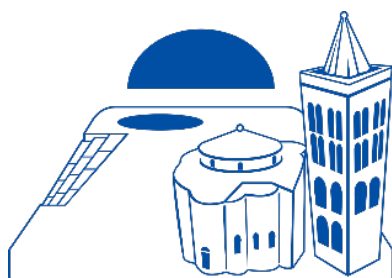




7th Summer Institute

21 - 24 August 2019

University of Zadar



ZADAR CROATIA

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Code of Conduct

The International Society for Human Ethology (ISHE) holds annual meetings to enable its membership to present and discuss research findings, to share knowledge of techniques and skills, and to build professional networks. At both its Congress and Summer Institutes, ISHE is dedicated to providing a harassment-free event experience for everyone. We do not tolerate harassment of event participants in any form. Event participants violating these rules may be sanctioned or expelled without a refund at the discretion of the ISHE Board of Officers.

ISHE is dedicated to diversity, equity, inclusion, and the free expression of ideas. The Society seeks to provide an environment in which diverse participants may learn, network, and enjoy the company of colleagues in an environment of mutual human respect. We recognize a shared responsibility to create and hold that environment for the benefit of all. Some behaviors, therefore, are specifically prohibited:

- *Harassment or intimidation, including but not limited to that based on gender, race, ethnicity, sexual orientation, gender identity, gender expression, disability, age, appearance, religion, or other group status.*
- *Sexual harassment or intimidation, including stalking (physical or virtual) and recurring unwelcome sexual attention or physical contact.*
- *Sustained disruption or threatening presenters (verbally or physically).*

All participants are asked to frame discussions as openly and inclusively as possible and to be aware of how language or images may be perceived by others.

Critical examination of beliefs and viewpoints does not, by itself, constitute hostile conduct or harassment. Similarly, use of sexual

imagery or language in the context of a professional discussion might not constitute hostile conduct or harassment if it is necessary to the topic of discussion and presented respectfully.

Enforcement

Participants who are asked to stop any harassing behavior are expected to comply immediately.

If a participant engages in harassing behavior, event organizers retain the right to take any actions to keep the event a welcoming environment for all participants. This includes warning the offender or expulsion from the meeting with no refund.

Event organizers may take action to redress anything designed to, or with the clear impact of, disrupting the event or making the environment hostile for any participants.

We expect participants to follow these rules at all event venues and event-related social activities.

Reporting

If someone makes you or anyone else feel unsafe or unwelcome, or if you believe a harassment problem exists, please report it as soon as possible to any member of the ISHE Board of Officers or event organizers.

References

This anti-harassment policy is adapted (with permission) from that drawn up by the ***Society for the Improvement of Psychological Science*** (<https://improvingpsych.org>), using language and concepts adapted from the following sources:

Geek Feminism wiki:

http://geekfeminism.wikia.com/wiki/Conference_anti-harassment/Policy

American Library Association code of conduct:

<http://alamw14.ala.org/statement-of-appropriate-conduct>

Organising Team

Local organising team

Irena Pavela Banai (University of Zadar, Croatia)
Benjamin Banai (University of Zagreb, Croatia)
Jelena Ombla (University of Zadar, Croatia)
Zvezdan Penezić (University of Zadar, Croatia)

Programme Committee

Elisabeth Oberzaucher (University of Vienna, Austria) - chair
Irena Pavela Banai (University of Zadar, Croatia)
Amanda Hahn (Humboldt State University, USA)
Jan Havlíček (Charles University, Czech Republic)
Iris Holzleitner (University of Glasgow, UK)
Minna Lyons (University of Liverpool, UK)
Craig Roberts (University of Stirling, UK)

On Site Helpers (University of Zadar, Croatia)

Paula Andabak
Marko Antolčić
Marinela Bačić
Ada Bešlagić
Ana Filipović
Tea Filipović
Kati Kezić
Darija Pranjić
Sanja Stepanović
Manuela Tomašić
Zvonimir Vukas

Conference Venue and other useful information

The 7th ISHE Summer Institute will take place at the **University of Zadar in Zadar, Croatia** from 21st – 24th August 2019.



Welcome to the city of Zadar, a city of exceptional history and rich cultural heritage, a city of tourism. The particularity of the city is irresistible for those who respect and admire historical monuments and cultural heritage, artists, tourists and its citizens. Zadar is a city monument, surrounded by historical ramparts, a treasury of the archaeological and monumental riches of ancient and medieval times, Renaissance and many contemporary architectural achievements such as the first sea organs in the world.

Situated in the heart of the Croatian Adriatic coast, Zadar is the urban center of northern Dalmatia as administrative, economic, cultural and political center of the region with 75,000 inhabitants. The coast is particularly indented, the islands and the untouched nature allures many boaters to this regions. The archipelago counts 24 larger and about 300 smaller islets and rocks, three nature parks - Telašćica, Velebit and Vransko jezero and five national parks - Paklenica, Plitvice lakes, Kornati Islands,

Krka and Sjevneri Velebit classifying Zadar and its surroundings at the very top of the Croatian tourist offer.

Zadar is an ancient university city: As early as in 1396 the university was founded here, which was active until 1807, and since then other institutions of higher education performed their activities until the foundation of the renewed University of Zadar in 2002. The tradition of more than 600 years speaks for itself and classifies this city with the **oldest university cities in Europe**.

The University of Zadar is the largest fully integrated university in Croatia. More than 5500 students are enrolled in the undergraduate, graduate and doctoral studies. There are about 600 employees at the University, including 450 members of the academic staff who hold scientific-teaching, teaching and assistant titles. As one of the youngest universities in Croatia (though historically the oldest), the University of Zadar considers not only international, but also interuniversity cooperation with all the related universities and institutes in Croatia as one of its priorities, and it strives to develop mechanisms and methods that will facilitate the establishment of international cooperation.

