse, Florence Stinglhamber, Stéphanie Demoulin, Tina Chevallereau, Philippe de Timary, & Pierre Maurage

Université Catholique de Louvain, Belgium

Dehumanization, i.e. when a person deny another person' humanness, is deleterious for social interactions. Indeed, dehumanization has been associated with aggression and violence in multiple forms. Dehumanization has been observed in blatant forms (e.g. in genocides) but more subtle forms have been described in various life contexts: education, intergroup relations, sport, and in work. While dehumanization from the dehumanizer's perspective has been widely studied, dehumanization from the victim's perspective has not. Additionally, dehumanization has never been studied in a psychiatric population even though it has been denounced as endemic in medicine. This presentation will thus address these gaps and provide the results of the first study of dehumanization in a psychiatric population: patients with severe alcohol-use disorder (SAUD). Links between dehumanizing experiences and patients' emotions, cognitions, and behaviors will be presented. Theoretical and practical implications will be discussed.

S21.4 - Prototypical validity of the Comprehensive Assessment of Psychopathic Personality among international French-speaking mental health professionals

Denis Delannoy[1,2], Xavier Saloppé[1,3,4], David J. Cooke[5], & Thierry H. Pham[1,2]

1 - Centre de Recherche en Défense Sociale, Belgium
2 - Université de Mons, Belgium
3 - Laboratoire de sciences Cognitives et affectives, Université de Lille, France
4 - Hôpital Saint-Amand-les-Eaux, France
5 - University of Bergen, Norway

The Comprehensive Assessment of Psychopathic Personality (CAPP; Cooke et al., 2004) is a personality-based and lexical model of psychopathy. Its prototypical validity has been investigated among English, Norwegian and Spanish speakers (Kreis et al., 2012; Hoff et al., 2012). This study analyses the prototypical validity of the model from a survey sended to international forensic mental health professionals (N = 204). This french survey (paper and online) is composed of demographic variables and 42 symptoms (33 CAPP symptoms and 9 foils). These symptoms are grouped into six domains (Attachment, Behavioral, Cognitive, Dominance, Emotional, Self) and the foils refer of other personality disorders. The sample is composed of psychiatrists, psychologists, criminologists, nurses, educators and students in forensic psychology. Firstly, we conducted a Confirmatory Factor Analysis (CFA) with the MPlus software. In accordance with MacCallum et al. (1999), a CFA can be computed with a minimum sample of 200 participants. Secondly, we conducted Exploratory Factor Analysis to test the structure of the symptoms. The CFA indicates that the CAPP domains are highly unidimensional. The Scree-test of the EFA, retained three factors (Egotism, Interpersonal Rigidity, and Lack of Responsibility). The results are discussed in light of the international literature on psychopathy.

S21.5 - A multifaceted approach of dating violence among adolescents and emerging adults.

Audrey Courtain & Fabienne Glowacz

Université de Liège, Belgium

Romantic relationships contribute to the development of adolescents and emerging adults. A growing literature has studied violence occurring between dating partners: dating violence (DV) raises concerns for the well-being of youth. Following a multifaceted approach, the present research aims to examine individual variables associated with DV. A sample made up of 1811 students - from secondary schools (mean age = 17.3, σ =0.86) and a college (mean age = 19.9, σ =2.11) - was self-administered validated questionnaires investigating perpetration/victimization of DV, attitudes toward DV, empathy, impulsivity, language and alcohol use. Results show patterns of gender symmetry, multiperpetration/multivictimization and bidirectionality. Attitudes toward DV are associated with the perpetration/victimization of DV (both face-to-face and online DV). Males' attitudes are more in favour of DV than females'. Female-perpetrated physical and sexual DV are more accepted than male-perpetrated ones. Several dimensions of empathy and language are negatively associated with DV perpetration, while several dimensions of impulsivity are positively associated with DV perpetration. As for alcohol, higher scores of hazardous drinking puts at risk of insulting a dating partner or being insulted by a dating partner in a context of alcohol use. This research can contribute to the development of multifaceted prevention programs among youth.

Abstracts

Satellite Symposiums

May 15th

Alexithymia – New Research Perspectives II

9:00 – 12:00

Building: B33 | Room: TRIFAC 1

Public Symposium

Organizer: Olivier Luminet

Université Catholique de Louvain, Belgium

The aim of the workshop will be to discuss potential collaborations on alexithymia research. The main topics of interest are studies looking at the moderating impact of alexithymia on early (attention, categorization) and later (memory) stages of cognitive processing of emotional information, on psychophysiological and brain responses, and on the ways to examine the deficits in interoception as potential pathways linking alexithymia to somatic symptoms and illnesses. The only requirements for participating are a minimal knowledge of the alexithymia construct and an interest for research collaborations in this issue.

Human Visual Categorization

9:30 – 14:30

Building: B33 | Room: TRIFAC 2

Private Symposium

EOS HUMVISCAT consortium meeting

Organizer: Johan Wagemans

KU Leuven

The EOS HUMVISCAT is about Human Visual Categorization and its relation to low-, mid-, and high-level processing in the human visual cortex. It combines behavioural methods (incl. psychophysics) in healthy volunteers, with neuroimaging (EEG, fMRI, incl. MVPA, DTI, 7T and pRF methods) and computational modelling. In addition to the main theme and methods, we also have a focus on plasticity of the psychological processes and representations, as well as their underlying neural mechanisms, in different targeted populations like specific expert groups (e.g., bird watchers), deaf and blind individuals, neurotypically and –atypically developing populations like ASD, CVI, and dyslexia. The research groups involved are those around three PI's at KU Leuven (Boets, Op de Beeck, Wagemans), three PI's at UC Louvain (Collignon, Goffaux, Rossion – currently also at Nancy), and two PI's from institutes abroad (Serge Dumoulin from Spinoza Centre Amsterdam and Antony Norcia from Stanford). The consortium will have an internal work in progress meeting.

The journey of a memory: dynamics of learning and consolidation in maturation and ageing

10:30 – 17:00

Building: B33 | Room: TRIFAC 3

Private Symposium

EOS MEMODYN consortium meeting

Organizer: Philippe Peigneux

Université Libre de Bruxelles

"We are our memory". The MEMODYN project investigates this fascinating subject of fundamental importance. We take a fresh perspective that emphasises the study of memory, in its natural dynamic setting, as a journey in the making. The two key characters in this journey are learning and consolidation; these processes are known to interact but have hitherto been studied in isolation. The perspective of this project enables them to be understood, for the first time, under the influence of their inherent interactions, and in the context of brain maturation and ageing. The project aims to provide new insight into how much our ability to learn is dictated by the make up of our neuronal circuitries, how memories are initially formed and later stored for the long haul, how this is made possible by the rewiring of our neuronal circuitries, and how our memory processes and capacities vary as our brain evolves through its lifespan. The project develops novel methodologies to address these aims by harnessing recent advances in experimental techniques (behavioural, neurophysiological, and neuroimaging) and computational modelling. Psychologists, neuroscientists, and engineers from ULB, ULiège, UGent, KU Leuven and UC London have been assembled to provide the collective expertise critical to the delivery of this inter-disciplinary endeavour. The consortium will have an internal work in progress meeting.

Abstracts

Poster
Session 1

May 14
12:00 – 13:00

Clinical Psychology

12 :00 – 13:00

Building : B31 | Room : Mahaim and surrounding areas

P1.1 - Recognition of emotions among male adult sexual offenders in forensic and prison facilities: A thesis methodological design.

Luca A. Tiberi[1], Emilie Telle[1], & Thierry H. Pham[1,2]

1 - Université de Mons, Belgium
2 - Centre de Recherche en Défense Sociale (CRDS) Tournai, Belgium

Accurate recognition of emotions is fundamental in communication (verbal and non-verbal) and plays a role in the display of prosocial behaviours (Cigna *et al.*, 2015; Marshall *et al.*, 1995). Despite a large consensus, studies hypothesized that male adult sexual offenders exhibit deficit in the recognition of emotions (Tiberi, 2018). We investigate this ability among male adult sexual offenders in forensic and prison facilities. The design is based on three emotion evaluation sets: Recognition of facial expressions of emotions (morphed dynamic stimuli), vocal expressions (two-conditions: semantic and prosody) and bodily expressions (two-conditions: congruent and non-congruent). Additionally, eye-tracking measures will be collected for the facial and bodily expressions in order to explore the ocular pathways. Finally, sociodemographic data (age, IQ), diagnostic profile (Axis I & II, psychopathy) and risk of recidivism rates will be collected. We assume that sexual offenders would exhibit a deficit in the recognition of specific negative emotions (Chapman *et al.*, 2018). No hypothesis was expressed for the ocular pathway. Results will be discussed in light of the international literature on violent populations. Evaluation and therapeutic recommendations will be formulated on social cognition among male adult sexual offenders.

P1.2 - Learning self-hypnosis/self-care improves cognitive complaints in cancer patients

Aminata Bicego[1,2,3*], Charlotte Grégoire[4*], Helena Cassol[1], Marie-Elisabeth Faymonville[1,3], Anne-Sophie Nyssen[1,2], Floriane Rousseaux[1,2,3], Guy Jerusalem[5], Steven Laureys[1], Isabelle Bragard[1,4$], & Audrey Vanhaudenhuyse[1,3$]

1 - GIGA Consciousness research unit, Université de Liège, Belgium
2 - Laboratory of Cognitive Ergonomics and Work Interventions, Université de Liège, Belgium
3 - Algology Department, University Hospital of Liège, Belgium
4 - Public Health Department, Université de Liège, Belgium
5 - Medical Oncology Department, University Hospital of Liège, Belgium

*These authors contribute equally
$ These authors contribute equally

Cancer generates cognitive impairments that can undermine patients' quality of life (QoL). Self-hypnosis/self-care learning (SH/SC) have been used to improve global QoL of these patients. The aim of this study is to understand the impact of SH/SC upon the cognitive functions by means of the Functional Assessment of Cancer Therapy-Cognitive Function (FACT-COG) (Wagner *et al.,* 2009). Fifty-three patients (mean age=55, SD=13, 3 men, all type of cancer) who had ended their treatment were included. Exclusion criteria: psychiatric disorders, metastatic cancer, relapse at time of inclusion. Patients were randomly assigned to SH/SC and waiting list (WL). Patients completed the FACT-COG before (T1) and after (T2) SH/SC or WL. Significant difference was shown on FACT-COG total score in T2 between the two groups (p=0.01), SH/SC group showed less total complaints ($\bar{X}$=-13.25, SD=18.45) than WL ($\bar{X}$=-0.2, SD=17.92). Significant difference was observed for FACT-COG total score in T2, in the SH/SC (p=0.001), and in the subscale "functional implications of cognitive difficulties" (p=0.01), "change in cognitive function over time" (p=0.001) and "impact on the QoL" (p=0.001). Beneficial effect of SH/SC was observed upon cognitive complaints in cancer patients. More studies are needed to generalize these results to the cancer patient population.

P1.3 - Conceptualisation of parenting in research on young children with or at risk for ASD: A systematic review of observational measures

Melinda Schaap, Karla Van Leeuwen, Petra Warreyn, & Ilse Noens

KU Leuven & Universiteit Gent, Belgium

The importance of early environmental experiences, such as parenting, is increasingly acknowledged in research on emergent autism spectrum disorder (ASD). However, heterogeneity of observational measures for parenting behaviour makes it difficult to compare results and draw conclusions. This may have serious consequences for research and clinical practice. Web of Science, PubMed and Scopus were searched for papers investigating parenting of children below four years with or at risk for ASD. 21 papers were included and synthesised narratively. The 21 reviewed papers included 13 unique “coding approaches” and 63 parenting constructs. Through a comprehensive consensus decision-making process, parenting constructs were ultimately classified under nine overarching parenting categories. Categorisation based on descriptions resulted in seven overarching categories of parenting behaviour: warmth, responsiveness, scaffolding, proactive control, intrusiveness, negativity and dyadic interaction. Due to heterogeneity of results, an eighth category “other” and a ninth category “multiple” were added for parenting constructs that could not be grouped under the other categories. This review provides a first step towards a common language and a conceptual framework that can provide a solid foundation for the observation of parenting behaviour and thus inform theory and practice. However, further research should investigate applicability among young children of different ages.

P1.4 - The use of hypnosis, virtual reality and music before and after a cardiovascular surgery: A randomized controlled trial on patients' perceptions

Floriane Rousseaux[1, 3], Ninon Puttaert[1], Didier Ledoux[4, 5], Paul Massion[4], Aminata Bicego[1, 3], Anne-Sophie Nyssen[1, 3], Steven Laureys[6], Marie-Elisabeth Faymonville[2], & Audrey Vanhaudenhuyse[2, 3]

1 - Laboratory of Cognitive Ergonomics and Work Intervention, Université de Liège, Belgium.
2 - Algology Department, University Hospital of Liège, Université de Liège, Belgium.
3 - Sensation and Perception Research Group, GIGA Consciousness, Université de Liège, Belgium.
4 - Intensive Care Departments, University Hospital of Liège, Université de Liège, Belgium
5 - Anesthesia & Intensive Care, Giga Consciousness, Université de Liège, Belgium
6 - GIGA Consciousness, Université de Liège, Belgium.

The aim of this study was to better understand the impact of 5 non-pharmacological techniques on the patient's well-being before and after a cardiovascular surgery. 25 adults were included in the study (mean age=66 years, SD=13 years, 20 men). Patients were randomly assigned to 5 conditions (control, hypnosis, music, virtual reality (VR) and virtual reality hypnosis (VRH)) and received a 20 minutes' session before and after the surgery. We measured blood pressure, heart and respiratory rates and levels of anxiety, tiredness and pain. Results showed a significant influence on mean blood pressure in the hypnosis group for both preoperative (n=5, p=0.01) and postoperative phase (n=3, p=0.04). Music group (n=5) showed an influence on mean blood pressure (p=0.04) and heart rate (p=0.04) on the preoperative phase. An ANOVA analysis with repeated measures displayed a significant effect on tiredness for the hypnosis and the music group (p=0.03; p=0.01, respectively) compared to the control group (n=5). With only 25 participants, other effects were non-significant. Non-pharmacological approaches seem to have a positive impact on patients' parameters. More patients are needed to confirm these preliminary results.

P1.5 - The effects of implementing the electronic cigarette in the standard quit-smoking treatment by tobacco counselors in Belgium

Karolien Adriaens[1], Dinska Van Gucht[1,2], & Frank Baeyens[1]

1 - Faculty of Psychology and Educational Sciences, KU Leuven, Belgium
2 - Thomas More University of Applied Sciences, Belgium

Tobacco counsellors provide individual or group-based smoking cessation counselling, whether or not in combination with the well-known traditional smoking cessation aids. Until recently, they did not include electronic cigarettes (e-cigarettes) as a smoking cessation aid in their “standard treatment”. The current prospective cohort study focused on implementing the e-cigarette in these “standard treatments”. Over a period of seven months, participants repeatedly filled out a questionnaire and performed a carbon monoxide (CO) measurement. We distinguished five conditions based on participant’s smoking cessation aid chosen at the first follow-up measurement: e-cigarette, NRT (nicotine replacement therapy), medication, e-cigarette + NRT, and no aid. Preliminary results of the first wave (n_{W1} = 111; n_{W2} = 104) show that smokers who exclusively had chosen to use the e-cigarette to quit smoking had a significantly higher relative risk to be smoking abstinent (CO ≤ 7) six months after their quit-smoking date compared to those who had chosen another or no smoking cessation aid (RR = 1.88; 95% CI [1.09, 3.28]; $p < 0.05$). Although these preliminary results should be interpreted with caution, they indicate that choosing for an e-cigarette as a smoking cessation aid during group counselling has a positive effect on (long-term) smoking abstinence.

P1.6 - Understanding identity and its associated factors in cancer survivorship: A scoping review

Caroline Tilkin[1], Marie Vander Haegen[1,2], Anne-Marie Etienne[1], & Nancy Durieux[1,3]

1 - Health and Society research unit, Université de Liège, Belgium
2 - Institut Libre Marie-Haps, Bruxelles, Belgium
3 – University Library, Université de Liège, Belgium

According to recent studies, the “survivor identity” is potentially a key factor for the psychological well-being of cancer survivors. But what exactly lay behind this concept remains unclear. The current review aimed to identify existing conceptualizations of the identity and its associated factors in adult cancer survivors. A scoping review was conducted following PRISMA-ScR guidelines. Three core databases (MEDLINE/Ovid, PsycINFO/Ovid and Scopus) were searched. Relevant studies from January 1985 to July 2018 were screened through a multi-step process guided by two independent reviewers. Fifty-one articles were preliminary included for data extraction: 43% were quantitative studies, 47% were qualitative studies and 10% were mixed-methods design studies. Only 30% of the studies were related to the identification to the survivor’s identity. About 70% of the studies concerned other conceptualizations such as global self-concept (28%) or body image (23%). Quality of life was the most frequently associated factor (more than 26% of the studies). Several clinical (e.g. self-image, quality of life) but also psychosocial (e.g. socialization) factors related to the identity were found. Our results highlighted that identity in cancer survivorship is a complex issue where the survivor identity remains solely one piece of the puzzle.

P1.7 - Vivid memories from hell: A systematic analysis of distressing near-death experience accounts

Helena Cassol[1,2], Charlotte Martial[1,2], Jitka Annen[1,2], Géraldine Martens[1,2], Vanessa Charland-Verville[1,2], Steve Majerus[3], & Steven Laureys[1,2]

1 - GIGA Consciousness research unit, Université de Liège, Belgium
2 - Coma Science Group, University Hospital of Liège, Belgium
3 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium.

Near-death experiences (NDEs) are associated to positive affects, however, a small proportion is considered distressing. To date, only a few studies have been addressing these frightening events, and yet they could trigger long-lasting emotional trauma. We aimed to look into the proportion of distressing NDEs in a sample of NDE narratives; categorize distressing narratives according to Greyson and Bush's classification (inverse, void or hellish); and compare distressing and "classical" NDEs. Participants wrote down their experience, completed the Memory Characteristics Questionnaire (assessing the phenomenology of memories) and the Greyson scale (characterizing content of NDEs). Proportion of suicidal attempts, content and intensity of distressing and classical NDEs were compared using frequentist and Bayesian statistics. Distressing NDEs represent 18% of our sample (n=140). We identified 14 inverse, 8 hellish and 3 void accounts. The proportion of suicide survivors is higher in distressing NDEs as compared to classical ones. Finally, memories of distressing NDEs appear as phenomenologically detailed as classical ones. Distressing NDEs deserve careful consideration to ensure their integration into experiencers' identity.

P1.8 - Incidence, phenomenology and correlates of misophonia in a Belgian sample

Hedwige Dehon[1] & Monica S. Wu[2]

1 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgique
2 - Semel Institute for Neuroscience and Human Behavior, UCLA, USA

Individuals with misophonia show extreme sensitivities to selective sounds, often resulting in negative emotions and subsequent maladaptive behaviours such as avoidance and/or anger outbursts. The phenomenon is not well understood with the consequence that only a few clinical perspectives are currently available. The aim of the current study was to examine the incidence, phenomenology, correlates, and impairment associated with misophonia symptoms in 400 participants (M*age*= 23.72; SD= 5.63) through self-report measures. Additionally, participants were also asked to describe a recent episode of misophonia and to provide information about the context during which it happened. Results showed that misophonia was a relatively common phenomenon, with nearly 30% of the sample reporting clinically significant misophonia symptoms. Furthermore, medium to strong relationships were observed with general sensory sensitivities, obsessive-compulsive, anxiety, sensitivity to social norms and depressive symptoms. Finally, anxiety significantly mediated the relationship between misophonia and anger outbursts. The results are discussed in light of their contribution to a better understanding of misophonia, especially, factors that may co-occur and influence misophonia symptoms as well as subsequent maladaptive behaviours and of association of misophonia symptoms with multiple domains of psychopathology.

P1.9 - Virtual reality: A tool in the treatment of anxiety in stereotaxic radiotherapy?

N. Gamin, N. Jansen, P. Coucke, A.M. Etienne, & J. Simon

Université de Liège

Stereotaxic radiotherapy (SR) is an effective treatment for many types of cancer but seems to cause anxiety. The purpose of this study is to determine whether experiencing the medical procedure by using immersive virtual video can reduce preoperative anxiety. The experimental group (n=10) received information about the intervention and was exposed three times to the procedure before the SR. Two immersions took place in the days preceding the intervention and the third took place just before the SR. The control group (n=10) only received information about the intervention. The STAI Y-A scale was used to measure state anxiety before and after each virtual immersion in the experimental group and just before and after the SR in both groups. We observed a similar decrease in anxiety across groups, which did not differ between them. Despite this result, it is important to point out that the experimental group reported a significant decrease in anxiety after the two immersions of day 1. The third immersion was not accompanied by a decrease of it. In conclusion, virtual reality seems useful in the treatment of preoperative anxiety, but its use is not enough to neutralize patient's anxiety when approaching treatment.

P1.10 - A replication study of the relationships between depressive symptoms, behavioral activation and avoidance depending on gender

Audrey Krings, Aurélie Wagener, & Sylvie Blairy

Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium

Behavioral activation is a well-established empirical treatment of depression focusing on two psychological processes that are activation and avoidance. Little is known about the relations between depressive symptoms and these two psychological processes. Then, this study investigates the predictive value of behavioural activation and avoidance on depressive symptoms. Since depression seems to be characterized by gender differences, this study investigates these relations depending on gender. Furthermore, gender differences in symptoms profiles are assessed. These two aims tend to replicate results from the study of Wagener, Baeyens & Blairy (2016). Three hundred and sixteen adults completed self-report scales centred on depressive symptoms (BDI-II) and behavioural activation and avoidance (BADS-SF). As in the initial study, our results show (1) a significant difference in symptomatology depending on gender for sadness and loss of interest in sex, (2) positive predictive values of behavioural avoidance on almost all depressive symptoms in both gender except for increase of sleep, (3) negative predictive values of behavioural activation on almost all depressive symptoms in both gender except for decrease of sleep and loss of interest in sex. The strengths of some of these relationships are different in gender in both study, but no consistent results were observed. Results support the notion that (1) depression is characterized by symptoms differences in function of gender and (2) behavioural activation and avoidance are two psychological processes to target in psychotherapy of depression.

P1.11 - Switch: a new intervention that targets motivation in people with schizophrenia : A pilot study

Bénédicte Thonon[1] & Frank Laroi[1,2]

1 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium
2 - Department of Biological and Medical Psychology, University of Bergen, Norway

People diagnosed with schizophrenia experience difficulties in their daily life, which is best explained by negative symptoms, particularly those linked to amotivation. Few interventions that focus on these symptoms exist. The goal of this study is to evaluate the effects of a new multifactorial intervention on negative symptoms, daily functioning and quality of life. The intervention Switch is based on a model of amotivation in schizophrenia and addresses various processes (i.e., anticipatory pleasure, defeatist beliefs, initiation...) by integrating multiple therapeutic approaches and tools. Switch included around 30 individual sessions over 12 months provided to 8 French-speaking participants with a diagnosis of schizophrenia or schizoaffective disorder. Participants and their informants (parents or staff members) were interviewed before the intervention and at 6, 12 and 18 months. Measures included the Brief Negative Symptom Scale (BNSS), the Functional Remission of General Schizophrenia (FROGS), and the Schizophrenia - Quality of Life scale (S-QOL). Paired sample t-tests showed important improvement on BNSS ($t=2.94$, $p<.05$, $d=0.98$), BNSS-motivation ($t=3,44$, $p<.01$, $d=1.15$) and FROGS ($t=2.55$, $p<.01$, $d=0.90$) after 6 months of intervention. No improvement on the S-QOL was observed. Analyses on the post-intervention evaluations are currently being run.

P1.12 - Adjusting to refractory epilepsy in young adulthood: The importance of patients' personality

Jessica Rassart[1], Koen Luyckx[1,2], Ludo Verdyck[3], Teus Mijnster[3], & Ruth E. Mark[4]

1 - KU Leuven, Belgium
2 - UNIBS, University of the Free State, Bloemfontein, South Africa
3- Kempenhaeghe Expertise Center Epilepsy, Oosterhout, The Netherlands
4 - Tilburg University, The Netherlands

Large inter-individual differences have been observed in how patients cope with their epilepsy. To gain more insight into these differences, the present study examined the role of patients' personality. More specifically, we examined mean-level differences in Big Five personality traits between young adults with and without refractory epilepsy and related these traits to patients' health-related quality of life (HRQOL). A total of 121 18-40 year old patients with refractory epilepsy (56% women) completed self-report questionnaires assessing personality, HRQOL, and seizure frequency and severity. Patients' Big Five scores were compared to those of a community sample matched on sex and age using paired samples *t*-tests. Hierarchical regression analyses were conducted to assess the predictive value of personality for HRQOL. Patients scored higher on neuroticism and agreeableness, and lower on openness as compared to controls. Demographic and epilepsy-related variables that were linked to patients' personality were sex, age at diagnosis, and seizure severity. Substantial associations were observed between patients' personality traits and their HRQOL, with neuroticism being the strongest predictor. Personality traits were found to be important predictors of how well patients adjusted to their epilepsy, pointing to the importance of assessing patients' personality during routine medical care.

P1.13 - Can implicit learning of auditory regularities reduce visual neglect symptoms?

Anaïs Servais, Thierry Meulemans, & Murielle Wansard

Université de Liège, Belgium

Patients with moderate neglect are able to extract visual regularities to direct their attention faster toward the neglected side. So, given the benefits of auditory stimulations in unilateral neglect, we hypothesized that implicit learning of auditory regularities could help patients reduce their rightward visual spatial bias, even if they suffered from more severe neglect. We compared the ability of neglect patients to exploit the predictive value of a cue to respond more quickly and accurately to targets on the left in two equivalent Posner spatial cueing task with either visual or auditory cueing. The majority of the cues (i.e. 80%) were invalid, indicating that the target would appear on the opposite side, although patients were not informed of this bias. Unlike our hypothesis, our results demonstrate that neglect patients are able to use the cue's predictability to orient faster their attention toward the left when the cues are visual, but not when they are auditory. However, the results of our case studies are hopeful because these show that some neglect patients are able to learn the cue-target relationship implicitly in auditory modality to reduce their rightward bias. Indeed, case studies reveal that there may be some dissociation between modalities.

P1.14 - Using immersive environments to asses sub-clinical forms of paranoia in the general population

Clara Della Libera[1], Etienne Quertemont [1], & Frank Larøi[123]

1 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium
2 - Department of Biological and Medical Psychology, University of Bergen, Norway
3 - Norwegian Center for Mental Disorders Research, University of Oslo, Norway

For around fifteen years, virtual reality has been used as a new tool for studying paranoia. However, the use of virtual reality is expensive and requires the modelling of avatars that remain far from realistic in terms of facial and bodily expressions. As an alternative, 360-degree videos allow the creation of immersive environments to be more accessible and much more human-like. The aim of the present study was to validate a set of 360-degree videos as tools to identify sub-clinical forms of paranoia in the general population. Three videos representing daily scenarios (with four to fifteen actors) were created in a bar, a lift and a library. One hundred and seventy participants were assessed in terms of their general tendency towards paranoia (trait paranoia) before they viewed one video (using an Oculus Go headset). Finally, participants completed the State Paranoia Scale and the Sense of Presence Inventory. For both the lift and the library videos: an adequate sense of presence was found, and significant correlations between trait paranoia and state paranoia indicated good convergent and divergent validity.The present study suggests that the use of 360° videos is a promising tool to study forms of paranoia in the general population.

P1.15 - Current trends in post-stroke virtual reality rehabilitation

Emily Mattheus[1], Hanne Huygelier[1], & Céline R, Gillebert[1,2]

1 - Department of Brain and Cognition, KU Leuven, Belgium,
2 - Department of Experimental Psychology, University of Oxford, UK

Recently, many reviews were published about the benefits of virtual reality (VR) for post-stroke rehabilitation. The goal of this study was to provide an overview of the topics that have been reviewed concerning post-stroke VR rehabilitation. More specifically, we aimed to establish commonly used concepts, definitions and trends within this new field. To this end, we searched PubMed, Web of Science, and Scopus for English reviews about VR rehabilitation in stroke patients. Then, of each review (n = 67) numerous characteristics were coded, such as: 1) systematic *versus* unsystematic review, 2) type of post-stroke impairment, 3) type of VR, 4) focus on efficacy *versus* feasibility, 5) definition of VR. Results indicated that most reviews were unsystematic and focused on motor impairments (82%). In addition, the majority of reviews discussed efficacy and not feasibility of VR therapies. Furthermore, reviews mainly focused on augmented virtuality and did not define VR. Our results suggest that there is need of systematic reviews about immersive VR therapies for non-motor impairments and about the feasibility of different VR therapies. A more fine-grained terminology regarding VR could contribute to this field.

Cognitive Neuroscience

12:00 – 13:00

Building : B31 | Room : Mahaim and surrounding area

P1.16 - Severity and recovery differences between left- and right-sided egocentric neglect

Ashley Ratinckx*[1,2], Margaret J. Moore*[1], Jacob M. Levenstein[1,3], Elitsa D. Slavkova[1], Grace Chiu[1], Kathleen Vancleef[1], M. Jane Riddoch[1], Céline R. Gillebert[1,2], & Nele Demeyere[1]

1 - Department of Experimental Psychology, University of Oxford, UK
2 - Department of Brain and Cognition, KU Leuven, Belgium
3 - Oxford Centre for fMRI of the Brain, University of Oxford, United-Kingdom
* Equal contribution

Many studies concerning visuospatial neglect solely focus on left-sided neglect. Recently, this has been suggested to be partly due to a selection bias, where left hemisphere patients are excluded due to aphasia. In this project we asked whether in an inclusively recruited acute stroke sample there were prevalence, severity and recovery differences between left- and right-sided neglect. We analysed existing data obtained in 329 stroke survivors assessed within three weeks post-ictus and again six months later. All participants had completed the cancellation task from the Oxford Cognitive Screen (Demeyere et al., 2015, Psychology Assessment). Our results showed that acute left-sided neglect was significantly more severe and prevalent than right-sided neglect. This can be the result of a right hemisphere dominance of the visuospatial attention system. We furthermore found a significant recovery difference between left- and right-sided neglect. However, when both neglect side and recovery were entered in a logistic regression model predicting recovery of neglect at six months, only neglect severity was a significant predictor of recovery outcome.

P1.17 - Association of circadian sleep-wake regulation and brain structure in older adults: a multi-modal approach

Michele Deantoni[1], Gregory Hammad[1] Micheline Maire[2,3,5], Mohamed Ali Bahri[1], Christian Berthomier[4], Christian Cajochen[2,3], Carolin Reichert[2,3], & Christina Schmidt[1,5]

1 - GIGA-CRC in Vivo Imaging research unit, Université de Liège, Belgium
2- Centre for Chronobiology, Psychiatric Hospital of the Universität Basel, Switzerland
3- Transfaculty Research Platform Molecular and Cognitive Neurosciences, Universität Basel, Switzerland
4 - PHYSIP, Paris, France
5 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium
6 - Institute of Primary Health Care, Universität Bern, Switzerland

The temporal organization of sleep and wakefulness evolves throughout the lifespan, leading to an increased sleep-wake fragmentation with ageing. However, how circadian aspects of sleep-wake regulation relate to brain structure during ageing is not known. We aimed at exploring whether cortical thickness and folding index, two measures for grey matter organization, are associated with an electrophysiology-derived index of circadian sleep-wake integrity. 28 young participants and eleven older participants underwent a 40-h multiple nap protocol encompassing 10 nap periods. Nap sleep efficiency over the circadian cycle was obtained with polysomnography and used as an index of circadian wake promotion (CWP). T1-weighted brain scans were analysed to extract two complementary indices of surface analysis: cortical thickness (CT) and the folding index (FI). The indices were put in correlation with the CWP. A general linear model showed that in the young group, CT was negatively linked to CWP while they were positively linked in older adults. For FI, a significant negative association between CWP and FI was observed in the older participants only. Our data suggest that at young age, circadian integrity is linked to higher values of mean cortical thickness, while in older participants circadian integrity is linked to higher levels of folding index, but lower levels of cortical thickness. Since both indices are associated with cognitive abilities, our data may indicate a role of circadian sleep wake regulation in cognitive decline.

P1.18 - Shared auditory and visual categorical representation in the occipito-temporal cortex of sighted and blind

Stefania Mattioni [1,2], Mohamed Rezk [1,2], Karen E. Cuculiza Mendoza [1], Ceren Battal [1,2], Roberto Bottini[1], Markus J. van Ackeren [1], Nikolaas N. Oosterhof [1], & Olivier Collignon*[1,2]

1 - Centre for Mind/Brain Studies, Università degli Studi di Trento, Italy.
2 - Institute of research in Psychology & Institute of Neuroscience, Université Catholique de Louvain, Belgium.

In absence of vision since birth, the Ventral Occipito-Temporal Cortex (VOTC) enhances its response to non-visual inputs. Whether this reorganization maintains a category-specific coding similar to the one observed in the sighted remains seldom understood. To address this question, we used fMRI to characterize the brain responses to eight categories presented acoustically in sighted and early blind individuals, and visually in a separate sighted group. Using a combination of decoding and representational similarity analyses, we observed that sounds represent in VOTC in both sighted and blind people using a categorical structure similar to the one found in vision, but with higher intra- and inter-subjects reliability in blind people. We observed that we could classify the different categories of auditory stimuli in both sighted and blind people but with higher decoding accuracy in the blind. In addition, the representational structure of the auditory categories was more correlated to the one observed in vision and to semantic models of our stimuli space in the blind than in the sighted group. Our results demonstrate that the enhanced sound representation in the VOTC of blind people builds on an intrinsic categorical organization that is partially independent from vision.

P1.19 - Magnetoencephalographic frequency-tagged responses as markers of visual statistical learning

Sara-Zohra Arrouf, Vincent Wens, Serge Goldman, Xavier De Tiège, & Julie Bertels

ULB Neurosciences Institute, Université Libre de Bruxelles, Belgium

Visual statistical learning (VSL) refers to the ability to extract and learn visual patterns in the environment. It is usually measured with post-exposure behavioural tasks, precluding the exploration of ongoing learning processes and limited by a lack of sensitivity. To overcome these biases, the frequency-tagging method has been recently used to study the neural responses mirroring the detection of regularities embedded in auditory (but not visual) streams. Here, we used that technique to evaluate whether frequency-tagged responses can mirror VSL. Participants (n=10) were first presented with a random stream of twelve shapes (6/s), and then with a statistical stream of the same shapes grouped as triplets (2/s). Their brain activity was recorded with magnetoencephalography. Behavioural tasks were then used to evaluate the implicit vs. explicit nature of their triplet knowledge. Single shape frequency-related responses were observed during exposure to both streams. Crucially, after exposure to the statistical (vs. random) stream, triplet frequency-related oscillations emerged in occipital areas. Behavioural results suggest that these brain responses occurred in the absence of explicit triplet knowledge. These findings demonstrate that frequency-tagging is a promising tool for studying VSL, notably in populations in which behavioural tasks cannot provide reliable measures of learning.

P1.20 - The impact of βeta-tACS on the consolidation of motor memory

Whitney Stee, Liliia Roschupkina, & Philippe Peigneux

Université Libre de Bruxelles, Belgium

The consolidation of motor memory is admitted to be a non-linear process undergoing some critical periods which are reflected by increase and decrease in performance. Thirty minutes after the end of the initial learning phase, gains in performance can be observed without any supplementary training (boost period). However, this early boost tends to disappear within the subsequent 4 hours (silent period), before being partially restored by sleep. Synchronized oscillatory activity between the areas in play during acquisition and consolidation of motor skills has been found to facilitate neuronal plasticity. Transcranial alternating current stimulation (tACS) has the particularity to be able to entrain the brain's oscillatory activity, affecting hereby cognitive processing and influencing brain plasticity. Previous data have revealed that 20 Hz stimulation over the primary motor cortex, which has strongly been linked to the acquisition and early consolidation of motor memory), during the boost period facilitated motor memory consolidation. However, no research investigated the effect of tACS on longer time scales, neither its effect during the silent period. Therefore, we aimed to explore the role of tACS at 20 Hz applied over M1 within critical periods and additionally, the memory changes appearing after an entire episode of subsequent nocturnal sleep.

P1.21 - Early blindness triggers an imbalance between temporal and occipital regions coding for auditory motion directions

Ceren Battal [1,2], Mohamed Rezk[1,2], Stefania Mattioni[1,2], Roberto Bottini[1], Giorgia Bertonati, Valeria Occelli[1], Stefano Targher, & Olivier Collignon [1,2]

1 - Center of Mind/Brain Sciences, Università degli Studi di Trento, Italy
2 - Institute for Research in Psychology & Institute of Neuroscience, Université Catholique de Louvain, Belgium

A region in the middle occipito-temporal cortex (hMT+/V5), classically considered as purely visual, enhances its response tuning to moving sounds in case of congenital blindness. However, whether hMT+/V5 contains information about sound directions and whether the impact of this crossmodal reorganization of hMT+/V5 on the regions typically dedicated to auditory motion, like the Planum Temporale (PT), remains equivocal. We used fMRI to characterize the brain activity of sighted and congenital blind individuals listening to left, right, up and down moving and static sounds. Whole-brain univariate analysis revealed preferential auditory motion response in both sighted and blind participants in a dorsal fronto-temporo-parietal network including PT, and in the most anterior portion of hMT+/V5. Blind participants showed additional auditory motion response in the more posterior region of hMT+/V5. Multivariate pattern analysis revealed auditory motion direction information in independently localized PT and hMT+/V5 in blind and sighted participants. However, decoding accuracies in the blind were higher in hMT+/V5 and lower in PT when compared to the sighted. Together, these results suggest that congenital blindness triggers a network-level reorganization that enhances the recruitment of occipital areas in conjunction with a release in the computational workload of temporal regions typically dedicated to spatial hearing.

P1.22 - Cry me a river: oxytocinergic modulation of ultrasonic vocalizations in neonatal mice

Carmen Winters[1], Rudi D'Hooge[1], & Guy Bosmans[2]

1 - Laboratory of Biological Psychology, KU Leuven, Belgium
2 - Parenting and Special Education Research Group, KU Leuven, Belgium

For us mammals, development starts in close proximity of a caring mother. Luckily, our neurobiology gives us a push in the right direction by forming attachment bonds. For rodent pups, the main behaviour to provoke maternal care is by emitting ultrasonic vocalizations (USVs) when separated by the mother. These calls are a robust behaviour which are modulated by attachment stimuli and can therefore be seen as attachment-related behaviour. By studying these USVs, we learn about the underlying mechanisms of neonatal separation distress. One key player in this rodent behaviour is the so-called 'love hormone', oxytocin. Today, oxytocin's role in social behaviours is widely accepted and more evidence is showing its fundamental role in the development of social behaviours. We used USVs as a read-out behaviour in mice to further investigate the role of the oxytocin/arginine vasopressin system in attachment.

P1.23 - Emotional regulation competences but not extraversion are related to the modulatory impact of tDCS on emotional regulation

Michel Hansenne, Pauline Goderniaux, & Romain Dumont

Department of Psychology, PsyNCog Research Unit, Université de Liège, Belgium

Previous transcranial direct current stimulation (tDCS) studies have suggested the beneficial role of dorsolateral prefrontal cortex (DLPFC) stimulation for improving emotional processing and regulation. Interestingly, dispositional traits like extraversion have been reported to modulate the impact of tDCS on emotional regulation. In this between subjects study, participants were randomly assigned to get active (anodal or cathodal) or sham stimulation over the left DLPFC. Participants watched negative, positive, and neutral pictures while attempting to decrease, increase, or maintain their emotional reactions. Positive and negative stimuli both composed 16 high and 16 low arousing stimuli. Subjective reactions were assessed after each picture. The main result shows that cathodal tDCS impairs the ability to regulate emotion in difficult conditions (i.e., decrease emotion for high negative arousing stimuli and increase emotion for low positive arousing stimuli). Moreover, results display that individual emotional regulation competences modulate the impact of anodal tDCS. In contrast, extraversion exhibits no relationship with the impact of tDCS. This study provides additional data on the use of tDCS as a tool to increase emotional regulation and suggests that the modulatory impact of tDCS would be more efficient in difficult regulation conditions among individuals with higher emotional regulation competences.

P1.24 - The effect of transcutaneous auricular Vagus Nerve Stimulation (taVNS) on noradrenergic markers in an auditory oddball task

Gustavo Villca Ponce, Martina D'Agostini, Andreas M. Burger, & Ilse Van Diest

Health Psychology, KU Leuven, Belgium

Findings suggest that taVNS, a noninvasive neurostimulatory technique, could enhance learning and memory. The hypothesized mechanism of action (MAO) for these effects is an enhancement of central noradrenaline (NA), but evidence for such MAO is very limited and primarily based on animal research. In a series of two studies, we aim to provide evidence for the effect of taVNS on NA activity in humans by studying its effect on NA activity indices, i.e., pupil size (PS, study1), P300 (study2) and salivary-alpha amylase (sAA, study1-2). 45 healthy participants are recruited for each study. Participants partake in a within-subject design in which they receive taVNS and sham stimulation on two separate days. During both days, participants perform a novelty auditory oddball task throughout which the pertinent noradrenergic outcomes are sampled. Individually calibrated stimulation intensity starts 10 minutes before the task, remaining constant until the end of stimulation. Tonic pupil dilation (study1) and sAA(study1-2) are measured at the start of the experiment, 10 minutes post-start and at the end of stimulation. TaVNS compared to sham stimulation enhances phasic and tonic PS, P300 and sAA. This project may provide first, indirect evidence for the hypothesized NA-enhancing effects of taVNS.

P1.25 - The Influence of Face Recognition Expertise on Representational Similarity in the Brain

Eva Bamps[1,2], Simon Faghel-Soubeyrand[2,3], Frédéric Gosselin[3], & Ian Charest[2]

1 - KU Leuven, Belgium
2 - University of Birmingham, UK
3 - Université de Montréal, Canada

The typical human visual system is able to decipher information about an individual's identity, gender, and emotional state from a face stimulus with impressive efficiency and speed (e.g. Jeffreys, 1996). However, face recognition ability varies tremendously among neurologically typical individuals (e.g. Duchaine & Nakayama, 2006; Russell, Duchaine, & Nakayama, 2009). People at the higher end of the ability spectrum are dubbed 'super-recognizers' (Russell et al., 2009). Nevertheless, a poor understanding of the neurological underpinnings of this superior face recognition ability prevails. Hence, the goal of this study is to investigate how brain representations could contribute to higher face recognition ability. We are collecting high-density EEG data obtained from 'super-recognizers' (N = 8 so far) and matched controls. We aim to investigate the temporal dynamics of representational geometries for learned and non-learned faces pre- and post-learning using Representational Similarity Analysis. As EEG provides precise temporal information about brain processes, tracking the representational changes related to learning new identities in the brains of super-recognizers, in contrast to controls, will help better understand individual differences in face recognition abilities. This, we hope, will enable us to establish the relationship between the super-recognizers' superior abilities with face recognition, and the supporting brain mechanisms.