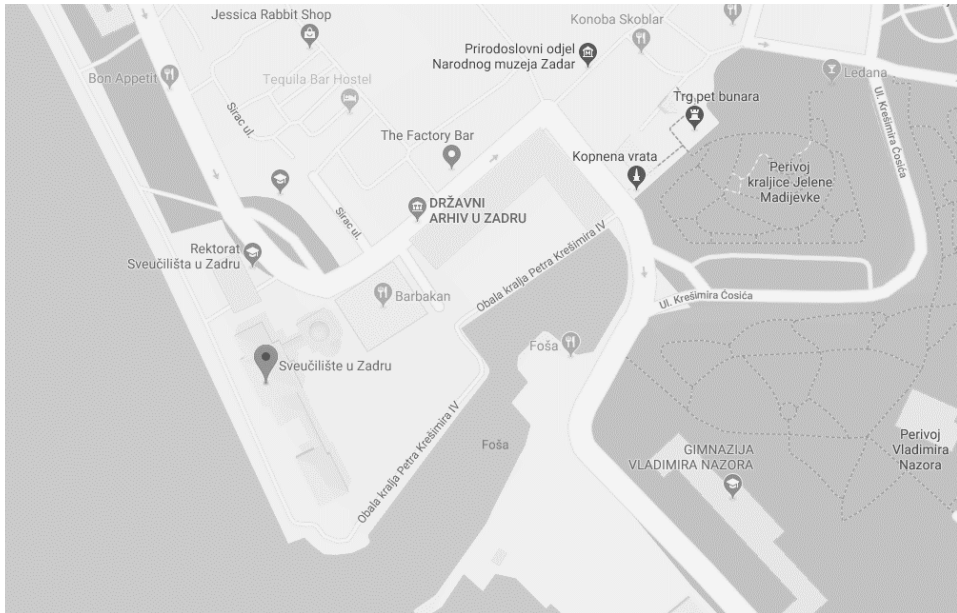
The Department of Psychology was established at the Faculty of Humanities and Social Sciences' in Zadar at the beginning of the 1978/1979 academic year, when the first generation of single-major students of psychology were enrolled. Today, there are 20 permanently employed academic staff members. Its main achievements are reflected in the areas of research, teaching, editing, organization of scientific conferences and international cooperation.

Getting around Zadar

Zadar is a very walkable city, with a charming old town bordering directly to the mediterranean sea. All locations of the conference are within easy reach from downtown Zadar and the University of Zadar.

The main meeting room is the **Great Hall**, where Oral/Poster presentation will be held. Workshops will take place in the **Room A, B** (second floor), **and C** (first floor).

Lunch will be served in the **restaurant Barbakan**, right next to the University.

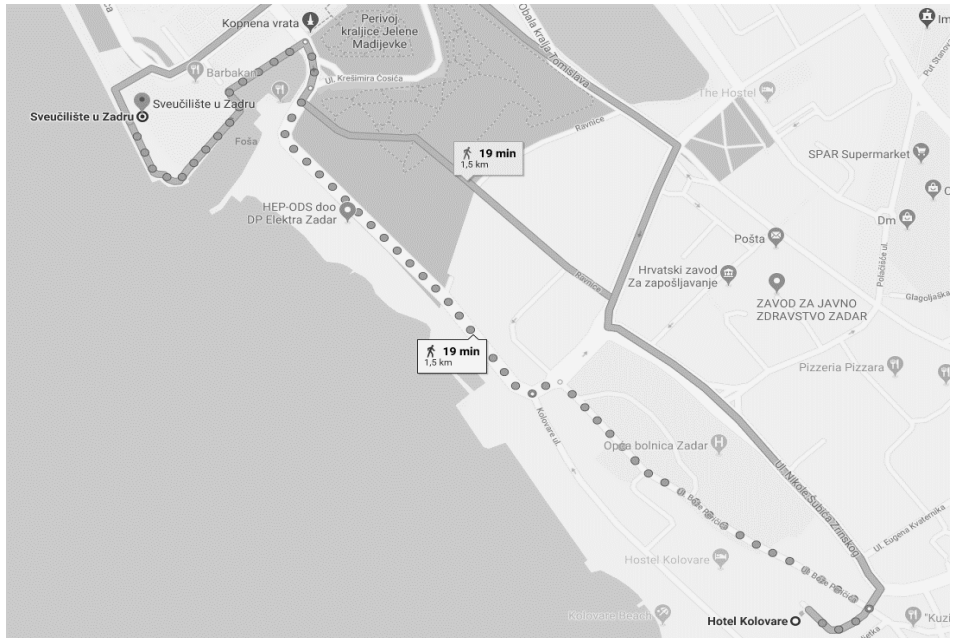


The Welcome Reception will take place at the **Museum of Ancient Glass** (Poljana Zemaljskog odbora 1), 7 minutes walk from the



University.

The Banquet will take place at the **Hotel Kolovare** (Bože Peričića 14), which is less than 20 minutes walk from the Venue.



Wi-Fi and Communicating

Free wireless internet is available in all areas of the University through EDUROAM network by using your university credentials. Other network is accessible by using the password you can find noted at the Reception desk.

Useful numbers & Information

Taxi Services:

Lulić Taxi Zadar +385 23 494 494

Cammeo Taxi +385 23 414 414

Taxi Denis +385 91 262 2621

Uber (order via app)

Bolt (order via app)

Hotel Kolovare

+385 23 203 200

Tourist Information Centre Zadar

+385 23 316 166

Emergency contacts:

+385 915446931,

irena.pavela@gmail.com

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Programme: at a Glance

	Wed 21 August	Thu 22 August	Fri 23 August
9.00		Plenary II: Christine Caldwell	Plenary III: Natalie Sebanz
10.00		<i>Coffee break</i>	<i>Coffee break</i>
10.20		Oral session Ia	Oral session IIIa
10.55		Discussion Session Ia & Refreshments	Discussion Session IIIa & Refreshments
11.35		Oral session Ib	Oral session IIIb
12.10		Discussion Session Ib & Refreshments	Discussion Session IIIb & Refreshments
12.50		<i>Lunch</i>	<i>Lunch</i>
14.15		Oral Session IIa	Symposium 1, 2 &
14.50		Discussion Session IIa & Refreshments	
15.30		Oral Session IIb	
15.55			

16.00	Registration		
16.05		Discussion Session IIb & Refreshments	
16.15			<i>Coffee break</i>
16.30			
16.45		Workshops A, B, & C	Symposium 4 & 5
17.30	Welcome & Introductions		
18.00	Plenary I: Asmir Gračanin		
18.45			
19.00		Zadar Walking tour	
19.30	Reception at the Museum of Ancient Glass		Train ride to Famous Beach Bar
20.00		Optional meet up till late: Garden Lounge Bar	
22.00			Optional meet up till late: Ledana Bar

Programme

Wednesday 21st August

16.00 – 17.30	
Registration	Main Lobby In front of the Great Hall
17.30 – 18.00	
Welcome and introductions	Great Hall
18.00 – 19.00 Plenary I	
Asmir Gračanin Inter-personal functions and intra-personal byproducts of emotional crying	Great Hall <i>Chair: Irena Pavela Banai</i>
19.30 – 22.00	
Welcome reception	Museum of Ancient Glass