P1.26 - The effect of low frequency stimulation on error related negativity

Bavo Kempen, Johannes Vlaeyen, Andreas von Leupoldt, & Diana M. Torta

Faculty of Psychology and Educational Sciences, KU Leuven, Belgium

Neurobiological sensitivity to environmental and endogenous threats plays a pivotal role in the survival of species, including humans. Both pain and errors are thought to reflect endogenous threats and consequently prime defensive motivations. In this study we investigated a bidirectional relationship between the sensitivity to errors and increased sensitivity to mechanical painful stimuli after intense pain. We recorded, using high-density EEG, the error related negativity (ERN), a negative potential occurring within 100 milliseconds after an erroneous response at a cognitive task (in our case the Flanker Task). Forty participants were recruited and either assigned to a control or an experimental group. Both groups performed a Flanker Task at 3 time points (T0, T1, T2). Only the experimental group underwent, between T0 and T1, T2 an experimental procedure known to increase the perceived intensity of mechanical pinprick applied on the sensitized arm. We measured whether: 1) the ERN values at T0 would predict the relative amount in increased sensitivity at T1; 2) the amplitude of the ERN was changed across time points. Our data confirmed that mechanical sensitivity was increased only in the experimental group, but did not support hypothesis 1. Evidence for hypothesis 2 was mixed.

P1.27 - Ultra-fast brain and behavioral categorization of voices

P. Calce Roberta[1], M Barbero Francesca[2], & O. Collignon[1,2]

1 - Università degli Studi di Trento, Italy
2 - Institute of research in Psychology & Institute of Neuroscience, Université Catholique de Louvain, Belgium

How short an auditory segment can be in order to be correctly categorized as a voice? Does our brain discriminate human voices even when we do not perceive it? In our study, we investigate the time limits in detecting human voice among other sounds. More precisely, we are testing participants in a behavioural and in an electroencephalography experiment to explore the link between perceptual voice discrimination and voice selectivity in the brain. We relied on Fast Periodic Auditory Stimulation (FPAS) oddball paradigm that has proven efficient to disclose voice categorization in an objective, direct, fast and automatic way. Participants listened to sequences, consisting of human voices and musical instruments samples matched for low-level features, such as harmonic to noise ratio (HNR) and fundamental frequency (f0). Preliminary results suggest that the brain is able to show voice selective response at unexpected fast presentation rate. We are now collecting more participants in order to determine the link between brain and behavior for voice categorization.

Cognition

12:00 – 13:00

Building : B31 | Room : Mahaim and surrounding area

P1.28 - Screening early for math learning difficulties with a nonverbal cross modal addition task

Max Greisen[1], Claire Muller[2], Tanja Baudson[1], Caroline Hornung[2], & Christine Schiltz[1]

1 - Cognitive Science & Assessment Institute, Université de Luxembourg, Luxembourg
2 - Luxembourg Centre for Educational Testing, Université de Luxembourg, Luxembourg

Although numerical skills are essential in modern societies, 5- 7 % of the population suffer from mathematical learning disabilities. Due to the hierarchical nature of mathematical knowledge, screening during the earliest stages of learning is essential to intervene efficiently. While different screening tools exist, they rely on verbal instructions and task content, hampering their usefulness in linguistically heterogeneous young school populations in which failure to understand the tasks leads to unfair assessment bias. We developed a computerized test battery that uses videos and animations to convey task instructions and problem content and recently published its proof of concept (Greisen et al., 2018). We have now completed a follow-up study aiming at the preliminary psychometric validation of the tasks and its findings will be presented here. Psychometric characteristics of each task and the entire battery will be presented and their predictive performance will be discussed in the light of performance on the Numeracy Screener (Nosworthy et al., 2013), the Tempo Test Rekenen (De Vos, 1992) and performance in the Luxembourgish National School Monitoring Tests (Epreuves standardisées / EPSTAN).

P1.29 - Impact of a reading aloud training program on reading fluency and comprehension abilities in struggling 6th grade language minority and low SES readers

Juliette Quadri, Justine Masson, & Martine Poncelet

Université de Liège, Belgium

Research evidence supports that reading fluency is a critical component of proficient reading and that intensive intervention can improve this ability in struggling readers (Rasinski, 2010). The aim of the present study was to examine the effects of a reading aloud training program on reading fluency and comprehension abilities in language minority and low SES 6th grade poor readers. Twenty-four pupils were randomly assigned to intervention or control groups. The two groups were matched for initial vocabulary knowledge, reading and non-verbal intellectual abilities. The intervention consisted in a reading aloud training program (with activities of repeated reading, continuous reading and prosody training) provided for 40 minutes per day, 3 days a week, for a total of 20 sessions. Following the intervention, the two groups did not differ significantly from each other on a measure of reading fluency (reading aloud for one minute), but intervention group performed significantly better on a timed silent reading comprehension task (choosing the word that completes the sentence). These results suggest that a reading aloud specific intervention can improve reading comprehension in language minority and low SES poor readers.

P1.30 - Teaching Children Spatial Reasoning Strategies

Kevin Demiddele, Tom Heyman, & Walter Schaeken

KU Leuven, Belgium

When reasoning with simple transitive relations (such as ‘is left of’), children are known to have difficulties representing multiple possibilities. In this pre-registered study, we examine the effect of two training strategies on the reasoning performance of 204 11-year-olds. The reasoning tasks consisted of premises on the relative position of objects (e.g. ‘the book is left of the pen’) on the basis of which they had to choose a correct conclusion on the spatial relation that was not explicitly described in the premises. When they finished half of the tasks, we provided them a brief training session, based on mental model building strategies. We taught them how to represent multiple possibilities, either by representing multiple models or by representing isomeric models, i.e. single models that can represent uncertainty. There was a strong effect of training, especially on the targeted problem type of multiple model problems with no valid conclusion. The participants in the isomeric training condition scored slightly better than those in the multiple model condition and the isomeric notation proved more intuitive. Based on these results, we question the default way of characterizing multiple mental models in literature.

P1.31 - Using the congruency effect with the method of loci to enhance episodic memory in aging

Emma Delhaye[1,2,3] & Christine Bastin[1,2]

1 - GIGA-CRC In-Vivo Imaging research unit, Université de Liège, Belgium
2 – Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium
3 - Memory clinic, University Hospital of Liège, Belgium

The Method of Loci (MoL) is a mnemonic strategy known to improve episodic recall, in which people imagine navigating a familiar environment and associate the to-be-remembered items with specific locations, and subsequently re-imagine walking through the environment in order to recall the associated items. Congruency between items has also been shown to enhance episodic memory and associative memory. In this study, we tested the impact of object-location congruency within the MoL to improve the age-related decline in associative memory. Results in 24 young and 23 older participants showed that recall of congruent items was better for both groups compared with the recall of incongruent items, which did not differ from recall performance under a condition in which no support was provided (baseline condition). Moreover, although older adults performed systematically more poorly than young adults, effect sizes indicated that the group difference was reduced in the congruent condition, where older adults displayed their better performance, while the group difference was the greatest in the incongruent condition where older adults displayed their poorest performance, which was worse than in the baseline condition. This suggests that the age-related benefit of the MoL can be boosted by the congruency between objects and locations.

P1.32 - Cognitive efficiency in late midlife is linked to cognitive reserve and allostatic load

Justinas Narbutas[1,2], Maxime Van Egroo[1], Daphne Chylinski[1], Pamela Villar González[1], Claudia Garcia Jimenez[1], Catherine Hagelstein[1], Eric Lambot[1], Gabriel Besson[1], Pouya Ghaemmaghami[1], Grégory Hammad[1], Vincenzo Muto[1], Christina Schmidt[1,2], Eric Salmon[1,2,3], Pierre Maquet[1,3], Christine Bastin[1,2], Gilles Vandewalle[1] & Fabienne Collette[1,2]

1 - GIGA-Cyclotron Research Centre-In Vivo Imaging research unit, Université de Liège, Belgium
2 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium
3 - Department of Neurology, University Hospital of Liège, Belgium

We investigated how cognitive efficiency in late midlife is explained by cognitive reserve (education, vocabulary, occupation, leisure), affective state (depression, anxiety), allostatic load (physiological markers of stress), and sleep quality (actigraphy, subjective sleep quality, subjective sleepiness). Sixty-eight healthy late middle-aged participants (50-69 y.o.; mean 60 ± 5; 46 females) were included. Cognitive efficiency was assessed with the Preclinical Alzheimer's Cognitive Composite (PACC5) modified score. General linear mixed models, controlling for sex and age, revealed that higher cognitive reserve was significantly associated with better cognition [$F(1,62) = 10.95$; $p = .002$], and more specifically, level of vocabulary was significantly positively associated with cognitive efficiency [$F(1,59) = 13.94$; $p = .0004$]. Moreover, higher allostatic load was significantly associated with poorer cognition [$F(1,58) = 5.29$; $p = .03$], and more specifically, sympathetic functioning was significantly negatively associated with PACC5 [$F(1,52) = 6.08$; $p = .02$]. However, neither affective state, nor sleep quality were linked to PACC5. Finally, cognitive reserve and allostatic load were both significant predictors of cognitive efficiency when put together in one model. The results show that previous lifestyle characteristics and current physiological status are simultaneously explaining variability in cognitive abilities in a healthy late middle-aged population.

P1.33 - Daytime napping as an index of sleep-wake fragmentation and its impact on cognition

Mathilde Reyt[1], Alizée Latteur[1], Christina Schmidt[1,2], Vincenzo Muto[1], & Gregory Hammad[1]

1 - GIGA-CRC in Vivo Imaging research unit, Université de Liège, Belgium
2 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium

Temporal organization of sleep and wakefulness evolves throughout the adult lifespan, leading to higher sleep-wake fragmentation. Here we explored day-time napping as an indicator of this fragmentation and its impact on cognitive performances. Actimetry data (Actiwatch plus device, Cambridge Neurotechnology) were collected for 35 older participants (57-85 years, 18 women, 19 chronic nappers [naps > 20 min/day, > 3*week, since >1 year]). Sleep fragmentation was explored by estimating transition probability to rest during daytime (kAR). Wake fragmentation was assessed by transition probability into activity during night-time (kRA) and the fraction of sleep in the afternoon (fSOD). Cognitive performances were evaluated by a composite score of executive functions and a composite score of global cognition. Nappers presented higher wake fragmentation compared to non-nappers (fSoD: $p<0.01$). However, no difference was observed for sleep fragmentation (kRA: $p=0.6$). A multivariate analysis (dependent variables: cognitive scores, predictors: actimetry-derived indices and demographic data) revealed that increased fSoD is associated with a decreased of cognitive performances ($p<0.05$), especially for executive functions ($p<0.01$) including cognitive function. The volume of afternoon sleep, estimated by actimetry, can be used as a quantitative measure of day-time napping. This wake fragmentation index seems to be involved in cognitive fitness at older age.

P1.34 - Semantic distance in learning and generalization of novel names: the case of atypically developing children

Arnaud Witt[1], Jean-Pierre Thibaut[1] & Annick Comblain[2]

1 - Université de Bourgogne-Franche-Comté, France
2 - Université de Liège, Belgium

Children often learn the extension of novel words with a limited number of exemplars. There is evidence that the opportunity to compare stimuli is beneficial for learning and generalizing novel names in typically developing (TD) children. This is important since they are in need of well-devised learning situations. We manipulated the role of semantic distance within training stimuli and between training and test stimuli and their influence on taxonomically-based generalization. We hypothesized more difficulties for ID children especially in “larger” semantic distance cases. Our results revealed that ID children were better than the matched TD children, suggesting functional lexical learning mechanisms. Even ID low-Raven-scores children, surprisingly, obtained better results than high-Raven-scores TD children. ID children, who were significantly older than TD children, could rely on their more developed world knowledge to learn and extend novel names. Close generalization was also significantly better than far generalization. We interpret our results in terms of cognitive constraints associated with comparison activities which might impact LR children in remote conceptual domains. We predict that ID participants should experience more difficulties with less familiar conceptual domains or with more difficult concepts such as relational concepts, which we currently test.

P1.35 - Looking at artistic photographs: Shedding light on beauty and the eyes of its beholder

Nathalie Vissers, Marie Bertels, Johan Wagemans

KU Leuven, Belgium

Photography's history is short, yet we cannot imagine a world without it anymore. On a daily basis, we are all 'reading' photographs, interpreting them, communicating through them, judging them, being affected by them, and changing our behaviours because of them. Yet, despite the omnipresence of our interactions with photography, our scientific understanding of the perceptual and aesthetic effects of photographs is surprisingly limited. Inspired by the main author's own experience within the art photography world, as well as by theoretical and empirical work in the field of empirical aesthetics, we are focusing on a set of 233 high-level artistic photographs with the aim of unravelling the processes and factors that influence people's aesthetic appreciation of photography. Specifically, in a large-scale study (N = 259) we asked viewers to do several tasks, such as hierarchical sorting, alternative forced choice tasks and rating tasks (e.g. pleasure, interest, meaning). With this information, we aim to find out what aspects of the photographs people attend to, as well as the influence of fluency, composition and context information on how people aesthetically appreciate photographs. In this presentation, we will give some first insights from wandering this highly interesting middle ground between art (photography) and science.

P1.36 - The effect of sleep fragmentation and cyclic pattern locomotor inactivity during sleep on executive performances in elderly

Maurine Salmon, Mathilde Reyt, Christina Schmidt, Jessica Simon, Alizée Latteur, Fabienne Colette, Vincenzo Muto, & Grégory Hammad.

GIGA-CRC in vivo imaging and Psychology & Neuroscience of Cognition research units, Université de Liège, Belgium

Analytical approaches have been used to quantify actimetry-derived sleep fragmentation and cyclic pattern locomotor inactivity during sleep (LIDS). We assessed whether such markers are associated with executive performance in elderly. Actimetry and executive performance scores (EP; Stroop and Plus Minus task) of 171 participants from 3 experiments (92 women, 57-85y.) were analysed. The probability to switch from rest to activity during the night (kRA, index of sleep fragmentation), as well as the dampening factor (DF) and period (P) of LIDS were extracted as a proxy of intact rapid eye movement (REM-) and non-NREM sleep alternation. As aging has been associated with increased sleep fragmentation but also a decreased LIDS slope, we assumed that lower DF and higher kRA is linked to altered EP. Exploratory results reveal a significant association between Stroop interference and LIDS period ($p<0.05$). The association between overall sleep fragmentation and EP was not significant. For the latter, effect size calculation (eta-square=0,0148) reveal that adding data of another available cohort may lead to expected effects with desired sample size. A longer period of inactivity may be a period without REM which can negatively impact EP. Further analyses should test whether a young-like DF-phenotype is associated with better EP.

P1.37 - Older adults do not always rely on the amount of episodic details when judging the subjective quality of their memories

Adrien Folville, Arnaud D'Argembeau, & Christine Bastin

GIGA-CRC in vivo imaging and Psychology & Neuroscience of Cognition research units, Université de Liège, Belgium

Although healthy aging is related to a decline in recollection as indexed by objective measures, the subjective experience of recollection remains stable. To date, however, studies have only examined these age-related effects using aggregated data across trials, such that the relationship between subjective and objective measures of recollection on a trial-by-trial basis remains unknown. To address this question, young and older adults performed a cued recollection task of pictures that were associated with descriptive labels at encoding. At retrieval, participants were cued with the labels and were asked to rate the vividness of their memory of the picture and to recall as many details of the picture as they could. Multilevel analyses revealed that, across trials, the relationship between subjective (vividness) and objective (free recall) recollection was stronger in young than in older participants. However, when requested to recall the content of the picture before assessing vividness, older adults calibrated their subjective judgements on the amount of retrieved details to the same extent as young adults. These results provide evidence that older adults not only retrieve fewer episodic details but also rely on these details to a lesser extent than young adults for judging the subjective quality of their memories.

P1.38 - The impact of age on the temporal compression of daily-life events in episodic memory

Adrien Folville, Olivier Jeunehomme, Christine Bastin*, & Arnaud D'Argembeau*

GIGA-CRC in vivo imaging and Psychology & Neuroscience of Cognition research units, Université de Liège, Belgium
*Equal contribution

Recent evidence suggests that the dynamic flow of information that constitutes daily-life events is remembered as moments of prior experience separated by temporal gaps. To date, however, how aging impacts this process of compression of past experience in episodic memory has received little attention. To examine this question, young and older adults incidentally engaged in daily-life activities while wearing a camera. Subsequently, participants were cued with pictures taken by the wearable camera and were asked to mentally relive corresponding events in as much detail as possible. Results revealed that rates of temporal compression of events when remembering were similar in young and older adults. In both groups, these rates of compression were higher when remembering goal-directed actions compared to spatial displacements. Furthermore, the amount of detail within recalled moments did not differ between age-groups. Taken together, these results support the view that episodic memories represent the unfolding of events as compressed short-time slices of past experience. Our findings also suggest that these mechanisms of compression remain stable with increasing age which highlights the importance of using ecological approaches that capture the complexity of real-life events to examine age-related changes in episodic memory.

P1.39 - Virtually capable of anything: Evidence for a game transfer phenomenon of space perception between virtual and real-world environment

Arthur Pabst, Pierre Mengal, Stéphane Grade, & Martin G. Edwards

Université Catholique de Louvain, Belgium

Game Transfer Phenomena (GTP) research suggests a transfer of perceptual experiences when interacting between virtual environments (VE) and real-world environments. Within VE, recent experimental work showed that extending participants' reaching range by elongating their virtual arm led participants to overestimate their ability to reach to VE objects and to underestimate the VE objects' distance. The present study investigated whether altered space perception would remain after exiting the VE. Forty students were immersed twice in a VE in which they interacted with virtual objects with a virtual hand. Their reaching range was manipulated so that they either had a virtual hand that matched their real hand's location, or the virtual hand was extended by thirty centimetres from the real hand location. After immersion, objects were projected on a table along the sagittal axis (in the real-world) and participants estimated whether they could reach the object (YES or NO) and the sagittal object's distance. Results replicated those of the previous study and support the occurrence of a GTP. Following the extended compared to matched hand location, participants perceived that they could reach more objects and estimated the objects as closer. Theoretical and practical implications are discussed.

P1.40 - The affordance effect in a third-person virtual embodiment

Pierre Mengal & Martin Gareth Edwards

Université Catholique de Louvain, Belgium

Embodiment is composed by three automatic processes: (i) transformation of self-location to an avatar's body, (ii) agency and the illusion of control, and (iii) ownership and the belief that the avatar is our own body. Studies in immersive virtual reality (IVR) have investigated first-person embodiment, but few studies have explored third-person embodiment. Here, we investigated whether affordance effects that are normally dependent upon a first-person perspective, would emerge from an embodied third-person avatar that we created in IVR. The stimuli consisted of a table with four chairs, and the avatar positioned on either of the four chairs (i.e., 0-90-180-270 degrees from the participant's physical body position). Participants were presented with objects having handles oriented to the left or right. The objects were coloured, and the participant was asked to press buttons corresponding to the colour. In the standard affordance paradigm, participants are quicker to press the button if the colour and handle position is congruent compared to incongruent. Here, we showed strong affordance effects based on the relative position of all four avatar positions. The direction of the effect was consistent and not that of the participant's physical body. This provides evidence for virtual third-person embodiment.

P1.41 - Automatic imitation of multiple agents: A computational model

Emiel Cracco[1] & Richard P. Cooper[2]

1 - Universiteit Gent, Belgium
2 – Birkbeck University of London, UK

There is accumulating evidence that we represent others' actions in our own motor system, and that this leads to automatic imitation. Interestingly, whereas early work focused on observing a single agent, recent studies indicate that the actions of multiple agents can be represented simultaneously. Yet, theorizing has lagged behind. In the current poster, we extend the dual-route model of automatic imitation to include multiple agents, and demonstrate, in five simulation studies, that the extended model is able to capture four critical multi-agent effects. Importantly, however, it was necessary to augment the model with a dynamic control mechanism regulating response inhibition based on the number of observed actions. Furthermore, additional simulations showed that this mechanism could be driven by response conflict. Together, our results demonstrate how theories of automatic imitation can be extended from single- to multi-agent settings. As such, they constitute an important step towards a mechanistic understanding of social interaction beyond the dyad.

P1.42 - Does verbal working memory capacity impact gesture/speech integration? Building of a study

Kendra Kandana Arachchige, Isabelle Simoes Loureiro, Mandy Rossignol, & Laurent Lefebvre

Université de Mons, Belgium

Iconic gestures represent a form of non-verbal communication intended to convey meaning during conversation. This meaning is linked to the verbal speech it accompanies suggesting a simultaneuous online processing of the spoken words and gestures. Given the nature of the processing, we could expect an involvement of the verbal working memory (VWM). The aim of this study is to put forward a potential link between the VWM and the processing of speech related gestures. The first part assessed participant's individual verbal span through the WAIS verbal span test. The results (n_{span}) allowed us to determine the level of difficulty for the computerized task. The latter presented a primary/secondary task design. Participants were required to remember (secondary task) a series of words ($n_{words} = n_{span}$) while needing to classify an audio information as arising from the voice of a man or a woman (primary task). Following their classification, they needed to recognize the previously presented words from an array of words. This study is currently ongoing, results will be presented and discussed during the conference. Given the individualized loading of the VWM, we expect to observe a decrease in perfomance on the primary task among participants with higher verbal spans.

P1.43 - A validation study examining two response modes in number line estimation

Kelsey J. MacKay, Filip Germeys, Lieven Verschaffel, Wim Van Dooren, & Koen Luwel

KU Leuven, Belgium

In number line estimation (NLE), participants respond with either a pencil (paper-and-pencil variant), or a mouse (computerized variant). However, using a pencil/mouse might allow participants to hold the pencil/mouse at the midpoint, thus creating an external benchmark. Problematically, external benchmarks on the NLE task improve estimates (Peeters, Verschaffel, & Luwel, 2017). Our aim was to determine if answering with the eyes can be a less biased estimation method, by comparing answering with the mouse and answering with the eyes (using eye-tracking). Adults (N = 33) positioned 54 numbers on a 0-1000 number line in a mouse condition (i.e., respond with the mouse) and an eye condition (i.e., fixate on the number line). Results showed moderate and strong significant correlations in participants' accuracy (r = .51) and reaction times (r = .84), respectively, between the two conditions. Also, participants were significantly slower and more accurate in the mouse than in the eye condition. For the eye-tracking data, 5 equal-sized interest areas were made across the number line to investigate benchmarking on the number line. Eye-tracking data will be presented across these interest areas for both conditions. Future research using paper-and-pencil or mouse-and-computer NLE tasks should consider the potential additional external benchmark.

P1.44 - Is there a reduction in serial order working memory abilities in healthy aging?

Coline Grégoire[1], Séverine Fay[2], & Steve Majerus[1]

1 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium
2 - Psychology Department, CeRCA - UMR-CNRS 7295, Université de Tours, France

The preservation of the ability to maintain information over the short-term in healthy aging remains a controversial question. Here we focused on one of the most challenging aspects of verbal working memory (WM), the ability to not only maintain verbal events but to also maintain their serial order of occurrence. An immediate serial recall task was administered to 30 young adults (18-30 years) and 30 older adults (60-80 years). Participants had to recall sequences of words or nonwords, from 2 to 7 items per sequence. They were matched for level of education and verbal intellectual efficiency Bayesian statistics showed moderate evidence for an absence of group effect for the total number of items recalled irrespectively of the items' serial position (BF_{01} = 3,25 for words, BF_{01} = 1,26 for nonwords). When also scoring serial position information, we observed anecdotal evidence in favor of a group effect (BF_{10} = 2,9 for words; BF_{10} = 0,5 for nonwords). These results suggest that if there is a reduction of verbal WM abilities in healthy aging, it is very small and limited to the maintenance of serial order information.

P1.45 - Feeling bad about being sad: A cross-cultural examination of the perceived social pressure to avoid feeling negative emotions and its role for well-being

Sophie Hölscher, Marbella Perez, Egon Dejonckheere, Peter Kuppens

KU Leuven, Belgium

Valuing happiness and rejecting negative emotions such as sadness is a salient norm in Western society. Normal negative emotions are pathologized and their potential benefits ignored. Paradoxically, social pressure to feel happy and to not experience such negative emotions has been associated with a range of negative consequences, such as increased negative emotions, depression, and loneliness. This occurs because emotions are weighed against these societal standards, which most individuals cannot live up to. When this happens, a feeling of failure ensues as there is a mismatch between one's emotional experience and others' expectations. The current project aims to study the pressure to avoid negative emotions and its relation to well-being from a cross-cultural perspective using multilevel regression models. Three aims will be pursued: first, a replication of the relation between social pressure to be happy and not sad and well-being will be conducted on an individual and country level. Second, individual and country level variables associated with social pressure, such as gender, religion and individualism, will be investigated. Third, moderating factors between social pressure to be happy and not sad and well-being will be examined across cultures. Results pending.

P.46 - Tip of the Tongue state

Sara Wysk[1], Kim Archambeau[1], Astrik Khmoyan[2] & Wim Gevers[1],

1 - Université Libre de Bruxelles, Belgium
2 - Universiteit Amsterdam, The Netherlands

The Tip of the Tongue state (ToT) refers to the well-known feeling that we are about to retrieve a word from memory but fail to do so. ToT states within an individual have been extensively studied. However, much less is known about the ToT phenomenon in interaction between individuals. In this study, the ToT was studied in an interaction between an accomplice and a real participant. Taking turns, the accomplice and the participant responded to general knowledge questions. Participants had to indicate whether they knew the answer, didn't knew the answer, or had a ToT experience. Taking turns every two questions enabled us to study the influence of the social context (e.g. I respond to a question in a social context, but I also responded to the previous question myself) and to see if the experience of a ToT is contagious (e.g. I respond to a question in a social context, and the previous question was responded to by the accomplice). Initial pilot data indicate that the ToT experience can indeed be contagious with more ToT experiences reported when the accomplice indicated having a ToT compared to when the accomplice indicated he knew or didn't know the answer.

P1.47 - The effects of the self-monitoring of daily activities on depressive symptomatology and emotional awareness

Clarence Kayembe, Florence Boldo, & Sylvie Blairy

Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium

Recent studies have highlighted a potential positive impact of self-monitoring of daily activities on depressive symptoms and emotional awareness. The present study investigated whether the evaluation of all daily activities on the 3 following dimensions: pleasure, control and personal importance may improve depressive symptoms and emotional awareness compared to no specific evaluation. Twenty adults have been recruited and divided into 2 groups. All the participants have been invited to report theirs activities in a detailed diary, day by day, hour by hour, during two weeks. One group has been required to evaluate the reported activities on specific scales measuring the feelings of pleasure, control and personal importance. The evaluation of daily activities is accompanied by an improved mood, greater behavioral activation and less rumination. Contrary to expected no effect on emotional awareness has been observed. In line with previous studies, the results support the notion that relating daily activities to positive feelings may contribute to improve depressive symptoms. The role played by cognitive processes and more specifically emotional awareness will be discussed.

P1.48 - Defining ourselves: Past and future self-defining events increase the accessibility of psychological self-concepts

Claudia Garcia Jimenez & Arnaud D'Argembeau

Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium

Recent research suggests that the retrieval of self-defining memories (SDMs)—the memories of the most important events in our lives—influences an individual's current sense of self and identity, notably by increasing the tendency to conceptualize oneself in relation to psychological traits. In addition to being supported by such memories, our current sense of self may also be nourished by the anticipation of meaningful future events—referred to as self-defining future projections (SDFPs). To test this hypothesis, this study examined how SDFPs and SDMs modulate the current sense of self and identity. Three groups of participants wrote a description of a SDFP, a SDM or a non-self-related control topic, following which they had to provide ten stable aspects of their identity in the form of statements beginning with "I am." Participants engaging in SDFP and SDM descriptions generated significantly more psychological self-statements than those in the control condition. These results suggest that the act of projecting oneself into meaningful future events modulates the current sense of self to the same extent as autobiographical memory retrieval, by increasing the accessibility of psychological, trait-like self-conceptions.

P1.49 - The effect of cognitive effort on the sense of agency

Yannick P. J. Murray, & Eva Van den Bussche

Brain and Cognition, KU Leuven, Belgium

When performing a task, the feeling of being in control of the outcome of this task is known as the sense of agency. A few studies have examined whether the cognitive effort that a task requires has an impact on this sense of agency. Interestingly, they showed that performing high demanding cognitive tasks can both decrease and increase sense of agency. We propose that this depends on whether the required effort is anticipated or not. To study this, we asked participants to perform a flanker task. The proportion of effortful incongruent trials was manipulated. Blocks with 80% and 20% incongruent trials served as contexts where effort could be anticipated or not, respectively. In addition, a block with 50% incongruent trials was included to measure current-trial and previous-trial effort. Intentional binding, measured using an interval reproduction task after every trial, was used to index sense of agency. We expect that sense of agency will be high when effort can be anticipated (i.e., after a previous incongruent trial or in a high effort context), compared to when effort is required unexpectedly (i.e., on the current trial or in a low effort context). Results will be presented at the conference.

P1.50 - Time to turn off lights? Effects of testing moment in the sleep-wake rhythm

Aurélie Zaros & André Ferrara

Université de Liège, Belgium

The daily light-dark cycle allows the synchronization of behavioural and physiological processes to the external environment. Light is the most important environmental cue or *zeitgeber* that coordinate many aspects of physiology and behaviour such as activity, maintenance behaviours, alertness, body temperature, hormonal regulation or long-term potentiation (i.e. a process that plays a key role in memory consolidation). Mice are among the main animals used in behavioural neuroscience and preclinical research laboratories. Although they are nocturnal animals, mice are generally tested during day (i.e. their resting phase). Thus, the testing moment might be a predominant variable that can affect animal behaviour and cognition and from there, all the inferences we make about behavioural and cognitive processes. In this study, several behavioural and cognitive components such as activity, motivation, learning and behavioural flexibility have been evaluated. We assumed that C57/BL6 mice should perform better and show higher activity rate while tested during night. Although we didn't find any differences between testing conditions in behavioural or cognitive performance, several factors can explain this absence of effects such as nature of the task, presence of *zeitgeber*, modulation of arousal, light pollution as well as light conditions during the test itself.

P1.51 - Directed Forgetting of Associative Fear Memories.

Niels Vanhasbroeck, Anastasia Chalkia, & Tom Beckers

Center of Learning and Experimental Psychopathology & Leuven Brain Institute, KU Leuven, Belgium

People can successfully be instructed to forget information presented to them using a directed forgetting manipulation. Until now, research on directed forgetting has focused on declarative memories only, ignoring other types of memories such as associative memories. To assess whether the directed forgetting effect can be extended to associative memories, we developed a novel procedure that implements a directed forgetting manipulation in a fear-conditioning protocol. 24 simple line drawings were presented one at a time, 12 of which were paired with a mild shock (CS+), while the other 12 were not (CS-). Critically, half of the stimuli from each category were followed by an auditory cue that indicated that memory for those trials would not be tested afterwards. The skin conductance response served as a measure of fear memory, while declarative memory retention was assessed with a free recall and recognition task. Participants exhibited decreased fear responding for the CS+ items that they were instructed to forget, compared to the CS+ items they were required to remember. Further, they recalled and recognized fewer of the items they were instructed to forget. Our findings provide preliminary evidence for a directed forgetting effect in associative memories.

Language

12:00 – 13:00

Building : B31 | Room : Mahaim and surrounding area

P1.52 - I like you better when you are coherent. Narrative coherence has a positive impact on socio-emotional responses of the listener

Lauranne Vanaken[1], Patricia Bijttebier[2], & Dirk Hermans[1]

1 - Centre for the Psychology of Learning and Experimental Psychopathology, KU Leuven, Belgium
2 - School Psychology and Development in Context, KU Leuven, Belgium

Research has indicated that a supportive social network confers resilience to stress and is essential for maintaining good mental health. We can develop and nurture social relationships through conversing about past personal experiences, which essentially entails retrieving and sharing our autobiographical memories. Furthermore, we know that there are numerous individual differences herein, one of which is autobiographical memory coherence, or narrative coherence. Coherence has been related to psychological well-being, however, underlying mechanisms remain unclear. We suggest a model in which social functioning mediates the association between narrative coherence and well-being. In an experimental study (N = 96), we investigated whether narrative coherence of the speaker impacted socio-emotional reactions of the listener. We predicted that an incoherently narrated memory would arouse negative feelings in the listener, possibly causing social support to diminish, whereas a coherent one would be reinforced by receiving positive social feedback and support. Results were mostly in line with our hypotheses, as participants showed more willingness to interact, more empathy and trust, more positive feelings, less negative feelings and more instrumental support towards those that talked in a coherent manner about their autobiographical memories in comparison to those that talked in an incoherent manner.

P1.53 - Reappearance of command-following is associated to recovery of language and consciousness networks: A longitudinal multiple-case report

Charlène Aubinet[1], Rajanikant Panda[1], Stephen Karl Larroque[1], Helena Cassol[1], Mohamed Ali Bahri[2], Manon Carrière[1], Sarah Wannez[1], Steve Majerus[3], Steven Laureys[1], & Aurore Thibaut[1]

1 - Coma Science Group, University Hospital of Liège, Belgium
2 - GIGA-Cyclotron In Vivo Imaging research unit, Université de Liège, Belgium
3 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium

After a severe brain injury, patients can regain some slight signs of consciousness, while not being able to functionally communicate. This minimally conscious state (MCS) was divided into MCS- and MCS+, respectively based on the absence or presence of language-related signs of consciousness. Here we aim to describe retrospectively the longitudinal recovery of these specific language-related behaviours using neuroimaging measurement. Among 209 chronic MCS patients admitted to our centre from 2008 to 2018, 19 were assessed at two time points by means of repeated Coma Recovery Scale-Revised, positron emission tomography and magnetic resonance imaging (voxel-based morphometry). Three of them were diagnosed as MCS- during their first stay and had recovered command-following when they were reassessed (i.e., MCS+). As compared to their first assessments, when the three patients were in a MCS+, they showed less hypometabolism and/or higher grey matter volume in brain regions such as the precuneus and thalamus, as well as the left caudate and temporal/angular cortices known to be involved in various aspects of semantics. According to these preliminary results, the reappearance of language-related behaviours was concomitant with the recovery of metabolism and grey matter in neural regions that have been associated with self-consciousness and language processing.

P1.54 - How do children with Developmental Language Disorders extend novel words?

Magali Krzemien, Emilie Levaux, & Christelle Maillart

Childhood research unit, Université de Liège, Belgium

Developmental Language Disorder (DLD) has been related to a generalization deficit in morphosyntax (Riches, Faragher, & Conti-Ramsden, 2006), but little is known about the lexical area. In this study, we examine generalization for new lexical categories in children with DLD compared to age-matched and vocabulary-matched children. We created novel object names (solid objects, animated objects and non-solid substances) and novel relational nouns (roles and spatial relations). Children are provided with an exemplar of a new word and are asked to find another one among three solutions. If they fail, they are shown two exemplars of the same word, and if they fail again, they are shown three exemplars. Results indicate that children with DLD perform worse than their age-matched peers in extending a novel substance name or a relational noun. They need more exemplars for these words than for solid objects, in contrast with their typically developing peers. They also rely on salient and concrete features to extend relational nouns, when these features are not suitable ones. To conclude, children with DLD do have generalization difficulties in the lexical domain, especially for abstract nouns such as relational ones. They also need varied exemplars for this type of words, as they tend to rely on salient features instead of structural ones.

Biological psychology & statistics

12:00 – 13:00

Building : B31 | Room : Mahaim and surrounding area

P1.55 - The explicit use of PRISMA and its effect on the reporting completeness of meta-analyses in the field of behavioural and social sciences

Victoria Leclercq[1], Charlotte Beaudart[1], Sara Ajamieh[1], Véronique Rabenda[1], Ezio Tirelli[2], & Olivier Bruyère[1]

1 - Department of Public Health, Epidemiology and Health Economics, Université de Liège, Belgium
2 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium

We investigated the effect of the explicit use of PRISMA, a statement designed to help authors to report meta-analyses (MAs), on the reporting quality of MAs in behavioural and social sciences. We evaluated a random sample of 207 MAs indexed in PsycINFO in 2016; 100 explicitly used PRISMA and 107 did not. Two authors independently checked the 27 PRISMA items and extracted factors that could potentially be associated with reporting quality. From our 207 MAs, perfect adherence to PRISMA was found in less than 4%, of which 87% explicitly used PRISMA. The following items were significantly more frequently encountered in MAs that explicitly used PRISMA: structured summary, protocol and registration, information sources, search strategy, study characteristics, results of individual studies, funding, study selection, risk of bias in individual study and bias across studies. The journals' impact factors, the endorsement of PRISMA by the journal, the number of authors, the country of the first author, the open access of the article and the design of the studies were significantly and positively associated with the explicit PRISMA use. Even if far from optimal, the explicit use of PRISMA has a positive influence on the reporting completeness of MAs.

P1.56 - The methodological quality of meta-analyses in behavioural and social sciences: leads for enhancements according to AMSTAR 2

Victoria Leclercq[1], Charlotte Beaudart[1], Sara Ajamieh[1], Véronique Rabenda[1], Ezio Tirelli[2], & Olivier Bruyère[1]

1 - Department of Public Health, Epidemiology and Health Economics, Université de Liège, Belgium
2 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium

We investigated the methodological quality in meta-analyses (MAs) published in behavioural and social sciences. We evaluated a random sample of 207 MAs indexed in PsycINFO database in 2016. Two authors independently extracted methodologic characteristics of all MAs with the 16 items of AMSTAR2 (A MeaSurement Tool to Assess systematic Reviews 2). AMSTAR2 allows to assess the methodological quality of MAs that classifies them in 4 categories: critically low, low, moderate and high. From the 207 MAs, according to AMSTAR2 criteria, 95% of MAs were rated as critically low. Statistical methods were appropriate and publication bias well evaluated in respectively 87% and 70% of the MAs. However, much improvement is needed in data collection and analysis: Publication of the research protocol (in 11% of MAs), comprehensive literature search strategy (44%), assessment (37%) and interpretation (29%) of risk of bias in individual included studies and presentation of excluded studies (11%). The methodological quality of MAs of our sample was critically low, according to AMSTAR2 criteria. Some efforts could improve tremendously the methodological quality of behavioural and social sciences MAs and thus gain in robustness and reliability.

P1.57 - MenoMouse: the relationship between menopause and dementia in a rodent study

Ming-Sum Yu, Prof. Rudi D'Hooge, & Dr. Ann Van der Jeugd

Laboratory of Biological Psychology, KU Leuven, Belgium.

Depletion of ovarian hormones at menopause is associated with brain-related symptoms. In fact, women are at higher risk of developing Alzheimer's disease than men, which may be related to menopause. In this study, female mice were ovariectomised at 4 months of life, opposed to intact control mice of the same age, and all were subjected to behavioural tests at 6 months old to examine the effects of early menopause on cognitive functioning. Results showed that ovariectomised mice displayed a more anxious phenotype compared to controls. Moreover, ovariectomy caused both spatial and non-spatial memory deficits, namely problems with remembering hidden platform location and object identity. Furthermore, ovariectomy also affected social behaviour, since it resulted in social memory deficits. In conclusion, these findings suggest that menopause is associated with anxiety-like behaviour and memory problems extended to spatial, object and social dimensions. These results provide important insights in menopausal behaviour and female brain health in general.

P1.58 - Pharmacological interference after fear memory reactivation in rat

Victoria Ossorio Salazar, Natalie Schroyens, Tom Beckers, & Laura Luyten

KU Leuven, Belgium

Under certain conditions, consolidated memories can destabilize and become vulnerable for interference with pharmacological substances. For example, administration of midazolam (MDZ), a benzodiazepine, after fear memory reactivation has been shown to impair fear memory retention in rodents. Here, we aimed to replicate these findings in a set of two related experiments, using experimental parameters that were successful in prior publications. Rats were first trained in a contextual fear conditioning paradigm. Twenty-four hours after training, animals were briefly re-exposed to the training context without shock administration, to reactivate the fear memory, followed by IP injection of either MDZ or vehicle (i.e., saline). Finally, one day later, fear memory retention was compared between MDZ- and saline-treated rats. In a first experiment, we administered the commonly used 3 mg/kg dose but found no evidence of interference with MDZ after memory reactivation. In the second experiment, the dose was increased to 10 mg/kg, but MDZ still did not interfere with the fear memory trace, therefore again failing to replicate previous findings. These results suggest that the fear memory interference effect may depend on subtle differences in procedures or between labs.

Social Psychology

12:00 – 13:00

Building : B31 | Room : Mahaim and surrounding area

P1.59 - The influence of social descriptive norms on the choice between fruits and vegetables

Pit Klein

CeSCuP, Université Libre de Bruxelles, Belgium

In the context of the "obesity epidemic" we explored ways of changing peoples' eating habits, namely towards a more balanced diet - i.e. containing the recommended daily amount of fruits and vegetables. Indeed, eating larger quantities of fruits and vegetables has been linked to diminished risks of being overweight. We experimented on social influence using descriptive social norms – this method is effective in changing people's behaviour in general, but also their eating habits. In a forced choice paradigm, we examined the influence of subtly presented descriptive social on participants' choices between fruit or vegetable rewards (n =142). Our aim was to better understand the impact of social influence on eating behaviours. In order to do so, we tested the theory of planned behaviour. Furthermore, we assessed whether expected versus perceived taste of different fruits and vegetables varied across experimental conditions. Our results show that participants in the vegetable condition chose significantly more often vegetable rewards than those in the other two conditions (fruit & control). Unfortunately, we were not able to explain the underlying mechanisms of this finding.

P1.60 - Collective memory of the Lebanese civil war

Sarah Zahreddine & Assaad Azzi

Université Libre de Bruxelles, Belgium

Lebanon experienced a civil war between 1975 and 1990, when the 18 Lebanese religious communities fought against each other. Intergroup attitudes today are still influenced by memories of the war and by perceptions of victimhood, even among young people who were born after the war. My research project aims to study the collective memory of the Lebanese civil war and its relation with the Lebanese social identity. Method: online questionnaire that evaluate war memory knowledge, source of information, level of identification (regional, national, religious, and political identity), attribution of responsibility and perceived victimhood, among 5 main religious communities (data are currently being collected: preliminary analyses are expected to be done before the BAPS meeting). Hypothesis: We suggest that the level identification will mediate the effect between the collective memory and the attribution of responsibility and Perceived victimhood.

P1.61 - Social learning of preferences: comparing the effects of actual observations and verbal instructions

Sarah Kasran, Sean Hughes, & Jan De Houwer

Universiteit Gent, Belgium

Research on social learning has demonstrated that a subject's response to stimuli can change after observing the emotional reaction of another social agent to those stimuli. This is referred to as an observational conditioning effect (Mineka et al., 1984). However, research on classical conditioning has repeatedly shown that merely providing verbal instructions about the contingencies is often sufficient to establish behavioural changes (Cook & Harris, 1937; De Houwer, 2006). We examined if this is also the case for observational evaluative conditioning (OEC). Our OEC procedure consisted of showing videos of a person who responded positively when tasting one cookie and negatively when tasting another cookie. In Experiment 1, we manipulated whether participants actually watched these videos, received minimal instructions about their content, or both. We found that although instructions were sufficient to induce changes in both explicit and implicit evaluations of the cookies, the changes were larger in the other two conditions. In Experiment 2, we compared the effects of more elaborate instructions to the effects of the actual videos or the minimal instructions and found differences between all three conditions in terms of explicit but not implicit evaluations. We discuss implications for cognitive theories of observational learning.