Thursday 22nd August

08.30	
Registration opens	Main Lobby In front of the Great Hall

09.00 - 10.00 Plenary II	
Christine Caldwell The Cog in the Ratchet: Investigating the Cognitive Mechanisms Underpinning Human Cumulative Culture	Great Hall <i>Chair: Craig Roberts</i>

10.00 - 10.20	
Coffee break	Great Hall

10.20 - 10.55 Oral session Ia Great Hall	
<i>Chair: Elisabeth Oberzaucher</i>	

Cultured Laterality: Foot Laterality Around the Globe and in Art Depictions	Pia M. Böhm
Reception and production of art as costly signalling	Viktorie Vítů
Which seat to take, which one to offer? Seat choice in mixed dyads – a cross-cultural study	Susanne F. Schmehl
Influence of hormonal status on muscle growth and speed development in women	Marie-Helene Polt
Those Three Little Words: Stature, Face, Muscularity; Relation between ideal partner's components (Love, Wealth, Attractiveness, Intelligence, Caring towards children) with ideal partner's physical attractiveness features.	Lidia Ludwika Wojtycka
The influence of stressful situation on the effect of an implicit reputational cue - At least one thing what is stress good for	Tereza Šmejkalová
The Mental Health Crisis: How can Ethology help? Measuring Eye contact in depression	Colin Hendrie

10.55 - 11.35	
Discussion session Ia & Refreshments	Great Hall

11.35 - 12.10 Oral session Ib Great Hall	
<i>Chair: Elisabeth Oberzaucher</i>	

Does current experience alter attachment security? Variation in current self-perceived mate value	Faize Eryaman
Blurred lines: alcohol, sociosexuality and ambiguous sexual scenarios	Edward Morrison
The influence of competition outcome on testosterone and face preferences in men and women	Lisa L. M. Welling
The effect of olfactory stimulation on affective valence of dreams and affective state upon waking: results of a pilot study	Lenka Martinec Nováková
The evolution of plant avoidance through social learning and error minimization	Linda S. Oña
Cultural differences in judgments of vocal attractiveness	Chengyang Han
Methods comparison in third party kin recognition; or how everyone finds a different answer to the same question.	Vanessa Fasolt
The role of shape and color in human aesthetic perception of real flowers and their photographs	Martin Hůla

12.10 - 12.50	
Discussion session Ib & Refreshments	Great Hall

12.50 - 14.15	
<i>Lunch</i>	Restaurant Barbakan

14.15 - 14.50
Oral session IIa
Great Hall

Chair: Iris Holzleitner

Hierarchy of attachment figures among adult twins and non-twins	Vinicius F. David
Male facial formidability, attractiveness and its hormonal correlates	Jitka Fialová
Body cues of physical fitness affect perception of formidability	Vít Třebický
Sex differences in misperceptions of sexual interest can be explained by men projecting their own interest onto women.	Anthony J. Lee
No Ice Cream After Dinner: A Preference for Falsifying Consequents Alluding to Resource Loss	Ashton Babcock
Girls wear pink and boys wear blue: an evolutionary study of gender stereotypes in Brazil	Italo Ramon Rodrigues Menezes
Context-specific effects of facial dominance and trustworthiness on hypothetical leadership decisions	Hannah Ferguson

14.50 - 15.30

Discussion session IIa & Refreshments	Great Hall
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15.30 – 16.05
Oral session IIb
Great Hall

Chair: Iris Holzleitner

Charlie Bucket effect: Two grandmothers decrease survival probability	Petr Tureček
Does women's interpersonal anxiety track changes in steroid hormone levels?	Amanda C. Hahn
Women's predicted earlier pregnancy announcement to her blood versus affinal relatives	Melanie MacEacheron
Ethological analysis of the jealousy response in infants 10-20 months old following Tinbergen's four questions	Ana Maria Fernandez
An Ethological Study of Camgirls: Plentiful, Sexually Available Virtual Women for Hire	Laura Johnsen
Inquiring about the type of group relationships that could have promoted the success of the first human groups	Cristina Acedo-Carmona
Jealousy-evoking economic game effect on related emotions	María Teresa Barbato
The Mental Health Crisis: How can Ethology help? PTSD and the false hand illusion	Colin Hendrie

16.05 – 16.45

Discussion session IIb & Refreshments	Great Hall
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16.45 – 18.45
Workshops

Lisa DeBruine Data visualisation	Room A
Iris Holzleitner Introduction to Registered Reports and the Open Science Framework	Room C
Hermann Prossinger The Fallacies of Significance Tests, the Use of Maximum Likelihood Methods and Contrasting Correlations versus Associations	Room B

19.00 – 20.00

Zadar Walking tour

Meeting point
in front of the
University

Evening

Foraging in Groups

Garden
Lounge Bar

Friday 23rd August

09.00 – 10.00	
Plenary III	
Natalie Sebanz How t(w)o act together: Coordination mechanisms in human joint action	Great Hall <i>Chair: Elisabeth Oberzaucher</i>
10.00 - 10.20	
Coffee break	Great Hall
10.20 – 10.55	
Oral session IIIa	
Great Hall	
<i>Chair: Amanda Hahn</i>	
Frontal hemispheric asymmetries as neural correlates of Behavioral Immune System activation	Ivana Hromatko
The height preferences in romantic pairs for representatives of Indian Diaspora	Daria Dronova
Sensory impairment reduces altruism regardless of the recipient's sensory status	Anna Oleszkiewicz
The influence of three domains of disgust on attractiveness	Michał Stefańczyk
Tolerating free-riders as a signal of group strength in lions and humans	Juan Perote-Peña
Can you tell what he wants by his courtship style?	Kateřina Potyszová
Necessary dealbreakers and dealmakers in mate choice	Zsófia Csajbók
Using Observational Research in a Large Enrollment Undergraduate Course	Jessica S. Kruger
10.55 - 11.35	
Discussion session IIIa & Refreshments	Great Hall

11.35 - 12.10
Oral session IIIb
Great Hall

Chair: Amanda Hahn

Collaboration in Semi-Naturalistic Context: Twin Study of Tacit Coordination	Nancy L. Segal
The relationship between visual discomfort and scores on the Trypophobia Questionnaire as a function of tryphobic image phase and amplitude spectral profiles	R. Nathan Pipitone
Are men with more reactive immune system perceived as attractive and healthy?	Žaneta Slámová
Shopping for High Heels – Do Singles and Women With a Higher BMI Buy Higher Heels?	Stephanie Josephine Eder
Sizing up the competition: individual moderators of men’s dominance perceptions	Thomas Richardson

12.10 - 12.50

Discussion session IIIb & Refreshments	Great Hall
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12.50 - 14.15

<i>Lunch</i>	Restaurant Barbakan
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14.15 - 16.15

Symposium

Marina Butovskaya Mechanisms of cooperation and helping in industrial and small-scale-societies: meeting evolutionary social-cultural perspectives	Room A
Maryanne L. Fisher Human Behaviour: Unexpected Turns and Methodological Challenges	Great Hall
Daniel Redhead Relational Approaches to Understanding Human Behavior	Room B

16.15 - 16.45

Coffee break	Great Hall
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**16.45 - 18.45
Symposium**

Carol Weisfeld Romantic Relationships on Many Levels: Physiological, Personality, and Cultural Predictors of Love	Room A
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Caroline Allen Making sense of scents: Investigating human olfaction	Great Hall
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Evening

Foraging in Groups	Train ride Famous beach bar
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Saturday 24th August

09.00 – 10.00	
Plenary IV	
Annie Wertz Exploring the cognitive consequences of human-plant interactions in infancy	Great Hall <i>Chair: Maryanne L. Fisher</i>
10.00 – 10.20	
Coffee break	Great Hall
10.20 – 10.55	
Oral session IVa	
Great Hall	
<i>Chair: John Richer</i>	
<u>Even grandpas can do the job well: Positive effect of grandfather's presence on offspring survival</u>	Jan Havlíček
<u>Proximity and touching: Observational research on mate guarding in humans</u>	Kraig S. Shattuck
<u>Evolutionary Theory and the Social Sciences: The Case of Evolutionary Sociology</u>	Manfred Hammerl
<u>Visible or not? Displays of emotional arousal</u>	Lucie Krejčová
<u>Food wasting moral judgments predicts reproductive success</u>	Michał Misiak
<u>The nature of the twin relationship in childhood as a function of varying genetic relatedness</u>	Paula Coeli Araújo Short
<u>Facial emotion recognition in Germany and an indigenous group in Uganda: Evidence against Ekman's universality assumption</u>	Martin Krippel
10.55 – 11.35	
Discussion session IVa & Refreshments	Great Hall

11.35 - 12.10
Oral session IVb
Great Hall

Chair: John Richer

Reproductive effort as the best predictor of life satisfaction: Evidence from a Brazilian sample	Renata Pereira de Felipe
Why are cultures so diverse? Findings from New Guinea	Wulf Schiefenhövel
The Role of Ritual in Creation of Strong Commitment: Example from Community with Shared Nonreligious Interest	Silvia Boschetti
Behavioural Cues that Lead to Food Sharing	Isaac Cormier
Self-reported Health is Related to Body Height and Waist Circumference in Rural Indigenous and Urbanized Latin-American Populations	Juan David Leongómez
Social and health gaming motivations lead to greater benefits of Pokémon GO use	Martyna Dziekan
Extending Ethology and Psychotherapy dialogue in Insecure Attachment: Contributions of the Polyvagal Theory	Michele Dufey

12.10 - 12.50

Discussion session IVb & Refreshments	Great Hall
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12.50 - 14.15

<i>Lunch</i>	Restaurant Barbakan
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14.15 – 14.50
Oral session Va
Great Hall

Chair: Benjamin Banai

He writes a lot, she gets to the point – sex differences in bathroom graffiti	Kathrin Masuch
Pathogen disgust sensitivity changes according to the perceived harshness of the environment	Carlota Batres
Politicians' facial width-to-height ratio is not related to voting behavior: a real world study	Benjamin Banai
Relationship between anxiety-related personality traits and anxiety-related physiological responses	Dino Krupić
Watching People People Watch: Using Eye Tracking to Study the Perception of Social Interactions	Coltan Scrivner
Men's Mating Orientation Does Not Moderate the Accuracy with Which They Assess Women's Mating Orientation from Facial Photographs	Tara DeLecce
Combining Observational and Survey Methods to Investigate Loyalty in a University Rivalry	Daniel J. Kruger
The effect of carotenoid-rich smoothie consumption on skin colour and perceived health of Asian faces	Tan Kok Wei

14.50 – 15.30

**Discussion session Va &
Refreshments**

Great Hall

15.30 – 15.55
Oral session Vb
Great Hall

Chair: Benjamin Banai

An Operant-Model of Gustatory Discrimination for Sweetness in Marmoset Monkeys (<i>Callithrix</i> sp.).	Luiz Henrique Santana
Referee height influences decision making in British football leagues	Gayle Brewer
Is beauty attractive and trustworthy? It depends. A methodological investigation of rating studies.	Lisa Mira Hegelmaier
Enhancing pro-environmental behaviour using various visual stimuli	Romana Žihlavníková

15.55 - 16.30	
Discussion session Vb & Refreshments	Great Hall
16.30 - 18.30 Workshops	
Lisa DeBruine Data visualisation	Room A
Iris Holzleitner Introduction to Registered Reports and the Open Science Framework	Room C
Hermann Prossinger The Fallacies of Significance Tests, the Use of Maximum Likelihood Methods and Contrasting Correlations versus Associations	Room B
20.00	
Banquet	Hotel Kolovare

Abstracts

Wednesday 21st August

16.00 – 17.30	
Registration	Main Lobby In front of the Great Hall
17.30 – 18.00	
Welcome and introductions	Great Hall
18.00 – 19.00	
Welcome and introductions	Great Hall
18.00 – 19.00	
Plenary I	
Asmir Gračanin Inter-personal functions and intra-personal byproducts of emotional crying	Great Hall <i>Chair: Irena Pavela Banai</i>
19.30 – 22.00	
Welcome reception	Museum of Ancient Glass

PLENARY

Inter-personal functions and intra-personal byproducts of emotional crying

Asmir Gračanin

Department of Psychology, University of Rijeka, Croatia

Despite recent advancements in the research on emotional crying or tearing, this universal, but also uniquely human behavior is still a poorly understood phenomenon. Major breakthrough in the understanding of emotional tears might come from the research inspired by evolutionary approach, especially because crying seems to have appeared very recently in the human evolution, and as such, its functions must be closely linked to aspects of social life that are specific to humans. Lay people often consider crying primarily as a self-soothing behavior, especially when it is assessed retroactively. Unsurprisingly, earlier scientific accounts on crying focused primarily on its potential beneficial effects on somatic and psychological health. However, research based on such premises yielded highly inconsistent results, prompting researchers to turn their attention towards inter-individual effects of tears. Recent theoretical accounts provided a solid basis for the understanding of the evolved inter-personal functions of tears and offered new models that integrate inter- and-intra individual effects of crying into a single theoretical framework. In this talk, I will first present an overview of the existing theoretical accounts on the evolution of emotional crying. Next, I will present the most recent theoretical reasoning and research supporting the claims that tears are an emotional expression or signal that (a) works through visual (rather than olfactory) channel, (b) that evolved during a recent human past as a means of transferring information, primarily those in the realm of attachment processes and help/nurturance seeking, as well as in domains of submission/dominance and signaling friendly intentions, (c) that, as a rule, elicits positive reactions in observers, and (d) that may have certain beneficial consequences for the crying individual primarily via responses from others, and possibly via metabolic changes that facilitate the fulfilment of its signaling function. In order to provide more detailed insight into the methodological approach in this area, I will briefly present several examples of the specific studies made by our research group, that provide support for the above stated claims. These include the research on the olfactory effects of tears on sexual behavior, visual effects of tears on aggression reduction and approach-avoidance tendencies, their interaction with muscular facial expressions, and the effects of crying in the context of welfare tradeoff ratio.