Work-Organizational Psychology

12:00 – 13:00

Building : B31 | Room : Mahaim and surrounding area

P1.62 - Methodology of Situational Judgment Tests in a Personnel Selection Context

Arnaud de Beer de Laer

Cebir, Kortenberg, Belgium

Situational judgment tests (SJTs) are assessment tools designed to measure judgment in a diverse set of work settings. Two types of SJTs are well-described in the literature: (1) contextualized (domain-specific) job simulations that psychologically and/or physically mimic key aspects of a job (measuring the effectiveness of a candidate's response in these situations) and (2) context-independent (domain-general) instruments that measure the behavioural response style of a candidate in a wide range of situations (measuring personal dispositions and attitudes). Importantly, although the former type shows more construct heterogeneity than the latter, both types of SJT tend to provide good criterion-related and incremental validity when used within a personnel selection context. In this presentation, we will discuss the different methodological choices (response instruction and format, scoring key, number of measures, length and content of item contextualization) and best practices, when developing a SJT, and their impact on the accuracy and validity of these measurement instruments. This argumentation is supported with empirical evidence from our own contextualized (measuring sales skills, team leader effectiveness, team member qualities and decisiveness) and context-independent (measuring coping strategies) SJT instruments. Finally, we will compare the pros and cons of using contextualized versus context-independent measurement instruments for selection purposes.

P1.63 - Using computerized adaptive tests in proctored and unproctored personnel selection

Steven Vanmarcke

Cebir, Kortenberg, Belgium

Measures of cognitive ability have been found to significantly predict job-related task performance in personnel selection. Often, classical tests are used to quantify cognitive abilities such as fluid and/or crystallized intelligence. However, there are several advantages to using computerized adaptive tests (i.e. whose items are adapted to the examinee's ability level) instead: (1) a large item bank permits testing of candidates of all ability levels using the same test design, (2) the adaptive maximum likelihood algorithm minimizes the test length necessary to accomplish reliable test outcomes and (3) individual candidate abilities - and item difficulties - are scaled on the same underlying dimension, promoting objective score comparisons (against predefined reference groups). Another advantage of adaptive over classical tests of cognitive ability is that these allow us to develop unproctored versions that are (1) sufficiently resistant to candidate faking and item disclosure (candidates are tested with different items) and (2) that can be used as reliable and time-saving screening instruments to optimize selection efficiency. Preliminary analysis indicates similar reliability estimates (>= 0,80) and criterium validity correlates of candidates tested on both proctored and unproctored test versions. This argues in favour of using proctored and unproctored adaptive tests during personnel selection.

P1.64 - Study of adoption factors of smart technology within tourism organizations: role and influence of managers in museums

Pierre Flandrin

Centre de recherche en Psychologie du Travail et de la Consommation, Université Libre de Bruxelles, Belgium

The CAPsmart project targets the tourist organizations of Brussels-Capital Region (hotels, museums, tourist attractions) and aims to identify the organizational, structural and institutional changes generated by the adoption of the intelligent technologies, thanks to an analysis of adoption factors. Among adoption factors identified (organizational culture, group influence, workers' age…) very few studies concern the influence of the leader in the tourism sector while it seems as one of the major determinants for the strategic choices and the technological innovation in the service sector. The proposed study presents the Museum Quantitative Survey (n=102) divided in two parts: (i) Characteristics of the organization (size, number of employees, type, organisational culture) and their relationships to new technologies based on artificial intelligence (IT penetration, used technology type and usability), (ii) Influence and leadership of the manager (training pathways, interest for technology, IT perception and representation, and analysis of the drivers and limitations of IT use within the organization). This study identifies a main effect of the manager inside the typology of museums carried out by the questionnaire.

Abstracts

Poster
Session 2

May 14
14:20 – 15:20

Clinical Psychology

14:20 – 15:20

Building : B31 | Room : Mahaim and surrounding areas

P2.1 - Improving theory of mind skills in Down syndrome? An exploratory study

Annick Comblain & Coraline Schmetz

Université de Liège, Belgium

Efficient communication is based on the understanding of an interlocutor's perspective and knowledge about a situation. These abilities are part Theory of Mind (ToM) skills and are known to be impaired in Down Syndrome (DS). It therefore makes sense to investigate ToM development in this population. In our pilot study, we explore the possibility of improving ToM abilities of participants with DS and typically developing children (TD) matched for non-verbal mental age. Participants were assessed with the French adaptation of the "ToM Inventory" before and after a 10-week training session. Results show that trained groups perform significantly better on ToM tasks than untrained groups whose performances remain stable between pre- and post-test. Moreover, children with DS who received training tend to perform better than untrained TD. In conclusion, our results are encouraging as they suggest that, with a specific training, children with DS can improve their ToM skills.

P2.2 - What is the effectiveness of the intervention package ‘Kop op! (“Keep your head up”)’? A pilot study

Wouter Lambrecht, Noortje Hermans, Camille De Schaepmeester, Anke De Hous, Noémie Eggermont, Sofie Hermans, Camille Taelman, Evelyn Van Rompuy, & Sarah Van Roosmalen.

Thomas More University of Applied Sciences, Antwerpen, Belgium

After an acquired brain injury the focus of rehabilitation programs lies mainly on physical and cognitive consequences. The emotional and social consequences often remain untreated. Research shows that this is very important for both the patient and the family members. To intercept this lack of intervention, ‘Kop op!’ was developed. This workbook offers information and insight into emotional and social difficulties due to an acquired brain injury and how to deal with it. The purpose of this study is to investigate the effects of ‘Kop op!’ on the social and emotional consequences after acquiring a brain injury. The nine subjects consisted of five men and four women between the age of 19 and 56. The measuring instruments consisted of the SCL-90-R, a semistructured interview and a fatigue questionnaire. Data from pre and post measurement were compared for analysis. The results indicate a significant reduction in depressive complaints, fatigue and sleep problems. Also there is a significant reduction in the overall psychological complaints and improvement in coping strategies. Participants reported that due to the improved coping strategies emotional problems could be better handled. This pilot study suggests that ‘Kop op!’ leads to positive results, and further research is being carried out.

P2.3 - Study of child placement in foster care: Analysis of sense of belonging and conflict of loyalty

Julie Meens, Adélaïde Blavier, & Thérèse Scali

Université de Liège, Belgium

The aim of this research was to question foster children and their family about their sense of belonging. Moreover, we questioned the children about their perception of the people constituting their family. Finally, conflict of loyalties was investigated in order to understand how children felt living in a foster family while keeping in touch with their biological family. We used different tools including one we created, based on different indicators of sense of belonging and conflict of loyalties identified by previous research (ex. Buchanan, Maccoby & Dornbusch, 1991). The study was conducted with a population of 10 foster families. Our results highlighted the presence of a double sense of belonging for all the foster children (belonging to the foster family and at the same time, to the biological family). Nevertheless, most of children felt a stronger sense of belonging towards their foster family than to their biological family. We also discovered that the concept of "family" could be difficult to understand for some children, and that for others, this notion spontaneously included only the members of their host family. Finally, we showed the conflict of loyalties was present in the majority of families but in different intensities.

P2.4 - Bimodal verbal-motor encoding helps episodic memory in patients with Mild Cognitive Impairment and Alzheimer's Disease

Clara Sgard[1], Jean-Christophe Bier[2], & Philippe Peigneux[1]

1 - Neuropsychology and Functional Neuroimaging Research Unit & ULB Neurosciences Institute, Université Libre de Bruxelles, Belgium
2 - Department of Neurology, Hôpital Erasme, Belgium

Encoding in episodic memory is a step often impaired in patients with amnestic Mild Cognitive Impairment (MCI) and Alzheimer's Disease (AD). However, implicit and procedural memory processes are still relatively preserved. In the present study, we investigated the potential benefit on episodic memory of words combined with imitative gestures at encoding. We developed the Symbiosis test, inspired by the Grober and Buschke's procedure. In the Symbiosis test, participants must learn 32 items belonging to 16 different semantic categories either in a verbal encoding (A) or a bimodal (B; verbal and motor imitation) condition, using a blocked ABBA/BAAB procedure. Thirteen amnestic MCI patients (probable AD = 6) and sixteen healthy controls participated to the study. Memory retrieval was better in controls than patients, and significantly better in the bimodal encoding (gesture cues) than the verbal encoding (category cues) condition, regarding the participants' type (i.e., no Participants x Encoding modality interaction effect). Notwithstanding, significant differences between the two encoding modalities suggest that performing concomitant gestures can enhance episodic memory retrieval in amnestic MCI patients, although without normalizing performance. This study may provide new perspectives for memory rehabilitation in MCI and AD patients.

P2.5 - To what extend are individuals with depressive tendencies sensitive to positive effects of nostalgia?

Hedwige Dehon & Sylvie Blairy

Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgique

Research has shown that the induction of nostalgia allows people to reinforce their identity and existential coherence, their confidence in the future and their prosocial behaviours (e.g., Sedikides et al., 2015). Yet, only a few studies have been interested in how individual differences could affect these effects and, more specifically, whether depressive tendencies would influence the benefits associated with nostalgia on individual's attitudes. In the current study, participants were split in two groups from their scores at the BDI-II (Beck, Steer & Brown, 1998) and invited to remember either a memory inducing nostalgic feelings (« nostalgia » condition) or a positive autobiographical memory ("control" condition) before completing a set of measures related to the functions of Nostalgia (positivity toward the self and the future, existential and prosocial functions; Sedikides et al., 2015). Overall, even if participants in the « depressive group » had lower ratings compared to the « control group », a positive effect of nostalgia induction was observed on the various measures (e.g., optimism, motivation, empathy, meaning of life; Wildschut et al., 2006) in both groups. Results are discussed with respect to the clinical perspectives of nostalgia induction in the context of positive psychology approaches.

P2.6 - Lexical acquisition, generalization and Bayesian inference in children with Developmental Language Disorders

Estelle Dauvister[12] & Christelle Maillart[1]

1 - Université de Liège, Belgium
2 - Fund for Scientific Research FRS-FNRS, Belgium

Developmental Language Disorders (DLD) are characterized among others by word learning impairment. The mechanisms underlying these difficulties remain misunderstood. Bayesian theories of cognition offer an interesting approach to study this phenomenon. It establishes inductive inference as a chore component of learning processes, based on the interaction of prior knowledge and environmental data. This study aims to determine if children with DLD can make inferences at two levels of abstraction, specific knowledge and rule acquisition, when prior knowledge is controlled, and if they can use prior knowledge as their peers do. Twenty children with DLD and twenty age-matched typically-developing children (6 to 12 year-old) were exposed to a new word learning task. Children are taught new categories of insects determined by particular physical characteristics that they have to infer. In a generalization task (second level of inference), they were presented with insects from unfamiliar categories. Finally, children are taught how physical properties relate to housing (baseline for prior knowledge) in a learning association task, and have to link each known insect with his housing. We assume that children with DLD would need more exposition to acquire similar bias in word learning and perform lower in the generalization task than their peers.

P2.7 - Fear of falling and its correlates among people aged 65 years and over

Christina Léonard[1], Xavier Schmitz[2,3], Stéphane Adam[2], & Sophie Gillain[3]

1 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium
2 - Psychology of Aging Unit, Université de Liège, Belgium
3 - Geriatrics Department, University Hospital of Liège, Belgium

Fear of falling (FoF) is a real public health problem among elders. Indeed, this multi-determined phenomenon is highly prevalent in the elderly and leads to several negative physical and psychological consequences. Therefore, identify elders at risk of experiencing this fear is essential. By means of a two-year longitudinal study, we examined the relationships between different variables (i.e., sociodemographic, physical, psychological and cognitive variables) and FoF among 92 elders aged 65 and over. All participants were assessed twice (i.e., at the beginning and at the end of the study) with besides quarterly calls in order to report falls. We conducted univariate and multivariate logistic regression analyses. As expected, our multivariate model showed that a prior history of falls is a significant predictor of FoF. We also pointed out a higher tendency among women to experience FoF than among men. Furthermore, we showed, through univariate analyses, significant relationships between mood assessment and FoF. Moreover, our work attempted, in an originally way, to study the influences of subjective aging on FoF. Some results from the univariate analyses (e.g., participants with less positive attitudes towards the ageing process tend to experience more FoF) encourage researchers to carry out other studies in this direction.

P2.8 - Assessment of a re-enrolment intervention among adolescents suffering from psychological disorder

Céline Malaise & Fabienne Glowacz.

Université de Liège, Belgium

The UE average rate of school dropout is 13%. School dropout can occur in a context of psychiatric symptoms (Franceschini-Mandel, 2018). A longitudinal study highlighted that one out of five adolescents suffers from a psychiatric disorder at some point (Costello & Copeland, 2011). School is likely to shift from a socialization function to a school dropout vector for these adolescents (Colin-Madan, 2011). Therefore, alternative school structures are essential for them. We conducted a qualitative research. Our objective was to model the interventions implemented in a *Structure Scolaire d'Aide à la Socialisation*. We interviewed teenagers currently enrolled in the SSAS (n=10), teenagers who left (n=4) and the staff (n=6). This semi-structured interview investigated several dimensions (e.g. school climate). Three scales were also administered (e.g. Perceived Caring Scale - Koenh & Crowel, 1996; Scale of Skill Perceptions - Losier & Vallerand, 1993). Results show that the "educational alliance" seems to be a key variable. Our study also indicates that resocialization process transit through peers. Scores at the Perceived Caring Scale ($p<0.05$) indicate that all adolescents have a positive perception of the caring teacher relationship. This research provides a model based on relational dimensions contributing to a re-enrollment process.

P2.9 - Smoking trajectories and psychological characteristics among Belgian pregnant women

Louise Moins, Pauline Delannoy, Stéphanie Culot, & Justine Gaugue

Child and Youth Clinical Psychology Unit, Université de Mons, Belgium

Smoking during pregnancy is an important health issue. Although the harmful consequences of this behaviour are now proven and prevention campaigns are increasing, studies showed that between 15 and 20% of Belgian pregnant women don't achieve total smoking cessation (Cousin et al., 2008; ONE, 2015). With reference to the study of Nichter et al. (2007), this research aimed to identify smoking trajectories likely to emerge during pregnancy and to assess whether a particular psychological experience could be associated with each trajectory. 113 pregnant women who were daily smokers when announcing their pregnancy completed an online form including 6 standardized questionnaires (about smoking dependence, coping, self-esteem, social support, feeling of self-efficacy and depression). Statistical analyses revealed 4 trajectories: weaned, reducing, wavering and maintaining. No specific psychological experience was found but a high rate of potentially depressed women was identified (56,7%). Finally, while most of the participants stated they originally intended to quit smoking, some indicated they had not tried to modulate their consumption. Health care professionals should therefore paid attention to the patients' motivation to quit smoking or reduce consumption. Their support during pregnancy is particularly valuable in case of relapse. Special attention should also be given to distress symptoms.

P2.10- Characteristics of children with medico-psychosocial suffering and the dedicated intervention: 104 files analysis

Annabelle Kinard & Fabienne Glowacz

Université de Liège, Belgium

A growing number of children and adolescents hospitalized in paediatric services are part of complex family functioning characterized by the increasing number of psychosocial risk factors. This observation leads paediatric services to acknowledge the medico-psychosocial suffering of patients, and to promote the development of new intervention strategies. The aim of this study is to identify the characteristics of children in paediatric care for medico-psychosocial reasons and the dedicated intervention: 104 files opened between 2015 and 2017 in a paediatric service were selected on a quota sampling based on the gender and age of patients. These children are mainly girls (n=68) aged between 1 month and 22 years old (M=9; SD=5) and from families experiencing from 0 to 12 vulnerability factors (M=5; SD=3). This intervention carried out in hospital lasts between 1 and 158 days (M=28; SD=32), includes from 0 to 298 observations (M=62; SD= 61), from 0 to 38 formal interviews (M=10; SD= 8) with the patient and/or his/her family, and telephone contacts up to 31 per case (M=5; SD=5). The analyses contributed to the development of a typology based on four sources of bio-psychosocial suffering: ill-treatment, at-risk family context, internalized disorders and externalized disorders.

P2.11 - Factors influencing relationships between parents and their children in foster family

Stéphanie Chartier & Adélaïde Blavier

Université de Liège, Belgium

The purpose of this study is to identify different factors that may influence the presence of parents in the life of their child when they are placed in foster care. We analysed 568 cases of children in foster families. In our sample 21% of children lived never with their parents, while 79% have lived with one of the two parents. 2.27% had never contact with either parent since birth. 39% of the children do no longer have any contact with either parent. The most decisive factor to maintain parents in their child's life appears to be the duration from the first placement. Indeed, the parents disengage from the life of their child in the first 3 years of the first placement: 20% of the mothers stop contact with their child before the placement in foster family, 24,4% stop contact after, of which 10,3% in the first year. Thus the first year is critical for maintaining a relationship with the parents. The results of this study suggest that, in order to keep the parents in the life of their child, it is necessary to establish a protocol of intensive help during the first year of placement.

P2.12 - Perfectionism, cognitive emotion regulation strategies and depressive symptoms: A moderated mediation analysis

Céline Douilliez[1,2], Françoise Lefèvre[2], & Alice Verschuren[1]

1 - Université Catholique de Louvain, Belgium
2 - Université de Lille, France

Research has evidenced a relationship between perfectionism and depressive symptoms. In the present study, we investigate whether adaptive vs maladaptive cognitive emotion regulation strategies mediate the relationship between socially prescribed perfectionism (SPP) and depressive symptoms and whether direct and indirect effects of SPP are moderated by self-oriented perfectionism (SOP). One hundred and fifty-eight participants filled in the Hewitt and Flett Multidimensional Perfectionism Scale, the Cognitive Emotion Regulation Questionnaire and the Beck Depression Inventory. We computed a moderated mediation model with SPP as independent variable, SOP as moderator of relationships involving SPP, adaptive and maladaptive strategies as mediators and depressive symptoms as dependent variable. Results evidenced a significant total effect of SPP on depressive symptoms. However, only SPP predicted adaptive strategies while SPP and SPP X SOP interaction predicted maladaptive strategies (the relationship between SPP and maladaptive strategies was only significant at high level of SOP). The direct effect of SPP on depressive symptoms was not significant. Furthermore, the indirect effect of SPP on depressive symptoms via adaptive strategies was only significant at low level of SOP while it was not significant via maladaptive strategies. The role adaptive strategies might play in the relationship between perfectionism and depression will be discussed.

P2.13 - Seeing faces in noise: Individual differences in proneness to perceive pareidolia

Niels Vanhasbroeck, Marie Costers, & Johan Wagemans

Laboratory for Experimental Psychology, Brain & Cognition, KU Leuven, Belgium

Differential bottom-up and top-down visual processing can partly explain individual differences in visual perception of ambiguous stimuli (e.g. seeing-faces-in-noise, called “pareidolia”). Research in clinical populations suggests that patients with autism spectrum disorder rely more strongly on bottom-up processes, whereas patients with schizophrenia rely more strongly on top-down processes. We wanted to test whether these tendencies are found in non-clinical populations as well. In our online study, we assessed autistic traits (with the Autism Spectrum Quotient Short; AQ-Short), schizotypic traits (with the Cardiff Anomalous Perception Scale; CAPS), and proneness to perceive pareidolia (with the Perception of Meaning task). 208 participants first filled out the AQ-Short and CAPS and then saw 312 noisy and blurry images, half of which contained an embedded face. For each image, participants had to indicate whether they perceived a face or not. A logistic regression revealed that the questionnaires could significantly predict someone’s tendency to respond “yes” on a given trial. Additionally, an ANOVA showed a significant interaction effect between the spatial frequency of the image and the CAPS on sensitivity (corrected for response bias). However, both analyses indicated only negligible effects of the clinical traits, suggesting that other factors may determine individual differences in perceiving pareidolia.

Cognitive Neuroscience

14:20 – 15:20

Building : B31 | Room : Mahaim and surrounding area

P2.14 - Fast periodic visual stimulation (FPVS) as an innovative EEG technique to measure perceptual categorization

Lise Desplenter[1], Jaana Van Overwalle[2], Bart Boets[2], & Johan Wagemans[1]

1 - Brain & Cognition Unit, KU Leuven, Belgium
2 - Center for Developmental Psychiatry, KU Leuven, Belgium

Every single day the world is overwhelming us with a huge amount of stimuli. Categorization is an essential process to filter all this perceptual information. Different models of categorization have been developed based on behavioral experiments, but a more objective and implicit neural measurement is required to avoid the contribution of decisional processes. A promising, fast and cost-effective approach is combining fast periodic visual stimulation (FPVS) with frequency-tagging EEG, which delivers a high signal to noise ratio. FPVS is based on steady-state visual evoked potentials and has already been used in higher-level visual categorization and discrimination tasks (such as faces). Here, we present mid-level visual stimuli, morphed along an 11-step continuum (e.g. peacock-to-truck). Via a FPVS oddball paradigm, we investigate the neural discrimination response for within-category versus between-category pairs of stimuli. Via a sweep FPVS oddball paradigm, we objectively determine the category boundary by presenting the endpoint stimulus as baseline and systematically combining it with each of the morph steps as oddball. Neural and behavioural results on 22 adults indicate that FPVS EEG is a promising technique to implicitly assess categorization and discrimination of shapes, and reveal that perceptual differentiation is mainly detected occipitotemporal and presumes a predominant right lateralization.

P2.15 - Assessing familiar face recognition in infants and adults using fast periodic visual stimulation EEG

Şule Atay[1,2], Steffie Amelynck[1,2], Sofie Vettori[1,2], Jaana Van Overwalle[1,2,3], Gunnar Naulaers[4], Els Ortibus[5], Bruno Rossion[6,7,8], & Bart Boets[1,2]

1 - Centre for Developmental Psychiatry, KU Leuven, Belgium
2 - LAuRes, KU Leuven, Belgium
3 - Laboratory for Experimental Psychology, KU Leuven, Belgium
4 - Neonatologie, UZ Leuven, Belgium
5 - COS, UZ Leuven, Belgium
6 - Institute of Research in Psychological Sciences & Institute of Neuroscience, Université Catholique de Louvain, Belgium
7- CNRS, CRAN, Université de Lorraine, France
8- Service de Neurologie, CHRU-Nancy, France

Infants have a natural interest in aspects of human communication, in particular faces. Shortly after birth, infants already recognize their mothers' face and develop a strong preference for it. It has been suggested that individual differences in face recognition ability and selective preference may index or predict later variation in general socio-emotional development, social skills and attachment. Accordingly, it is relevant to design an objective quantitative measure of familiar face recognition that is applicable in infant populations. Here, we applied fast periodic visual stimulation in combination with EEG in five-month-old infants to determine the implicit neural sensitivity for their mothers' face. A stream of different unfamiliar faces, all within their natural background, was presented at 3 Hz base rate. Every third face, thus at 1 Hz oddball rate, was a randomly selected image of the infants' mother. All these images of the mother differed largely in terms of viewpoint, background, haircut, clothing, expression, etc. Preliminary results (n = 4) reveal that infants show a selective response at the oddball frequency, reflecting the neural sensitivity for recognizing their mothers' face. This response is situated along occipitotemporal regions. A similar familiar face recognition response is also observed in adults.

P2.16 - Fast auditory periodic stimulation reveals a robust voice-selective electrophysiological response in the human brain

Francesca M. Barbero[1], Roberta P. Calce[2], Bruno Rossion[1,3,4], & Olivier Collignon[1,2]

1 - Institute of research in Psychology & Institute of Neuroscience, Université Catholique de Louvain, Belgium
2 - Center for Mind/Brain Sciences, Università degli Studi di Trento, Italy
3 - CRAN & CNRS, Université de Lorraine, France
4 - Service de Neurologie, CHRU-Nancy, France

Several studies have demonstrated the existence of voice preferring regions in the human brain. However, whether this preference is merely driven by low level acoustic properties peculiar of voices, or whether it reflects a higher-level categorical response is still under debate. Here, we propose a new approach to address this question in an objective, direct, fast and automatic way. We combined electroencephalographic recording with a Fast Periodic Auditory Stimulation (FPAS) oddball paradigm to investigate voice categorisation processes. Participants were tested with 3 types of sequences: sequences containing heterogeneous vocal and non-vocal sounds from different categories, sequences created with frequency scrambled sounds to control for frequency content and, finally, sequences containing voices and instruments matched in pitch and harmonicity-to-noise ratio. Our results show robust voice selective brain responses over superior temporal electrodes that cannot be explained by frequency content nor harmonicity typical of voice samples alone. Moreover, our FPAS paradigm allowed us to characterize voice selective responses with a high signal to noise ratio in a very short acquisition time (4 minutes) in the vast majority of individual participants, suggesting that FPAS could be a powerful tool to investigate voice selectivity in children and in clinical populations.

P2.17 - Blindness onset impacts the anatomo-functional organization of the “visual” cortex

J. Vadlamudi[1] & O. Collignon[1,2]

1 - Institute of research in Psychology & Institute of Neuroscience, Université Catholique de Louvain, Belgium
2 - Center for Mind/Brain Sciences, Università degli Studi di Trento, Italy

The study of blind individuals represents a unique model to understand how change in sensory experience shapes brain development. We know that the absence of visual experience since birth is associated with anatomical and functional reorganization of the occipital cortex. However, the impact of blindness onset on development of structure, function and relation among them in occipital cortex is poorly investigated. In our study, we used functional Magnetic Resonance Imaging(fMRI) to characterize sound-induced activity as well as cortical measures of occipital regions in early and late blinds in addition to two age and gender matched sighted controls. Participants in both groups were asked to attend to a spatial pitch discrimination task. Preliminary results show increased cross-modal response to sounds in occipital regions of both blind groups, but to a larger extent in case of early visual deprivation. Moreover, both early and late- onset blindness has shown respective effects on cortical measures of the occipital cortex. We are further carrying out a systematic analysis to investigate how the blindness onset driven anatomo-functional reorganization relates to each other.

P2.18 - Eye movements as a key to understanding individual differences in art viewing

Sarah Delcourt, Christophe Bossens, & Johan Wagemans

Laboratory of Experimental Psychology, Brain & Cognition, KU Leuven, Belgium

The current study investigated the eye movements of 2040 participants viewing two paintings in the museum M in Leuven, a renaissance Madonna with child and a social realism painting with three women ironing. The aim was to explore possible individual differences as a function of age, gender, and art experience, in the number and mean duration of fixations within predefined areas of interest (AIO). For both paintings, more but shorter fixations were found with increasing age. Moreover, older participants fixated body parts more often, and fixated faces for a shorter time. In general, women focused more on faces and body parts than men. Few significant differences were found between art experts and novices, as defined by education and profession, which was unexpected based on previous literature. However, exploratory analyses did show differences as a function of self-reported art interest, number of gallery visits per year and number of art books in private collection. In conclusion, because we could address a few questions that were giving rise to conflicting evidence in previous literature, this study shows the value of a large data set obtained in an ecological museum context, compared to small-scale laboratory experiments.

P2.19 - The impact of tDCS on rumination: A systematic review of the sham-controlled studies among healthy and clinical samples

Yorgo Hoebeke[1], Betül Özçimen[1], & Alexandre Heeren[1,2]

1 - Psychological Sciences Research Institute, Université Catholique de Louvain, Belgium.
2 - Institute of Neuroscience, Université Catholique de Louvain, Belgium.

Rumination describes perseverative, passive, self-focused thinking about the content, causes, and consequences of one's affective state, without taking any problem-solving action. Broadly considered as a transdiagnostic feature of psychological disorders, rumination is associated with slower treatment response, lower rates of recovery, and higher rates of relapse. Accordingly, research has focused on the development of rumination-focused treatment. Recently, transcranial Direct Current Stimulation (tDCS) has emerged as a potential promising new tool for targeting rumination. tDCS is a non-invasive neuromodulation technique, which can be used to selectively disrupt patterns of neural activity that are associated with psychological processes. Yet, study-to-study variations in stimulation and research protocols preclude a comprehensive understanding of the impact of tDCS on rumination. The main goal of this systematic review is to assess the sham-controlled studies, conducted among both healthy and clinical samples, investigating the effectiveness of tDCS in reducing rumination, and identifying the most desirable combination of stimulation parameters and research protocols to do so.

P2.20 - Null effects of transcranial direct current stimulation (tDCS) over the intraparietal sulcus on working memory

Romain Dumont, Steve Majerus, Christopher Ficapal Gallego, Milo Costa, & Michel Hansenne

Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium

Mixed results of the impact of transcranial direct current stimulation (tDCS) on working memory have been reported. Since previous studies targeted mainly the prefrontal cortex, the intraparietal sulcus (IPS) was stimulated in the present within-study. Participants completed three different conditions: anodal stimulation of the IPS, cathodal stimulation of the IPS, and sham stimulation of the IPS. The working memory task comprised a visual and a verbal task. In the visual task, participants had to memorize a random set of coloured figures appearing briefly on the screen and after a few seconds of maintenance they had to decide whether a circled figure was the same colour than as cued. Similarly, the verbal task required the participants to encode a string of letters briefly shown and then to judge whether a specific letter was present at a specific place. High load condition of the task (six figures/letters) and low load condition (two figures/letters) were randomly presented in both tasks. Results did not shown any significant differences in accuracy or reaction time between the conditions. Grouping the subjects based on their attention style or following the results of the UPPS questionnaire did not yield any significant result either.

P2.21 – The role of body partonomics and biological class in the representation of animacy in the ventral visual pathway

Joyce Bosmans, Shuo Sun, Kirsten Verhaegen, Astrid Zeman, Hans Op de Beeck, & J. Brendan Ritchie

Laboratory of Biological Psychology, Brain & Cognition, KU Leuven, Belgium

Studies have shown that high-level regions of the ventral visual pathway code for animacy. Less clear is what factors structure these neural responses. Some studies used images of human and animal faces and bodies (Kriegeskorte et al. 2008, Cichy et al. 2014), which suggest that body partonomics may play a role. Other studies suggest that biological classes may be responsible (Connolly et al. 2012; Sha et al. 2015). We investigated the relative contribution of these two factors. Animate stimuli consisted of a single close-up face and full-body image of 24 animals from different biological classes (48 images total). These were contrasted with 48 images of natural objects. We collected data for behavioral tasks (N = 102) involving similarity judgments or categorization decisions. The responses from these tasks were used to construct dissimilarity matrices (DM) to perform representational similarity analysis, and compared with DMs constructed from neural responses from ventral pathway regions selective for objects, faces, and bodies measured with human fMRI (N = 15), as well as layers of a deep convolutional neural network. We found that both body partonomics and biological class are complementary predictors of the neural responses across regions of the ventral pathway.

P2.22 - Direct Structural Connection between Auditory-temporal and Visual-occipital motion selective regions

A. Gurtubay-Antolin[1], C. Battal[1], C. Maffei[2], M Rezk[1], S. Mattioni[1], J. Jovicich[3], & O. Collignon[1,3]

1 - Institute of Research in Psychology & Institute of Neuroscience, Université Catholique de Louvain, Belgium
2 - Athinoula A. Martinos Center, Massachusetts General Hospital, USA
3 - Center for Mind/Brain Studies, Università degli Studi di Trento, Italy

Perceiving and integrating motion signals across sensory systems is a crucial perceptual skill for optimal interaction with a multisensory environment. In primates, including humans, the middle-temporal region (hereafter, hMT+/V5) specializes in processing visual motion signals, while the Planum Temporale (hereafter, PT) specializes for auditory motion processing. It has been hypothesized that these regions can communicate directly to achieve fast and optimal multisensory integration of motion signals. However, the existence of direct anatomical connections between these regions remains unexplored. We therefore evaluated the presence of anatomical connections between the hMT+/V5 and the planum temporale (PT) in fifteen healthy individuals. Each participant was first involved in an auditory and visual motion localizer in order to define PT and hMT+/V5 functionally. Then, using diffusion imaging data, we reconstructed white matter tracts between individually and functionally defined auditory and visual motion selective regions. Probabilistic tractography was conducted between each pair of regions (PT to hMT+/V5 and reversely), randomly sampling 5000 tracts per seed-voxel and keeping the samples that reached the target region. Seed and target regions were masked with individual white matter masks to avoid ill-defined fiber orientations present in grey matter regions. A connection was considered as reliable at the individual level when it had a minimum of 10 streamlines. We found reliable connections between hMT+/V5 and PT in both hemispheres in 15 out of 15 individuals, suggesting the existence of a direct pathway between these visual and auditory selective regions. Our findings have important implications for the understanding of the multisensory nature of motion processing, as this connection might represent the structural scaffolding underlying the auditory and tactile responses observed in hMT+/V5.

P2.23 - Does change in attention control mediate the impact of tDCS on attentional bias for threat? Limited evidence from a double-blind sham-controlled experiment in an unselected sample

Charlotte Coussement[1,2,] Pierre Maurage[2,3], Joël Billieux[4], & Alexandre Heeren[2,3]

1 - Hôpital Psychiatrique du Beau Vallon, Belgium
2 - Psychological Science Research Institute, Université Catholique de Louvain, Belgium
3 - Institute of Neuroscience, Université Catholique de Louvain, Belgium
4 - Integrative Research Unit on Social and Individual Development (INSIDE), Université de Luxembourg, Luxembourg

Neurocognitive models of attentional bias for threat posit that attentional bias may result from a decreased activation of the left prefrontal cortex, and especially of its dorsolateral part (dlPFC), resulting in an impaired attention control. Consequently, a transient increase of neural activity within the left dlPFC via non-invasive brain stimulation reduces attentional bias among both anxious and nonanxious participants. Yet, it is still unclear whether the impact of dlPFC activation on attentional bias is mediated by improvement in attention control. In this experiment, we sought to test this hypothesis in an unselected sample (n = 20). Accordingly, we adopted a double-blind within-subject protocol in which we delivered a single-session of anodal versus sham transcranial Direct Current Stimulation (tDCS) over the left dlPFC during the completion of a task assessing attention control. We also assessed its subsequent impact on attentional bias. Neither attention control nor attentional bias did significantly improve following anodal tDCS. Although our results do not support our main hypothesis, we believe the present null results to be particularly useful for future meta-research in the field. We also formulated a series of methodological recommendations for future research aiming at testing the tDCS-induced modification of attentional bias.

P2.24 - Have you seen (even differently-presented) this hat before? 230-ms EEG activity is sensitive to exemplar-level repetition and associates with familiarity performance

Gabriel Besson[1], Laurent Gabriel[1], Eric Salmon[1], & Christine Bastin[12]

1 - GIGA-CRC In-Vivo Imaging research unit, Université de Liège, Belgium
2 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium

Familiarity –the acontextual sense of pre-exposure– is considered as the heuristic attribution to the past of implicit signals, namely perceptual and conceptual fluency (easier processing with repetition). Typically studied for stimuli presented as-encoded, low-level perceptual fluency (thereby promoted) may disproportionately contribute to such experimental familiarity. However, in more ecological familiarity, only fluency at higher representation levels (e.g. categories, view-invariant exemplars; each processed at its own temporal dynamics) could contribute. In order to investigate different perceptual fluency levels and their contribution to view-invariant familiarity, we manipulated repetition at different perceptual levels during a one-back task (immediate repetition, N=31 young participants) and a speeded familiarity task (long-term repetition, N=25) with instructions to focus on exemplar-level recognition, using visual objects while recording 64-channels EEG. Immediate repetition effects were dissociated across perceptual levels, with view-invariant exemplar-level effects (the latest) starting at ~230ms. For long-term repetition, only view-invariant exemplar-level effects were found and only from ~400ms (despite the 550-ms response deadline); however, their effect size strikingly correlated with exemplar-level familiarity performance around ~230ms (for ~30ms, on almost half the electrodes). We argue that familiarity may primarily rely on exemplar-level fluency, and emphasize the importance of investigating further exemplar-level representation while controlling for low-level perceptual fluency.

P2.25 - Variations of tonic frontal theta power reflects brand recall performance

Jonathan Lété, Nicolas Debue, & Cécile Van de Leemput.

Research Center for Work and Consumer Psychology, Université Libre de Bruxelles, Belgium

This study aims at identifying brain band power variations between TV commercials. Twenty-one participants took part in a study at the ULB usability laboratory (ULAB) and watched nine thirty seconds commercials covering various sectors (alcohol, automotive, care, clothing, drink, food, high-tech, luxury and toys). These ads were included in a twenty minutes documentary and divided into two groups based on the short-term recall of the brand presented. Cognitive states of the respondents were collected through EEG (Emotiv EPOC), pupil dilation (Tobii X3-120) and their performances were evaluated through free brand recall and aided brand recognition surveys. Mann Whitney U tests showed a significant difference of normalized frontal theta power ($U=10$; $p= 0,006$), and EPOC-based excitement metric ($U=17$; $p= 0,04$) between recalled and forgotten ads. Main results suggest that commercials showing a relatively lower tonic frontal theta power and higher excitation levels are more easily remembered than others. While increases in frontal theta power are often associated with enhanced working memory, these changes often represent phasic variations. Multiple publications support the observations of this study and show that items with a greater recall value are associated with lower post-stimulus theta power, particularly in the frontal, temporal and hippocampus areas.

Cognition

14:20 – 15:20

Building : B31 | Room : Mahaim and surrounding area

P2.26 – Effect of digital voices on users' emotional response

Yael Moszynski, Nicolas Debue, Jonathan Lété, Sidney Freson & Cécile Van de Leemput

Research Center for Work and Consumer Psychology, Université Libre de Bruxelles, Belgium

This study aims to analyse the effect of digital voices on perceived and felt emotions. Twenty-one participants took part in a lab-based experiment at a Belgian university. We had a 3-factor design crossing the type of voice (Human/Digital), Gender (Male/Female) and Prosody (Happy/Sad). Digital voices were computer-generated by a commercial solution available online and two neutral excerpts were selected to control for the effect of the text content. Affective and cognitive states were measured through EEG (Emotiv EPOC) and pupil dilation (Tobii X3-120) signals along with self-reported evaluation of emotions after each set of voice. Linear mixed-model analyses showed a main effect of Prosody on frontal asymmetry ($F(1,312)= 6,875$; $p = 0,009$). These results suggest that participants in this experience are more attracted to sad female voices. Main results indicated a preference for female voices versus male voices (χ^2 (1) = 3,857, $p = 0,05$). A second test also showed that human voices were preferred to digital voices. (χ^2 (1) = 17.190, $p = 0.000$). This study raises issues about the effect of digital voices on emotions and open new avenue of research.

P2.27 - 3D human motion analyses to bring out fine motor skills as predictor of early mathematic kills development

Maëlle Neveu[1], Line Vossius[1], Cédric Schwartz[2], Bénédicte Forthomme[2], & Laurence Rousselle[1]

1 - Childhood research unit, Université de Liège, Belgium
2 - Laboratory of Human Motion Analysis, Université de Liège, Belgium

Children's ability to use their fingers in numerical contexts is assumed to contribute to the development of basic mathematic skills (Fayol & Seron, 2005). Some authors pointed out that finger gnosia is a predictor of arithmetic abilities (Noël, 2005) while others highlighted the relationship between manual dexterity and early numerical and arithmetic abilities (Asakawa & Sugimura, 2009). At present, the contribution of fine motor skills, especially the mobilization of the hand, to early number development has been less investigated. The aim of this study is to examine how finger dissociation and finger coordination, two components of fine motor skills, contribute to early number and arithmetic processing using 3D human motion analyses. Thirty preschoolers aged between 3 and 5 years old were tested for finger dissociation and finger coordination tasks as well as numerical and arithmetic tasks.The multiple regression analyses showed the predictive value of fine motor skills for cardinality and arithmetic skills while controlling for age differences. This result outlines the tight relationship between finger coordination and early mathematic abilities and suggests that this skill could have decisive influences on the use of finger-based strategies in support to the development of numerical concepts and early arithmetic in young children.

P2.28 – A registered, direct replication of the reactivation-extinction effect

Lu Leng[1], Anastasia Chalkia[1], Ann-Kathrin Zenses[1], Natalie Schroyens[1], Lukas Van Oudenhove[2], & Tom Beckers[1]

1 - Center for the Psychology of Learning and Experimental Psychopathology, KU Leuven, Belgium
2 - Department of Chronic Diseases, Metabolism and Ageing, KU Leuven, Belgium

Memory retrieval can temporarily destabilize a previously consolidated engram, rendering it active again and requiring reconsolidation processes in order to be restored. During this limited time window of reconsolidation, the initial memory trace can be permanently modified through a variety of interventions. In line with this idea, Schiller et al. (2010) demonstrated in humans that conducting extinction training immediately after memory reactivation prevented the later recovery of conditioned fear responding that is typically observed after standard extinction. Inspired by the potential impact of such permanent suppression of fear memory expression for the clinical treatment of emotional memory disorders, several conceptual replications of the reactivation-extinction effect have been attempted in the last decade. However, they've yielded very mixed results. In order to gauge the robustness of this effect, we performed a highly-powered, direct replication of the critical conditions of the original study. We failed to replicate the original findings: Our results suggest that there is no benefit of reactivation-extinction over regular extinction training; we observed a comparable return of fear for both. Instead of looking for methodological explanations for unsuccessful conceptual replications, we propose that the robustness of the initial findings that sparked the interest in this effect should be reconsidered.

P2.29 - Reduced goal-directed decision-making in problem gamblers

Florent Wyckmans[1], Mélanie Saeremans[2], Charles Konreich[1], Nathaniel Daw[3], Otto Ross[4], & Xavier Noël[1]

1 - Psychological Medicine Laboratory on Addiction, Université Libre de Bruxelles, Belgium
2 - Clinique du jeu et autres addictions comportementales, CHU Brugmann, Belgium
3 - Princeton Neuroscience Institute, Princeton University, USA
4 - Department of Psychology, McGill University, Canada

Compulsive behaviours (e.g., addiction) could be viewed as an odd decision process where inflexible automatically evoked by stimuli (habit) exercises control over decision making to the detriment of a more flexible (goal-oriented) behavioural learning system. In the present study, 49 problem gamblers (PG) and 33 healthy participants completed a two-step two-alternative forced choice task dissociating two computational-learning mechanisms: model-based when it links to prospective information as a motivational state, future consequences, and the likelihood of achieving various outcomes (goal-directed) and model-free when it is linked to a prior reward history (habit). Results showed that PG was an impaired model-based action controller, particularly in an unrewarded context. In addition, faster reaction times in PG than in their controls following an unrewarded decision suggests augmented impulsivity. Further, measures of model-based behaviour correlate with self-reported stress intensity and gambling problem severity. These findings demonstrate specific reinforcement learning and decision-making deficits in behavioural addiction that may be important dimensions to set up innovative treatment.

P2.30 - The impact of credibility of news content on users' engagement and information retention

Sidney Freson, Yael Moszynski, Nicolas Debue, Jonathan Lété, & Cécile van de Leemput

Université Libre de Bruxelles, Belgium

With the increasing number of Facebook users (2,32 billion in 2018) and the ease with which we can share information over the internet, people are more and more likely to be exposed to fake news. Fake news is often sensationally to catch readers' attention and make them believe in the content but the credibility assessment of a piece of news is a function of the reader's previous knowledge of the topic. This study aims at investigating the relationship between perceived news credibility, reader's engagement and information retention. 21 students (mean age 22.62, 12 females) took part in a lab-based experiment at a Belgian university. We used EEG (Emotiv EPOC) as a measure of the focus and the engagement also a self-reported evaluation for the retention score. The study shows that the fake news outperformed the real news ($p = 0.003$) in terms of information retention. Moreover, the credibility seems to play a role on the focus level of the reader. The discussion will expand upon the impact of fake news on information retention.