Thursday 22nd August

08.30	
Registration opens	Main Lobby In front of the Great Hall
09.00 – 10.00 Plenary II	
Christine Caldwell The Cog in the Ratchet: Investigating the Cognitive Mechanisms Underpinning Human Cumulative Culture	Great Hall <i>Chair: Craig Roberts</i>
10.20 – 10.55	
Oral session Ia	Great Hall <i>Chair: Elisabeth Oberzaucher</i>
10.55 – 11.35	
Discussion session Ia & Refreshments	Great Hall
11.35 – 12.10	
Oral session Ib	Great Hall <i>Chair: Elisabeth Oberzaucher</i>
12.10 – 12.50	
Discussion session Ib & Refreshments	Great Hall
14.15 – 14.50	
Oral session IIa	Great Hall <i>Chair: Iris Holzleitner</i>
14.50 – 15.30	
Discussion session IIa & Refreshments	Great Hall
15.30 – 16.05	
Oral session IIb	Great Hall <i>Chair: Iris Holzleitner</i>
16.05 – 16.45	
Discussion session IIb & Refreshments	Great Hall

**16.45 - 18.45
Workshops**

Data visualisation	Room A
Introduction to Registered Reports and the Open Science Framework	Room C
The Fallacies of Significance Tests, the Use of Maximum Likelihood Methods and Contrasting Correlations versus Associations	Room B

PLENARY

The Cog in the Ratchet: Investigating the Cognitive Mechanisms Underpinning Human Cumulative Culture

Christine A. Caldwell

Department of Psychology, University of Stirling, Scotland, UK

In human populations, skills and knowledge accumulate over time, such that individuals routinely make use of behaviours and technologies that have undergone a process of invention and refinement spanning many generations. This ratchet-like property of human culture appears to be either rare or absent in other species. In this talk I will discuss how experimental research can contribute to our understanding of the distinctiveness of human cumulative culture. I will describe how cumulative cultural transmission can be studied under laboratory conditions in human participants, and explain how this approach has helped to shed light on the cognitive mechanisms involved. In these laboratory simulations, participants complete simple tasks, with access to information about others' attempts. Solutions tend to improve over time, suggesting that participants who take part later in the transmission chain benefit from the accumulated experience of their predecessors. Capturing the process of cumulative culture in the laboratory in this way makes it possible to manipulate the conditions under which tasks are completed, including the amount and type of social information available. Using this approach we have shown that cumulative culture can arise under a wide range of different learning conditions in adult human participants. Thus, the distinctiveness of human cumulative culture cannot simply be explained by possession of a particular social learning mechanism. I will also discuss studies of social learning in young children and nonhuman primates. Using these populations as comparison groups provides a broader context within which adult human social learning can be understood, and helps to highlight significant details about how adult human learners use social information.

10.20 – 10.55
Oral session Ia
Great Hall

Chair: Elisabeth Oberzaucher

Cultured Laterality: Foot Laterality Around the Globe and in Art Depictions	Pia M. Böhm
Reception and production of art as costly signalling	Viktorie Vítů
Which seat to take, which one to offer? Seat choice in mixed dyads – a cross-cultural study	Susanne F. Schmehl
Influence of hormonal status on muscle growth and speed development in women	Marie-Helene Polt
Those Three Little Words: Stature, Face, Muscularity; Relation between ideal partner's components (Love, Wealth, Attractiveness, Intelligence, Caring towards children) with ideal partner's physical attractiveness features.	Lidia Ludwika Wojtycka
The influence of stressful situation on the effect of an implicit reputational cue - At least one thing what is stress good for	Tereza Šmejkalová
The Mental Health Crisis: How can Ethology help? Measuring Eye contact in depression	Colin Hendrie

Cultured Laterality: Foot Laterality Around the Globe and in Art Depictions

Pia M. Böhm^{1,2}, Susanne Schmehl¹, Kathrin Masuch¹, Ana Maria Fernandez³, Maryanne L. Fisher⁴ & Elisabeth Oberzaucher^{1,2}

¹*Urban Human, Austria*

²*Faculty of Life Sciences, University of Vienna, Austria*

³*University of Santiago, Chile*

⁴*Saint Mary's University, Canada*

In art, asymmetries are used to create an impression of fluidity and complexity. Further, asymmetries are often of symbolic meaning. In ancient Greece, the left side was typically described as “sinister”, “un-self” and female, while the right side usually represented everything “good”, “strong”, “the self” and “male”. While these symbolisms have no biological foundation, artistic depictions can sometimes reflect realities – Chris McManus’ studies on scrotal asymmetry in Greek statues showed that sculptors in ancient Greece matched their nude statues to the natural abundance of asymmetric testes (McManus, 2004). We investigated whether similar effects can be found in foot preference and choice of foot to bear weight, comparing data from behavioural observations with artistic depictions in museums. People’s resting positions and first footsteps when starting to walk were observed in public places in six different cities across four continents. For the first question, only people reaching a standing position after coming to a complete halt were recorded. We noted how they distributed their weight on their legs (left leg, both legs, right leg), with the caveat that the weight-bearing leg is straight and positioned under the centre of gravity of the person. To address the second question, we recorded with which leg people started to walk. Only people who had been standing with their weight distributed evenly were observed. We also collected data on depictions in 20 paintings and 20 sculptures per era, to determine the portrayed weight distribution. The results of this study show that art can be a depiction of reality, but not necessarily. We discuss how our findings might affect the reliability of art as an accurate documentation of human’s evolved past.