P2.31 - Depression in Alzheimer's disease: Impact of the emotional valence of concepts on semantic memory

Isabelle Simoes Loureiro, Aurélie Miceli, Kimberly Gerin, Aurelia Rendon De La Cruz, Kendra Kandana Arachchige, & Laurent Lefebvre

Department of Cognitive Psychology and Neuropsychology, Université de Mons, Belgium

This study aims to analyze the impact of the emotional valence of concepts on semantic memory in depressed Alzheimer's disease (AD). 36 elderly women, a control group of 20 healthy elderly (mean age 81.8±6.8; MMSE 28.4±1.2) and an experimental group of 16 mild AD (mean age 84.3±6.1; MMSE 24±2.8) completed an affective and semantic priming paradigm. Half of the AD subjects presented symptoms of depression (D-*AD*), and the other half did not (ND-*AD*). The priming protocol contained 3 different conditions: positive valence (V+) (e.g. joke-laugh), negative valence (V-) (e.g. army-soldier) and neutral valence (semantic but not affective relations) (Vn) (e.g. school-student). A repeated-measures ANOVA showed main effects of group (F=41.526; p=.001) with a more important priming effect in AD, particularly in D-*AD* group and a main effect of condition (F=5.453, p=.008) with a more important priming effect for affective valence. A group*condition interaction effect (F=3.082; p=.025) was also observed demonstrating a hyperpriming effect in the V- condition in D-*AD* whereas control subjects and ND-*AD* showed on the contrary a hyperpriming effect for V+. These results suggest that mood disorders in AD have an impact on negative information processing, shown by a specific hyperpriming effect in AD patients with depression.

P2.32- Impact of memory set presentation on the ordinal distance effect in working memory

Myrtille Dewulf, Elodie Aerts, Chloé Taudin, Wim Gevers, & Sophie Antoine

Centre for Research in Cognition and Neuroscience (CRCN), Université Libre de Bruxelles, Belgium

Working memory refers to our ability to actively maintain and process a limited amount of information during a brief period of time. Crucial for our daily-life activities are not only the items to be memorized, but also their order. One behavioural signature of the processing of order information in working memory is the ordinal distance effect: when participants have to indicate whether two probes are presented in the same order as in the memorised sequence, they are slower when the probes are at close than at distant positions in the memorised sequence (e.g., Marshuetz et al., 2000). In these studies, items of the memory set were simultaneously presented, such that ordinal distance and physical distance co-varied together. The larger the ordinal distance, the larger the physical distance. It is thus possible that physical distance contributed to the effect, although it was only attributed to the ordinal distance between items. In the present study, we used a within-subject design in which we compared the ordinal distance effect when the items of the memory set are presented simultaneously on the screen and when the items are sequentially presented one after the other. This study is informative for future studies aiming to obtain a pure measure of order processing, without contamination of presentation layout.

P2.33 - Executive functioning attenuates anticipatory cortisol response to an upcoming cognitive evaluation

Elise Grimm & Stefan Agrigoroaei

Université Catholique de Louvain, Belgium

The protective factors of the anticipatory stress response are currently understudied, particularly outside laboratory and academic settings. This study investigated the role of three executive functioning facets in regulating the degree of cortisol release several days ahead of an anticipated cognitive challenge. Higher levels of working memory, category fluency, and inhibition were expected to be significantly associated with lower cortisol release hours before the challenge, when accounting for baseline cortisol levels. Participants (N=93), aged 27-84, provided saliva samples on the day of the cognitive evaluation, and on the two preceding days. Executive functioning measures were obtained using The Brief Test of Adult Cognition by Telephone (Lachman et al., 2014) approximately one week before the evaluation. The results revealed that higher category fluency scores were significantly associated with a lower cortisol output on the day of the challenge, when controlling for baseline cortisol, time since awakening, age, sex, years of education, caffeine consumption, and medication intake. Our findings contribute to the emerging evidence that executive functioning modulates stress responses and further suggest that cognitive fluency plays a protective role for anticipatory cortisol release.

P2.34- The visual perception of emotional facial expressions

Bérénice Delor[1], Fabien D'Hondt[2], & Pierre Philippot[1]

1 - Université Catholique de Louvain, Belgium
2 - Université de Lille, France

Emotional facial expressions (EFEs) constitute a critical non-verbal component of our social interactions and emotional experience. However, there is no scientific consensus on the specialization of each brain hemisphere for the visual perception of these facial cues. Three line of research have attempted to explain hemispheric lateralization. While the first line postulates a perceptual processing executed by the right hemisphere, the other two involve left hemisphere. This study aims to provide new experimental evidence for brain asymmetry of EFE processing by using the chimeric stimuli paradigm. Faces with happy, fearful and angry expressions were digitally designed and manipulated to create composite with their neutral expression. Undergraduate students were asked to complete three experimental tasks that involve decoding either the nature, the valence, or the action tendency of the EFEs. Based on correct responses rates and response times, we investigate each of the three hypotheses. Furthermore, this study also investigated the impact of EFE asymmetry on authenticity judgments. Overall, the present results suggest (a) that EFEs are preferentially processed by the right hemisphere, (b) that asymmetrical EFEs are interpreted as not authentic, and (c) that the decoding of EFEs is modulated by complex interplays between emotion and gender of the expresser.

P2.35- Web-based information search and cognitive processes

Nora Oufi, Nicolas Debue, & Cécile Van de Leemput.

Research Center for Work and Consumer Psychology, Université Libre de Bruxelles, Belgium

This study aims to assess cognitive demand induced by accomplishing different web-based information search tasks on laptop and touch screen PC. Thirty-six participants took part to a lab-based experiment at an American university. Cognitive states were measured through an EEG headset (ABM X-10) while varying tasks type (simple vs. complex). Linear Mixed Model analyses showed an effect of task type on cognitive engagement. Complex tasks are associated to lower engagement ($F= 9.567$, $p=.003$) compared with simpler task. These results shed new light on the cognitive processes involved while interacting with information and communication technologies. We will discuss how these results could provide the keys to understanding the optimal uses of this technologies.

P2.36- Numerous comparisons of numerical comparison tasks: A meta-analysis of the heterogeneity of the Weber Fraction

Mathieu Guillaume & Amandine Van Rinsveld

Université Libre de Bruxelles, Belgium

In the field of numerical and mathematical cognition, many studies reported significant correlations between the Approximate Number System (ANS) and math ability. However, there has recently been an increasing amount of published data that failed to replicate such relationship. Many researchers subsequently questioned the validity of the assessment of the ANS. In the current meta-analysis of over 68 experimental studies published between 2004 and 2018, we show that the mean value of the Weber fraction (w), the minimal amount of change in magnitude to detect a difference in ANS tasks, is very heterogeneous across the literature. This is critical for the validity of the assessment of the ANS since w should be homogeneous in theory. We illustrate here the concern that different procedures to create stimuli lead to substantially heterogeneous values of w. Further, all reported correlation coefficients between the value of w and general accuracy were very high. Such result calls into question the relevance of computing the Weber fraction in ANS tasks, and we are thus in disfavor of the systematic use of the Weber fraction in such tasks.

P2.37- How to separate extraction of numerical and non-numerical magnitude information in the visual stream with a frequency-tagging approach?

Amandine Van Rinsveld[1], Mathieu Guillaume[1], Christine Schiltz[2], Wim Gevers[1], & Alain Content[1]

1 - Université Libre de Bruxelles, Belgium
2 - Université de Luxembourg, Luxembourg

The ability to handle large quantities has been identified as a building block of mathematical skills but the mechanism allowing to extract numerical magnitudes (i.e., numerosity) from visual environments is still debated. Many authors agree that humans have an Approximate Number System that specifically processes numerosity. Until now the opposite view could not be tested properly due to the intrinsic correlations between numerosity and continuous dimensions (e.g.,item size). Our study bypasses this recurrent problem by presenting frequency-tagged variations of numerical and non-numerical magnitudes. We aimed at isolating the specific cerebral responses to numerosity and to continuous dimensions by using Steady-State Visual Evoked Potentials (SSVEP). Participants (N=21) were presented dot collections that varied randomly along all dimensions but one, which entailed a systematic change at the rate of 1.25 Hz. This periodic dimension was either the numerosity or one of the continuous dimensions (size, area, convex hull or density). Electrophysiological recording showed a neural synchronization on the numerosity but also on the total area of the collections. In contrast, no synchronization was observed for the other continuous dimensions. In conclusion, we provide evidence that not only numerosity but also some continuous properties can be extracted rapidly along the visual stream.

P2.38- Study of the motor correlates of appetite for alcohol

Macha Dubuson[1], Florent Wyckmans[1] Thierry Lelard[2], Harold Mouras[3], Xavier Noël[1], & Salvatore Campanella[1]

1 - Laboratory of Medical Psychology and Addiction, Université Libre de Bruxelles, Belgium
2 - UFR des Sciences du Sport, Université de Picardie Jules Verne, France
3 - UFR de Médecine, Université de Picardie Jules Verne, France

Does the approach tendency to alcohol predict alcohol use in the near future? To date, research has yielded mixed results. Training people with alcohol use disorder (AUD) to push back a controller in response to alcohol-related images reduces the risk of alcohol relapse a year later (Wiers et al., 2011, in Psychological Science). However, trends in the approach to alcohol before training session did not predict relapse of alcohol in patients with AUD. Our main goal was to record body movements (back and forth) in response to alcohol cues in sober patients with AUD recently detoxified. A dedicated posturometric device was used. Unless relapsers, alcohol abstainers one month after the end of the detox program showed by the time of rehabilitation an avoidance movement from alcohol-related images compared to neutral images. More participants need to draw solid conclusions. If confirmed, the use of cognitive rehabilitation techniques to reduce alcohol approach trends could be implemented to reduce the risk of relapse.

P2.39- The competition between numerical and continuous dimensions in a change detection paradigm

Charlotte Hendryckx, Amandine Van Rinsveld, Mathieu Guillaume, Anthony Beuel, Wim Gevers, & Alain Content

Université Libre de Bruxelles, Belgium

It is generally assumed that humans possess a number sense enabling the manipulation of non-symbolic quantities. Yet there is an extensive amount of evidence that one could use many non-numerical dimensions to compare the number of dots from two distinct arrays. In this study, we assessed how number interacts with four major continuous dimensions: the area occupied by the dots, the individual dot size, the area of the field surrounding the collections, and the density. We designed a new paradigm in which participants observed a stream of dot collections with deviant stimuli that could change in numerosity, in the continuous dimension under consideration, or in both. Participants reacted to changes by pressing one of two response buttons according to the type of deviation, or both. Number changes were systematically better detected than other visual changes. When two dimensions varied at the same time, detections of changes elicited more numerosity than visual responses. We discuss the findings from the point of view of numerosity extraction and decision processes.

P2.40- Are dates processed like words rather than like numbers? A study of transposition priming effects

Aliette Lochy[1,2], Fanny Golinvaux[2], & Christine Schiltz[1]

1 - Institute of Cognitive Science and Assessment, Université de Luxembourg, Luxembourg
2 - Institut de Recherches en Sciences Psychologiques, Université Catholique de Louvain, Belgium

Neuropsychological case-studies suggested that dates and encyclopedic numbers may be processed differently than unknown numbers. However, this issue was not yet investigated in reading in healthy participants, so that it is unclear if dates are read like words and processed as lexical items, or like numbers where each position strictly defines the digit value in a base-10 system. Here, we compared processing of known dates to unknown numbers in a group of 26 experts (students and teachers in History). Participants performed an explicit recognition task on dates (e.g., 1789, 1945, …) and on acronyms (e.g., FNRS, HDMI…), half known and half unknown. They were preceded by an identical prime (e.g., 1945-1945), a transposed-character prime (e.g., 1495-1945) or a substituted-character prime (e.g., 1635-1945). Results show that for dates, there is a significant transposition gain (-57ms), while for unknown numbers as well as for acronyms (known and unknown), the transposed-character prime induced a cost (from +17 to +257ms) rather than a gain. The facilitation due to transposed characters found here on dates is similar to what is observed in studies of lexical decision on words. Therefore, it suggests that dates may be processed with similar types of orthographical mechanisms than words.

P2.41- Does tactile stimulation during sleep boost overnight motor performance?

Sébastien Degeert & Philippe Peigneux

Université Libre de Bruxelles, Belgium

Motor abilities are acquired through repetition and training. Targeted Memory Reactivation (TMR) can improve performance outside additional training, by cueing the learned pattern using contextual auditory or olfactory stimuli during post-training sleep. In this study, we investigated the effect of a new type of sensory cueing, namely tactile stimulation, on the learning of a motor sequence. Thirty young adults were equipped with a finger tactile stimulation device at the non-dominant hand, and had to learn a 12-elements finger motor sequence (4-2-3-1-2-1-4-3-2-4-1-3). In a first awake phase, they had to press the corresponding key each time a finger was stimulated; stimulations followed the sequence to be learned. Speed and accuracy performance for sequence repetition was then assessed over four 30-seconds blocs. In the post-learning night during NREM sleep, participants were cued (i.e., finger tactile stimulation) either with the (a) trained sequence or a (b) new sequence, or (c) were not cued (control). Speed and accuracy performance was retested the next morning. Data are currently acquired, and we hypothesize that congruent cueing will enhance overnight motor performance as compared to no cueing, and that cueing an interfering sequence will be detrimental to motor performance for the learned sequence.

P2.42-The impact of stress on the incorporation of supraliminal stimuli into the subsequent dream scenery – The Pötzl effect revisited

Leila Salvesen & Philippe Peigneux

Center for Research in Cognition and Neurosciences, Université Libre de Bruxelles, Belgium

The continuity hypothesis [1-2] suggests that dream scenarios at least partially incorporate recent waking experiences. This incorporation seems selective, as incorporated elements often appear to be related to emotion [3-4]. Pötzl [5] showed that stimuli not consciously perceived at the time of exposure might be incorporated into the dream scenery the following night. Such piecemeal transfer of seemingly unprocessed information at wake into dream content represents an interesting approach to investigate the type of waking elements that are preferentially incorporated into our dreams. In this study, we focus on stress at exposure as a potential modulating factor. Participant (N=32) are presented both fearful and neutral visual stimuli at supraliminal level, in the context of a distracting task. Stress is experimentally induced using both a peer-pressure context and negative feedbacks emphasizing task underachievement. Dream diaries are collected for 15 days, before and after the experimental manipulation, to analyse dream contents. We hypothesize that (1) visual stimuli will be incorporated into dreams even if not consciously perceived during their presentation; (2) fearful stimuli will be incorporated more frequently than neutral ones; (3) participants exposed to the contextual stress condition will incorporate experimental stimuli more frequently than participants in the control condition.

P2.43- Is it a painful error? The effect of unpredictable and predictable pain on the error-related negativity

Anne Willems, Valentina Jelinčić, Johan W. Vlaeyen, Andreas von Leupoldt, & Diana M. Torta

Health Psychology, KU Leuven, Belgium

Unpredictability potentiates the processing of threats. Recent findings showed that an unpredictable context increases the amplitude of the error-related negativity (ERN), a cognitive potential that appears after the commission of an error. Interestingly, this effect has only been studied using unpredictable, task-irrelevant stimuli. In many situations, however, it is the consequence of the error that is unpredictable. The current study systematically investigates the effect of receiving (un)predictable somatosensory painful or not painful stimuli, following the commission of an error on the amplitude of the ERN. Using high-density EEG, we recorded the ERN in 40 healthy participants performing an arrowhead version of the Eriksen Flanker Task under three conditions: Errors were either followed by (1) innocuous, tactile stimulation; (2) painful stimulation; or (3) either one of the two in an unpredictable manner. The conditions did not differ with respect to the reaction times or the number of errors. We predict increased ERN amplitudes in the predictable-painful condition compared to the predictable-tactile condition, given that pain renders errors more threatening. Moreover, we predict even larger ERN amplitudes in the unpredictable, possibly painful condition, as unpredictability enhances the processing of threats. Finally, we predict these effects to be more pronounced in anxious individuals.

P2.44- Where does the imageability effect in working memory come from?

Benjamin Kowialiewski[1,2], Dylan Van Akelyen[1], & Steve Majerus[1,2]

1 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium
2 - Fund for Scientific Research FRS-FNRS, Belgium

Working memory is influenced by several linguistic long-term memory factors. One of these factors is the imageability effect, in which concrete or high imageability words (e.g. cat, tree) are better recalled as compared to abstract or low imageability words (e.g. phase, doubt). The precise origin of this effect is however a matter of debate. In this study, we assessed the hypothesis that the occurrence of the imageability effect in WM tasks is conditioned to the implementation of semantic elaborative processes. Thirty-nine young healthy adult participants were invited to encode and immediately recall six-items lists composed of either high or low imageability words. In half of the trials, participants had to perform a secondary interfering task involving an animal classification judgement task aimed at preventing the implementation of semantic elaborative processes on the memoranda. We found a very strong impact of the imageability dimension and the interfering task (BF_{10} > 100) on recall accuracy but there was no reliable evidence for a reduction of the imageability effect in the interfering condition (BF_{10} = .833). Our results suggest that semantic elaborative processes are not a necessary condition for the observation of imageability effects in WM.

P2.45- Effects of activation of colonial memory and of perceived threat on Spaniards' acculturation perceptions and attitudes toward two minorities

Camila Arnal & Assaad Azzi.

Université Libre de Bruxelles, Belgium

Our study explores whether activation of colonialist memories affects majorities' acculturation attitudes towards two target group minorities. We activate (or not) among Spanish participants either a memory of the Arab conquest of Spain (when faced with the Moroccan target group) or of the Spanish empire in Latin America (when faced with the Ecuadorian target group). We also measure their political orientations. Then they answer a questionnaire measuring their perception of threat, of cultural maintenance and adoption of the target group, as well as their acculturation attitudes towards this group. Thus, our study consists of a 2x2 between-subjects experimental design: target group and colonial memory activated. We expect to replicate the results of Lopez-Rodriguez et al (2013): participants' perceptions of maintenance and adoption will influence their acculturation attitudes, an effect mediated by perceived threat. However, we also expect that the mediation effect of perceived threat will be accentuated when corresponding colonial memories are activated as opposed to a control condition. We also expect these effects to be mediated by political orientation.

P2.46- The spatial association of numbers

Zeineb Ben Sassi[1], Kim Archambeau[2] , Jean Philippe van Dijck[3], & Wim Gevers[1]

1 - Université Libre de Bruxelles, Belgium
2 - Universiteit Gent and Thomas More University College, Belgium
3 - Universiteit Amsterdam, The Netherlands

The processing of numbers is spatial rather than verbal. This association can be observed in the form of the SNARC effect (Spatial-Numerical Association of Response Codes). This reflects the tendency to respond faster with the left hand side to relatively small numbers and with the right hand side to relatively large numbers. This effect is observed both when magnitude information is relevant (magnitude comparison task) or irrelevant (parity judgment task) to the task. Previous work demonstrated that the effect is equally large regardless of the relevancy of the magnitude information. In this study we investigate the possibility that executive functions intervene when magnitude is relevant but not when magnitude information is irrelevant. Participants are aware of the SNARC conflict in the magnitude task but not in the parity judgment task. All participants perform both tasks. Crucially, each task is additionally performed with a randomly alternating response mapping (e.g. if number is blue press left for smaller/odd, if number is orange press right for smaller/odd). Participants cannot use executive functions because of these alternating response mappings. In this situation, we expect to find a stronger SNARC effect, observed in more participants, for the magnitude compared to the parity judgment task.

P2.47- Association of working memory capacity with spatial attention in healthy individuals

Lena M. Hofbauer[1], Tianlu Wang[1], & Céline R. Gillebert[1,2]

1 - Department of Brain and Cognition, KU Leuven, Belgium
2 - Department of Experimental Psychology, University of Oxford, United-Kingdom

Individual differences in working memory capacity (WMC) affect performance in a number of tasks. However, in how far WMC affects spatial attention remains unclear. In this study, we aimed to investigate individual differences in spatial attention related to WMC using two variations of a combined whole/partial report paradigm (Vangkilde et al., Psychopharmacology (2011) 218:667–680). Participants were presented with brief displays of 4 or 8 peripheral letter stimuli around a central fixation cross at three different levels of eccentricity, which they covertly attended and reported. In the unguided whole/partial report task, participants had no spatial expectancy and had to report targets that were intermixed with distracters on some trials. In the cued whole report task, participants were cued to expect the stimuli at a specific eccentricity. We predicted that high WMC would predict a wider spread of attention in the unguided task and a more successful restriction of attention to the cued eccentricity in the cued task. Regression analyses were used to test these hypotheses. Data acquired in 56 neurologically healthy volunteers will be presented.

P2.48- Sublexical units in Chinese character recognition

Joanna Isselé, Fabienne Chetail, & Alain Content

CRCN/LCLD, Université Libre de Bruxelles, Belgium

The recognition of Chinese characters by experienced readers is based upon a limited set of orthographic constituents (Chen, Allport, & Marshall, 1996). The majority of Chinese characters are composed of two or more of these components. Current models of word recognition in Chinese acknowledge the special role of components in character recognition, but often do not specify a representational level for sublexical combinations of them (e.g. Taft & Zhu, 1997). However, in characters with more than two components, such sublexical combinations or compounds are often present. In a probe detection task, we examined whether compounds act as a perceptual unit of representation during character reading. Targets were four-component characters containing a two-part compound that either existed as a character on its own (with its own meaning and pronunciation) or not. Probes were single components or compounds. Participants had to decide whether the probe was present in the subsequent target. We compared probe detection accuracy and reaction times for the two types of targets. Apart from Chinese readers, we also included participants without prior knowledge of Chinese, to ensure that our two sets of stimuli did not differ on purely visual properties.