Reception and production of art as costly signalling

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The Renaissance is seen as the beginning of Modern period in the history of art. One of the most important changes it brought was elevation of the social status of artists. This change can be viewed as indicative of a deeper replacement, where one form of costly signalling was replaced by another. Social appreciation of art reception was substituted by appreciation of art production. We can see this shift for instance in the emergence of artists' signatures or earliest biographical literature about artists. Anyone can appreciate Renaissance or Baroque painting, but to create such artworks was difficult and time-consuming. This disproportion changed in the twentieth century with a reduction of demands on artists' craftsmanship and increase in the expertise required of consumers. Art production and reception are two types of costly signalling which take turns in individuals' lives. Children in the kindergarten appreciate the production of art: drawing ability can be the source of prestige. As people grow up, however, some start to value art reception, so that in adulthood, prestige can be gained by ability to appreciate complicated art. Art appreciation as a form of honest signalling is nevertheless specific to some social strata and can be interpreted as a type of in-group marker. The avantgarde project as a project of unification of art with life links these two aspects. It calls for a democratisation of art reception as well as art production. We would like to argue that the 'failure of the avantgarde' was driven by the fact that art as costly signalling cannot be democratised. This applies both to its reception and its production. For instance, participative art as an extreme form of democratisation in art production has been criticised as exploitation of participants because they are viewed as incompetent to perceive modern art.

Which seat to take, which one to offer? Seat choice in mixed dyads – a cross-cultural study

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Prospect and refuge are qualities that affect whether we decide to stay in a certain place. Prospect offers a good overview of what is going on and allows us to respond in advance to potential threats. High refuge qualities manifest in a protected back and enhance perceived safety. Asymmetric parental investment theory as well as cultural identity theory suggest that seat choice behaviour and motives differ not only between men and women, but also between cultures. Watson and Kearins (1988) as well as Kenner & Matsiaglis (1993) found a sex difference in the seat choice behaviour of taxi-passengers. Male passengers tend to sit in the front seat next to the driver, whereas female passengers rather choose to sit in the back. This behavior was observed in male and female adults regardless whether they were single or in company. The authors discussed the results in the light of proxemics, but missed to consider prospect and refuge preferences. In the present study we addressed the question how seat choice in restaurants is negotiated in mixed sex dyads. Do men or women occupy the seat with higher prospect and/or higher refuge more often? We observed couples in restaurants/cafés/bars in Germany, Austria, Chile and Canada. Seats were assessed for prospect and refuge qualities by independent experts. To control for motives affected by age we estimated the age of the observed persons. Our results show that besides biological foundations cultural influences play an important role in the manifestation of sex differences in behaviour.

Influence of hormonal status on muscle growth and speed development in women

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Hormonal fluctuations occur as a physiological response to resistance training. This reaction is the foundation of adaptive muscle growth, stimulated by a recurring stimulus. Hence it is of great interest for all fields of sports. Despite the pronounced sexual dimorphism in hormonal fluctuations in humans, there is only insufficient research. The aim of this study was to investigate the relation of hormonal fluctuations, muscle growth and speed development. Ten healthy female sports students underwent a bioelectrical impedance analysis, evaluating their body composition. Prior to that, baseline testosterone and cortisol levels were determined in saliva. A 20m sprint trial evaluated baseline speed. After initial assessment, all participants followed a resistance training regime for at least six, but no more than eight weeks. During this training period, saliva samples were taken before and immediately after at least two training sessions. Additionally, questionnaires provided information about menstrual cycle duration and general well-being. After the training period another bioelectrical impedance analysis, as well as a 20m sprint trial were conducted to determine the growth in muscle mass and speed development. Hormonal analysis showed that immediate responses to acute resistance training show great variability that may correspond to menstrual cycle phases. An increase in muscle mass was observed in seven of the participants. 20m sprint trail times decreased for eight of the participants. Testosterone and cortisol levels were either elevated or extenuated after the training sessions. Hormonal contraception had no influence on the increase in muscle mass or speed development. This study is a first attempt to investigate the intersecting influence of hormonal fluctuations, muscle mass and speed development, taking the use of hormonal contraceptives and menstrual cycle phases into account. The analysis of mechanisms underlying muscle development and physical abilities can contribute to understanding sexual dimorphism in athletic performance.

Three Little Words: Stature, Face, Muscularity; Relation between ideal partner's components (Love, Wealth, Attractiveness, Intelligence, Caring towards children) with ideal partner's physical attractiveness features

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Many studies have investigated the female and male preferences of potential partner's facial or body masculinisation/feminisation level. Thereby, our place of interests have moved forward. In present study we tested relation between ideal partner's components (Love, Wealth, Attractiveness, Intelligence, Caring towards children) with ideal partner's physical attractiveness features based on masculinisation/feminisation level (sexual dimorphism in stature, facial traits and muscularity - taken into account only in the female sample). To address this issue we have conducted research with a sample composed of 1376 people (400 men and 976 women) at the age of 18-67 years. Here we show some significant relations supporting our hypothesis. We found that women who value love in relationship the most, expect from potential partner to be less muscular ($r = .08$). Whereas men prizing love the most were rating attractive women as shorter than themselves ($r = .12$). On the other hand, both women who value wealth and those who value attractiveness require a greater musculature from a potential partner ($r = .13$). What is consistent with stereotypes - women valuing intelligence, consider as attractive mates who are taller than themselves ($r = .11$) and men also prefer higher women, when they care mainly about their wealth ($r = .10$). Men who prize attractiveness, expect their partner to have less masculinised face ($r = .12$). Interestingly, women, who find caring towards children most relevant, are looking for a shorter better half ($r = .09$). We established that people who search for potential partner with accustomed set of general features, consider people of certain physical traits.

The influence of stressful situation on the effect of an implicit reputational cue - At least one thing what is stress good for

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The evolution of cooperation can be traced to the formation of the first groups. The decision whether to cooperate with a member of a group is influenced by the reputation of the member. If we are caught stealing, our reputation suffers, with the result that our colleagues are far less likely to cooperate. Reputation management (RM), which occurs at a non-conscious level, is a technique used to compel individuals to behave more representatively, e.g. the feeling that someone is being watched. The aim of this novel study was to determine whether RM would be further enhanced by stress, which blocks the higher cognitive centres and affects implicit reputation cues (IRC) by amplifying system 1 processes. The effect of an IRC lasts for a brief period of time only. This happens because our slower, more sophisticated visual processing (system 2) has to play “catch up” with our more automatic and impulsive, evolutionary adaptive behaviour (system 1). For example, when confronted with a picture of a pair of watching eyes, the impulse to act representatively is stopped by the later thought: “It’s just a picture; nobody’s there”. As a stress-inducing experiment, half of the participants were told they had to count out loud within a certain time limit. As in previous experiments, a control group performed the Trail Making Test. All participants were then secretly filmed in a room containing multiple rewards and instructed to take just one. We were interested in observing whether participants would transgress by taking more than one reward. In half of the cases for each test, an IRC was placed on a wall behind the rewards. Our preliminary results reveal that stressed participants tend to transgress less in front of an IRC. However, further detailed analysis is required before our results are finalised.