P2.49- Concurrent learning of explicit and implicit sequences

Vincent Marinelli, Marie Geurten, & Thierry Meulemans

Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium

Sequence learning is at the core of many everyday activities, from simple tasks such as preparing coffee to more complex activities such as car driving. Although sequential implicit learning has been thoroughly explored for many decades via the Serial Reaction Time (SRT) task (Nissen & Bullemer, 1987), little is known about how learning multiple sequences unfolds. Some authors explored the interaction of distinct modalities in sequence learning (e.g. Kermény & Meier, 2016, Remillard, 2015), but we still lack evidence as to how the implicit learning of a sequence is impacted by the "simultaneous" confrontation to another sequence. This research thus focused on the ability to learn a sequence implicitly when confronted to a secondary sequence, presented either explicitly or implicitly. 100 participants underwent an SRT task including two fixed sequences. Two conditions were compared, differing according to the nature of the learning procedure for each sequence: (1) both learned implicitly; (2) one learned explicitly and the other implicitly. Preliminary results suggest that implicit learning effectively occurred in both conditions irrespectively of the secondary sequence type. Yet, further analyses are required.

P2.50- A post-decisional neural marker of confidence predicts information-seeking in decision-making

Kobe Desender[1,2], Peter Murphy[1], Annika Boldt[3], Tom Verguts[2], & Nick Yeung[4]

1 - Department of Neurophysiology and Pathophysiology, University Medical Center Hamburg-Eppendorf, Germany
2 - Department of Experimental Psychology, Universiteit Gent, Belgium
3 - Institute of Cognitive Neuroscience, University College London, UK
4 - Department of Experimental Psychology, University of Oxford, UK

Theoretical work predicts that decisions made with low confidence should lead to increased information-seeking. This is an adaptive strategy because it can increase the quality of a decision, and previous behavioural work has shown that decision-makers engage in such confidence-driven information seeking. The present study aimed to characterize the neural markers that mediate the relationship between confidence and information-seeking. A paradigm was used in which seventeen human participants (nine male) made an initial perceptual decision, and then decided whether or not they wanted to sample more evidence before committing to a final decision and confidence judgment. Pre-decisional and post-decisional ERP components were similarly modulated by the level of confidence and by information-seeking choices. Time-resolved multivariate decoding of scalp EEG signals first revealed that both information-seeking choices and decision confidence could be decoded from the time of the initial decision to the time of the subsequent information-seeking choice (within-condition decoding). No above-chance decoding was visible in the pre-response time window. Crucially, a classifier trained to decode high versus low confidence predicted information-seeking choices after the initial perceptual decision (across-condition decoding). This time window corresponds to that of a post-decisional neural marker of confidence. Collectively, our findings demonstrate for the first time that neural indices of confidence are functionally involved in information-seeking decisions.

Language

14:20 – 15:20

Building : B31 | Room : Mahaim and surrounding area

P2.51- Semantic of objects: When going through words, manipulation acts like function

Cynthia Collette[1], Angela Bartolo[2,3], Sarah Carneiro Pereira[1], Laurent Lefebvre[1], & Isabelle Simoes Loureiro[1]

1 - Institute of Health Sciences and Technologies, Université de Mons, Belgium
2 - Cognitive and Affective Sciences Laboratory, UMR CNRS 9193, Université de Lille, France
3 - Institut Universitaire de France, Paris, France

Manipulable man-made objects are characterized by semantic features of different formats. While it is clear that functional declarative knowledge related to objects (i.e. what is an object for) belongs to semantic knowledge stored in memory, the nature of knowledge associated with object gesture of use (i.e. manipulation) remains unclear. We assume that, despite its gestural non declarative format, manipulation is part of object semantic. If this is true, semantic priming using word-stimuli (declarative format) would leads to very similar effects for both types of knowledge. To test that hypothesis, a lexical decision task associated to semantic priming was administered to 20 healthy adults (21yo +/-2.8). Sixteen object-word targets were associated with three types of object-word primes: one sharing the same function (e.g. sandglass-stopwatch); one the same gesture of use (e.g. lighter-stopwatch) and an unrelated prime (e.g. knife-stopwatch). Lists of stimuli were controlled for familiarity, AoA, imageability, frequency and length, with no difference between priming contexts. Behavioural (i.e. response times) as well as EEG data were collected. Very similarly, facilitative priming effects on response times and N400 decreasing were observed for both function and manipulation supporting the idea that manipulation is indeed part of object semantic.

P2.52- Does the development of number gestures and, more generally, finger skills influence the understanding of the cardinal meaning of number words in pre-schoolers?

Line Vossius[1], Marie-Pascale Noël[2], & Laurence Rousselle[1]

1 - Childhood research unit, Université de Liège, Belgium
2 - Université Catholique de Louvain, Belgium

Fayol and Seron (2005) claimed that children's ability to use their fingers in numerical contexts contributes to the development of basic numerical skills; while Nicoladis, Pika and Marentette (2010) suggested that children learn to use number gestures as arbitrary symbols and do not benefit from this iconic tool. Firstly, a longitudinal examination of how and when children master number words and gestures was carried out. Progress in the understanding of the cardinal meaning of number gesture could improve progress in the understanding of the cardinal meaning of number words, this was also verified. Following that, a second set of questions concerned which finger skills help children to understand cardinality. Forty-seven pre-schoolers were tested every four months from 3 to 4 years old using tasks assessing the understanding of cardinality with number words and number gestures, and assessing three digital components (finger gnosia, dissociation and coordination). Preliminary results show that the development of the understanding of the cardinal meaning of number gestures significantly influences the development of verbal cardinal meaning, and increases with age. Furthermore, dissociation and coordination skills, but not finger gnosia, significantly influence the child's understanding of the cardinal meaning of number words, this also increases as children become older.

P2.53- Assessment of word reading aloud subprocesses to better understand reading abilities in Alzheimer's disease

Aurelia Rendón de la Cruz, Isabelle Simoes Loureiro, Mandy Rossignol, & Laurent Lefebvre

Institute of Health Sciences and Technologies, Université de Mons, Belgium

Several studies have highlighted a word recognition impairment in Alzheimer's disease (AD), particularly for low frequency exception words (regularization errors) and pseudo-words (lexicalization errors) (Graham & Patterson, 2004). A few of them have focused on the efficiency of the underlying processes involved in word reading aloud to better understand reading errors in AD. However, their results are partly contradictory as they do not consider the five subprocesses of reading, i.e., visual, orthographic, phonological, lexico-semantic processing and the phonological buffer. Therefore, the aim of this project is to systematically investigate these five subprocesses throughout AD. A French word reading aloud task and five tasks focusing on one reading component will be developed. They will be administered to three groups: mild AD, moderate AD and a control group. The word reading task comprises regular and exception words, pseudo-words (with and without neighbours) and pseudo-homophones (half derived from regular words and half derived from exception words). The five tasks involve (1) a letter comparison task (visual processing) (2) a lexical decision task (orthographic input lexicon) (3) a semantic word-matching task (lexico-semantic processing) (4) a semantic exception-word matching task (phonological output lexicon) and (5) a pseudo-word repetition task to (phonological buffer).

P2.54- The effect of semantic information on new word learning in adult readers

Anezka Smejkalova & Fabienne Chetail

LCLD, CRCN, Université Libre de Bruxelles, Belgium

The encounter of an unknown word is a common experience of any adult reader. To be learnt and easily recognized in the future, the unfamiliar letter string has to enter the mental lexicon, the system of interconnected representations (orthographic, phonological, semantic) of words. Most studies examined only one of these aspects, so a clear picture of the cognitive dynamics of this learning is missing. A perfect example concerns the question of the role of semantic information on subsequent word learning. While several studies suggested that the orthographic learning could be facilitated when the word meaning is provided, other studies reported no such effect. The aim of the present study was to re-examine the effect of semantic information on new word learning in adults using an original approach based on learning via a naturalistic situation of story reading. Different aspects of word learning were examined: orthographic, phonological, and semantic knowledge on novel words (using respectively a spelling, naming, and word meaning recognition task), and the integration of the novel words into the mental lexicon (with a primed LDT). The performance in the four tasks were compared according to the semantic context provided for the new words in the stories.

Biological psychology & statistics

14:20 – 15:20

Building : B31 | Room : Mahaim and surrounding area

P2.55- Generalisation and validation of DeepSqueak for automated USV detection

Bavo Kempen, Pierre Hansquine, & Astrid Zeman

Department of Brain and Cognition, KU Leuven, Belgium

Laboratory rodents use Ultrasonic Vocalisations (USVs) to communicate and express their internal states (Scattoni, Crawley, & Ricceri, 2009). Analysing and interpreting a rodent's rich ultrasonic repertoire provides an additional and complementary source of information for assessing their behaviour. Even though audio data is easily and routinely collected, detecting and classifying USVs is often a laborious, manual process prone to human error. Despite software tools that automate USV detection and classification (e.g. A-MUD, VoICE, Mupet), their accuracy is degraded by variation in lab specific background noise, which cannot be accounted for because of inherent static decision rules. Recently, a new tool has been developed based on Deep Convolutional Neural Networks, named DeepSqueak (Coffey, Marx, & Neumaier, 2019). Unlike previous automated methods, DeepSqueak adapts to different laboratory environments by training and testing on relevant data. We trained DeepSqueak's detection network on over 90 minutes of inhouse audio data containing over 12,000 manually annotated USVs and tested performance on held out files. DeepSqueak is able to match the number of true positives detected by humans and generalises to other genders, strains and environments. We conclude that DeepSqueak is a useful tool for assisting, if not replacing, manual human USV detection.

P2.56- Does social enrichment impair drug addiction?

Théo van Ingelgom, Vincent Didone, & Etienne Quertemont

Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium

Drug addiction is largely caused by long lasting neuro-behavioral adaptations due to the repeated exposure to drugs. Some of these adaptations lead to an enhancement of the behavioral responses to these drugs. This phenomenon is called "behavioral sensitization" or "reverse tolerance". Behavioral sensitization is a key concept in some current theory of drug and alcohol addiction and could explain the shift from a moderate state of alcohol consumption to alcoholism. The susceptibility to develop a behavioral sensitization to alcohol is especially bound to living environmental conditions. Enriched/impoverished environmental conditions, especially during childhood and adolescence, are widely considered as main factors influencing the development of alcoholism. In animal models, alcohol sensitization is often modeled by the gradual increase in the locomotor stimulant effects of alcohol with its repeated administration in mice. The present study aimed to examine the preventive effects of different social housing conditions on the behavioral sensitization induced by chronic ethanol exposure in mice. Our main results show that these housing conditions have an impact on the development of sensitization. Isolated mice show stronger alcohol sensitization probably due to the stress related to isolation. In contrast, mice housed in social groups show lower levels or a delayed development of alcohol sensitization, which may be interpreted as a preventive effect of social enrichment.

P2.57 - Contextual renewal of conditioned avoidance after extinction with response prevention

Minoo Ashoori, Silvia Papalini, & Bram Vervliet

KU Leuven, Belgium

Exposure with response prevention (ERP) is the golden standard used for reducing the irrational fear and unnecessary avoidance in obsessive compulsive disorder (OCD). However, return of inessential avoidance after extinction is a serious limitation on the outcome of anxiety treatments. We studied the role of context in this regard. N=42 participated in this experiment. Fear and avoidance conditioning took place against the same background picture (A), and the avoidance action during avoidable conditioned stimulus (CS+av) prevented electric shock, unconditioned stimulus (US), but not during unavoidable conditioned stimulus (CS+unav). Conditioning was followed by extinction phase in background picture B, without US and availability of avoidance action. Finally there were two tests with avoidance availability, but without US, and 21 participants observed renewal condition in the avoidance context and then recall condition in the extinction context (ABAB), while for other 21, the order of test conditions was reversed (ABBA).The return of avoidance after extinction is influenced by context, as indicated by a Group x CS x Phase interaction in renewal and recall phases, $F(1, 40) = 7.884$, $p < 0.05$, which was driven by higher avoidance to CS+av in conditioning context A in group ABAB versus extinction context B in ABBA.

P2.58- Quality of a sample of meta-analyses published in 2016 in psychology and related disciplines

Sara Ajamieh, Victoria Leclercq, Ezio Tirelli, & Olivier Bruyère

Université de Liège, Belgium

This work aims to characterize the quality of reporting (i.e. the report in the papers of all the information that allows the evaluation and the replication of experiments) and the methodological quality of meta-analyses in psychology and related disciplines. Two authors sampled 170 meta-analyses from PsycInfo (2016) and coded them on three checklists: the PRISMA checklist (Moher et al., 2009), which focuses on the quality of reporting, and the AMSTAR (Shea et al., 2007) and AMSTAR 2 (Shea et al., 2017) checklists, which assess methodological quality. The meta-analyses were divided into two groups (depending on whether the authors reported using PRISMA to write their papers) in order to evaluate the impact of the use of this tool on the scores of the three checklists. The results show that neither the reporting nor the methodological quality of meta-analyses are optimal. The use of PRISMA is related to a better adherence to the items of the three checklists. In conclusion, there is still much room for improvement in increasing meta-analyses quality, which are supposed to represent the highest level of scientific evidence.

Social and Clinical Psychology

14:20 – 15:20

Building : B31 | Room : Mahaim and surrounding area

P2.59- Lesbian couple's transition to parenthood, assisted reproductive technology and the creation of new family structures

Salvatore D'Amore, Camila Arnal, Alexandre Maurisse, & Lola Maranzana.

Université Libre de Bruxelles, Belgium

In this study, we explore the transition of lesbian couples to parenthood from a clinical and psychosocial point of view. Our study explores the motivations to parenthood of lesbian couples, the support (or not) during this process from family members, friends and institutions; and the rejection or homophobic attitudes from clinics or hospitals. Our aim is to shed light on the complex transition between being a lesbian couple and becoming a family created through assisted reproductive technology. We used a mixed method approach integrating quantitative and qualitative analysis. In the first part of the study, 70 participants answer a questionnaire about family life experiences. Afterward, we conducted 17 semi-structured interviews that we analysed using Braun & Clarke thematic analysis method. This study could help to understand that even if there is a legal and social reform, discrimination still present, some participants on this study experienced homophobic attitudes from the hospital or clinic's staff. This research can also elucidate the primary sources of vulnerability and the resources these families use to cope with stress and develop resilience skills.

P2.60- The impact of sexualized video game content and cognitive load on rape myth acceptance and dehumanization

Tania Noël[1], Jonathan Burnay[1], & Frank Larøi[1,2,3]

1 - Psychology & Neuroscience of Cognition research unit, Université de Liège, Belgium
2 - Department of Biological and Medical Psychology, University of Bergen, Norway
3 - Norwegian Center of Excellence for Mental Disorders Research, University of Oslo, Norway

Since the inception of video games, the potential negative impact of their sexualized content on women is a concern. Based on the General Aggression Model (Anderson & Bushman, 2018), we hypothesized that (1) exposure to sexualized female avatars and playing under high cognitive load conditions will increase adherence to rape myth acceptance, (2) this link will be mediated by the dehumanization of both the victim and the perpetrator. 142 participants were randomly assigned to different conditions and were asked to play a video game with either sexualized or non-sexualized female characters, and under a low or high gaming difficulty condition. Afterwards, in order to measure rape myth acceptance and dehumanization, participants read a rape date story and were asked to judge the victim's and the perpetrator's degree of responsibility and dehumanization. Results were partially consistent with our predictions. Playing a video game with sexualized avatars increased rape victim's blame when cognitive load was high, but did not predict dehumanization towards the victim. Concerning the perpetrator, video game sexualization did not influence responsibility, but partly influenced dehumanization. The results show that video games, compared to other media, might have a stronger impact on attitudes towards women due to their interactive nature.

P2.61- « How can we be happy together? »: Study of the link between the type of interactions between partners and their level of conjugal and sexual satisfaction

Thérèse Scali & Coline Claes

Service de Clinique Systémique et Psychopathologie Relationnelle, Université de Liège, Belgium

Being in a couple is as much a process, as it is a status provider (Boszormenyi-Nagy, 1986). To some people, this process may feel difficult or uncomfortable (Cigoli, 2010), with some types of interactions impacting negatively on their well-being and those of their children (Zemp, Bodenmann, & Cummings, 2016). Most studies on couples rely on individual self-reported questionnaires. By using a mixed methodology (direct observation of interactions and questionnaires), the present study aims at highlighting the relation between the type of interactions among partners, and their level of couple and sexual satisfaction. A total of 305 individuals completed questionnaires, and twenty couples were observed directly. Our results indicate factors that lead to greater satisfaction in relationships, as well as types of interaction that may create crisis situations within couples. The present study helps to better understand warning signals in relationships thereby allowing timely reactions before they deteriorate and potentially lead to situations that are notoriously more difficult to manage, such as domestic violence or conflictual separations.

P2.62- Impact of personality and media on terrorism perception

Marine De Cuyper, Marine Delhalle, & Adélaïde Blavier

Centre of psychological trauma and forensic psychology, Université de Liège, Belgium

Research showed that terrorism perception is influenced by the media. In this context, this study aimed to study how personality influences terrorism perception through qualitative and quantitative methods. Participants (n=90) answered an online questionnaire that measured danger perception of terrorist events, the media influence as well as personality (BFI-Fr). Afterwards, a semi-directive interview was realized with a sample of the online questionnaire participants (n=30) in order to give substance to the previous observations. Results suggested that some personality dimensions – agreeability and neuroticism – are linked to high level of terrorism perception in terms of threat perception, worrying, avoidance and relation to the media. Furthermore, the media as well as personal characteristics – age, gender and profession – influence terrorism perception.

P2.63- Slut shaming in early adolescence: Embedding in social world and repercussions on physical and psychological well-being

Margot Goblet & Fabienne Glowacz

Université de Liège, Belgium

Adolescents evolve in a wired universe, where new technologies are ubiquitous. However, the Internet is not gender-neutral and sexist, sexual and homophobic violence tend to reproduce online (Doring, 2000; Pascoe, 2011). Slut shaming is defined as stigmatization processes towards a person due to his or her clothing, makeup or sexual behaviours, whether real or supposed. It targets mainly women (Armstrong, Hamilton, Armstrong et Seeley, 2014). The current study estimates, using a paper-pencil questionnaire, the prevalence of slut shaming among adolescents aged under 15 (N=503, 55,9% girls, μ=13,36 years old and σ=0,83). 8,15% report having been a victim of slut shaming, 2,78% a perpetrator. Data are analysed in conjunction with romantic and sexual life, in particular the number of partners and age of initiation, issues of status and popularity among peers (Abeele, Van Cleemput et Vandebosch, 2017), parental monitoring (Kerr et Stattin's Parental Monitoring Scale, 2000) and psychological and physical well-being (Goldberg et Hillier's General Health Questionnaire, 1979). Our results allow to embed this problematic within adolescents' social worlds et developmental preoccupations and to estimate its repercussions.

P2.64- Social exclusion and negative self-references: Construct validity of the Emotional Reversal Learning Task (ERLT)

Marie Annelise Blanchard[1], Eline Belmans[1], Keisuke Takano[2], & Filip Raes[1]

1 - KU Leuven, Belgium.
2 – Ludwig Maximilians University Munich, Germany

Depression is widely prevalent and identifying its vulnerability factors can aid prevention and treatment. One such vulnerability factor is negative self-referential processing (e.g. “I’m useless”). Theory proposes that such processing becomes habitual for depressed people, meaning they have difficulty stopping these negative thoughts. The Emotional Reversal Learning Task (ERLT) examines how easily people can stop negative self-thinking. In this paradigm, participants learn to associate retrieving a negative memory with economic reward and a positive memory with punishment, followed by a contingency reversal: these associations switch. People with higher depressive symptoms persist longer in choosing negative memories after the switch, reinforcing that depressed people have more difficulty disengaging from negative self-references. There has been no experimental validation for the ERLT, however. To assess its construct validity, we induced social exclusion, an etiological factor of depression, in half of 130 participants using Cyberball. We then observed how social exclusion affected ERLT performance, as well as whether depressive symptoms and childhood trauma moderate the association between learning rate of contingency switch and exclusion. We found no impact of social exclusion on negative self-references, nor prediction of learning rate by depressive symptoms or childhood trauma, highlighting the importance of further examination into ERLT validity.

Awards

Best Master Thesis Award 2019

2019 nominees for the Best Master thesis award (in alphabetical order):

- **Olivier Desmedt** (Université Catholique de Louvain): *The relationship between alexithymia and interoceptive accuracy: a measurement invalidation approach*

- **Yorgo Hoebeke** (Université Catholique de Louvain): *The relationship between self-discrepancies and psychological (in)flexibility*

- **Johannes Keutgens** (Université Catholique de Louvain): *Antecedents, consequences and perspectives for vocational psychology*

- **Karla Matic** (KU Leuven): *It's not all about looks: The role of object shape in parietal representations of manual tools*

The winner will be announced at the 2019 BAPS meeting in Liège

Best PhD Thesis Award 2019

2019 nominees for the Best PhD thesis award (in alphabetical order):

- **Emiel Cracco** (Universiteit Gent): *The multi-actor mirror neuron system: can the human brain represent multiple actions simultaneously?*

- **Jessica Rassart** (KU Leuven): *Adjusting to chronic illness. The role of personality, illness perceptions, and coping*

- **Jasper Van Assche** (Universiteit Gent): *Ethnic diversity, ideological climates, and intergroup relations: A person x context approach*

The winner will be announced at the 2019 BAPS meeting in Liège