The Mental Health Crisis: How can Ethology help? Measuring Eye contact in depression

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Depression is a widespread disorder which may affect 1 in 4 adults in the developed world. Although the behavioural cluster associated with depression is clear (e.g. hunched posture, avoidance of eye contact, reduced competition for food/sex and sleep disruption, see Hendrie and Pickles, 2010 for review) depression is for the most part diagnosed using pen-and-paper methods. These commonly used methods in psychiatry are however of limited use in general clinical practice. We have proposed therefore that assessment of depression could more easily be made in this clinical setting using ethological methods (Hendrie and Pickles, 2013). It is however unrealistic to expect GPs to become trained ethologists. Hence, we sought to develop a method based on the ethological approach but avoiding the need for complex behavioural analysis. To this end we focused on the propensity of depressives to avoid eye contact. A set of digital stimuli were produced based on avatar faces, providing varying degrees of 'eye contact' (look at, look to one side, look down etc). Control stimuli were kittens and sunflowers. Participants were shown these pictures one at a time in random order for 4s during which the direction of their gaze was tracked using an eye-tracker. Data collected so far are encouraging and show a negative correlation between PHQ-9 score and time spent focussing on stimulus' eyes. Further development is required but it is hoped that these studies will provide the basis for bringing a quick and simple ethological based tool for the diagnosis of depression into general clinical practice. Hendrie, C. A., & Pickles, A. R. (2010). Depression as an evolutionary adaptation: anatomical organisation around the third ventricle. *Medical Hypotheses*, 74(4), 735-740. Hendrie, C., & Pickles, A. (2013). The failure of the antidepressant drug discovery process is systemic. *Journal of Psychopharmacology*, 27(5), 407-416.

11.35 - 12.10
Oral session Ib
Great Hall

Chair: Elisabeth Oberzaucher

Does current experience alter attachment security? Variation in current self-perceived mate value	Faize Eryaman
Blurred lines: alcohol, sociosexuality and ambiguous sexual scenarios	Edward Morrison
The influence of competition outcome on testosterone and face preferences in men and women	Lisa L. M. Welling
The effect of olfactory stimulation on affective valence of dreams and affective state upon waking: results of a pilot study	Lenka Martinec Nováková
The evolution of plant avoidance through social learning and error minimization	Linda S. Oña
Cultural differences in judgments of vocal attractiveness	Chengyang Han
Methods comparison in third party kin recognition; or how everyone finds a different answer to the same question.	Vanessa Fasolt
The role of shape and color in human aesthetic perception of real flowers and their photographs	Martin Hůla

Does current experience alter attachment security? Variation in current self-perceived mate value

Faize Eryaman & S. Craig Roberts

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In attachment theory, it is suggested that individuals form 'attachment styles' based on early experience with primary caregivers, and these go on to influence the dynamics of subsequent romantic relationships. Such styles are often split into 'anxious/ambivalent', 'avoidant' or 'secure' categories. In this study we aimed to test whether attachment related anxiety and avoidance can be altered in the short-term, depending on current experience and perception of the current social environment. Specifically, we manipulated participants' self-perceived mate value by showing them a series of images of same-sex people, with participants seeing either highly attractive or unattractive images, or a mixture of attractive and unattractive images. In total, 206 heterosexual participants (male=44, female=162) completed the ECR-RS (The Experiences in Close relationships- Relationships Structure) scale that assesses attachment related anxiety and avoidance for partner and friend, both before and after random allocation to one of the image conditions. Our analysis yielded a significant interaction effect between the gender of the participants, attachment figures and the image condition on attachment avoidance ($p = .017$). After seeing attractive same sex images, men significantly increased their avoidance scores to a partner compared to a friend, while women gave relatively similar scores. In contrast, there was no significant effect of images on attachment anxiety towards either a partner or friend, in either men or women. However, men who had experienced a recent break up reported high anxiety scores towards a partner after seeing mixture of attractive and unattractive images. In conclusion, we can say that seeing same sex attractive images may alter aspects of attachment security and make men more avoidant towards to a partner.

Blurred lines: alcohol, sociosexuality and ambiguous sexual scenarios

Edward Morrison, Tom Lavelle & Donna-Marie Bruce

University of Portsmouth, England, UK

Sexual interactions can be fraught with ambiguity, and different people can vary on how acceptable they consider a given behaviour. Sexual misperception theory suggests a sex difference in this regard. Furthermore, people who are more open to casual sexual encounters might welcome sexual behaviours that others might not. In study 1, 111 participants completed the sociosexual orientation inventory and rated the extent to which they believed several behaviours constituted sexual harassment. These included making sexual jokes, commenting on attractiveness, asking to go for a drink, and wolf-whistling. Men tended to rate the behaviours as less sexually harassing than did women ($p=0.05$), and both men and women with less restricted sociosexuality rated them as less sexually harassing ($r=-0.23$, $p=0.019$). Real life sexual interactions often involve moderating influences like alcohol, whose disinhibiting effects might change what people consider acceptable. Study 2 was a field study looking at the relationship between alcohol consumption and opinions on a fictional sexual scenario. 75 participants (41 male) who were drinking in the university bar took a breath alcohol test then read a fictional ambiguous sexual assault scenario. They rated guilt of the male and female characters in the scenario and the extent to which they believed it constituted sexual assault. Overall there were no sex differences in these perceptions, and no relationship between alcohol consumption and perceptions for women. Surprisingly, however, those who had drunk more were more likely to interpret the interaction as sexual assault ($r=0.25$, $p=0.03$). Men but not women who had drunk more were more likely to perceive the male character as guilty ($r=0.31$, $p=0.05$). These studies suggest that sexual perceptions of right and wrong vary predictably and may be moderated by external factors like alcohol.

The influence of competition outcome on testosterone and face preferences in men and women

Lisa L. M. Welling, Jonathon P. Saulter, Andrea G. Smith & Sabrina Gretkierewicz

Oakland University, USA

Previous research suggests that testosterone level is positively related to preferences for sexually dimorphic faces in both men and women. One method of manipulating testosterone is through competitive tasks, whereby testosterone increases in winners relative to losers. Welling et al. (2013) examined the effects of winning and losing in male-male competition on men's face preferences. They randomly assigned male participants to either win or lose the first-person shooter video game CounterStrike: Source against an unseen male confederate. Unbeknownst to the participant, the confederate could control the outcome through game cheats. They found that, compared to men assigned to the losing condition, men assigned to the winning condition had significantly higher preferences for women's facial femininity, which is a putative indicator of female mate quality. This study had two major limitations: it used a between-subjects design and it tested men only. Here we replicate Welling et al. (2013) using a within-subjects design and testing both men and women. Participants were randomly allocated to win the first of two sessions and lose the second, or vice versa. As predicted, men preferred female facial femininity more after winning their competitive match compared to after losing. However, there were no corresponding effects in women. These results replicate Welling et al.'s (2013) findings using a within-participant design and further suggest that the influence of same-sex competition on face preferences is exclusive to men. Salivary assays are currently being processed. It is predicted that testosterone will be higher after men won versus lost, but that there will be no significant difference in women's

The effect of olfactory stimulation on affective valence of dreams and affective state upon waking: results of a pilot study

Lenka Martinec Nováková, Monika Kliková, Denisa Manková, Eva Miletínová & Jitka Bušková

National Institute of Mental Health, Czech Republic

Objectives: The focus of the study was to investigate the effects of olfactory stimulation during sleep on affective valence of dreams and affective state upon waking. Effects of two “pure olfactory” stimuli, pleasant vanillin and unpleasant thioglycolic acid, were tested. **Materials and Methods:** In weekly intervals, 60 participants spent three nights in the sleep laboratory, to adapt to research settings on the first visit and receive olfactory stimulation (vanillin or thioglycolic acid) on the second or third visit in a randomised manner. On each night, participants assessed their sleep inertia during the past week and nocturnal polysomnography (10 p.m. to 7 a.m.) was recorded. Participants were woken up five minutes into the first REM phase that occurred after 4 a.m. Immediately after waking, they were asked to complete questionnaires on dream characteristics (e.g. pleasantness, occurrence of specific emotions and sensory modalities), affective state (core affect), and awareness of odour and its perceptual characteristics. They completed the same measures once again upon waking in the morning. Effect sizes (Cohen’s f^2) are reported below. **Results:** Participants reported that their dreams felt more pleasant on stimulation nights regardless of whether they were aware of the odour or not ($.02 \leq f^2 < .09$). They also felt more awake, peppy, and active (core affect: activation) and pleased, glad, and happy (valence) upon waking when they found the odour pleasant or were not aware of its presence ($.02 \leq f^2 < .05$). However, the most important factor was sleep inertia ($.1 < f^2 < .3$). **Conclusion:** Dream pleasantness and affective state upon waking were positively influenced by individually perceived, not averaged, odour pleasantness and odour presence, regardless of participant’s awareness. Nevertheless, their effects were smaller than those of sleep-related factors. **Funding:** Research was funded by the

The evolution of plant avoidance through social learning and error minimization

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Plants have developed toxic chemical and physical defenses as a consequence of their co-evolution with herbivores. Humans, like other animal species, have evolved strategies to protect themselves from such plant dangers. For example, recent studies have shown that human infants exhibit a reluctance to manually explore plants, a behavioral avoidance strategy that would mitigate their exposure to plant dangers. Here we explore how such a strategy, which we term plant avoidance (PA), might have evolved. Infants seem to use social learning (SL) when acquiring knowledge about plants. By providing an alternative source of information, SL facilitates the PA strategy. However, SL can also be costly under certain circumstances. Some plants have evolved another type of adaptive strategy to fight against herbivorous threats, called Batesian mimicry, in which a plant mimics features of a poisonous plant to minimize the probability that it is consumed. When SL is prevalent in a population, knowledge about edible mimics is dependent on the frequency of individuals having that knowledge. However, by proliferating the knowledge about an edible mimic, SL also spreads the risk of consuming its poisonous counterpart in the population. Here we propose a model describing different scenarios where PA is (a) favored, (b) ecologically stable, and (c) expected to evolve. Results show that PA is selected when the proportion of poisonous plants is high. However, this is only true if the edible mimic population is below a certain threshold and its selection depends on the capacity to minimize errors when differentiating edible mimics from their poisonous counterparts.

Cultural differences in judgments of vocal attractiveness

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Past research has reported that masculine (e.g., low-pitched) male voices and feminine (e.g., high-pitched) female voices are perceived as more attractive than feminine male voices or masculine female voices, respectively. Because these characteristics are thought to signal traits that are generally valuable in potential mates or important for direct competition, many researchers have assumed that preferences for sexually dimorphic vocal features are culturally invariant. In the current study, we recruited voice raters born in China (49 male and 51 female), Canada (51 male and 51 female), or the UK (48 male and 48 female) to judge the attractiveness of Chinese, Canadian, and UK voice samples. We then investigated the relationships between rates voice attractiveness and both fundamental frequency (F0) and formant position (Pf). Canadian and UK participants' ratings of male vocal attractiveness were negatively correlated with both F0 and Pf. By contrast, Chinese participants' ratings of male vocal attractiveness ratings were only weakly related to F0 and positively and correlated with Pf. Canadian and UK participants' ratings of female vocal attractiveness were weakly and negatively correlated with F0 and weakly and positively correlated with Pf. By contrast, Chinese participants' ratings of female vocal attractiveness were strongly and positively correlated with both F0 and Pf. These results suggest that the directions and strengths of the relationships between sexually dimorphism vocal characteristics and attractiveness can differ among cultures.

Methods comparison in third party kin recognition; or how everyone finds a different answer to the same question

Vanessa Fasolt¹, Iris Holzleitner¹, Anthony J. Lee², Kieran J O'Shea¹ & Lisa DeBruine¹

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²*University of Stirling, Scotland, UK*

Research on third-party kin recognition has consistently found that humans can reliably judge relatedness among strangers when presented with face photographs alone. However, contrasting results have been found when looking at the effect of sex and age of the portrayed individuals on kinship judgments. This discrepancy could partially be due to the use of different methods. To explore this issue, we conducted a study implementing three commonly used methods (i.e., kinship judgment, similarity rating, matching), directly comparing the performance of participants across these methods using the same highly-controlled stimulus set for all of them. We found that while responses on all three methods were correlated, performance varied significantly across the tasks. Participants in the kinship judgment method were most accurate at detecting unrelated pairs, participants in the matching method were most accurate at detecting related pairs, and participants in the similarity rating method were equally good at detecting related and unrelated pairs. Furthermore, when looking at the effect sex and age of the portrayed individuals had on performance, we found that stimuli sex only had a main effect in the kinship judgment paradigm. Raters judged same-sex pairs to be related more often than opposite-sex pairs, independent of actual relatedness. In the matching method, there was an interaction between stimuli sex and stimuli age, where a larger age difference between stimuli decreased relatedness judgments for same sex pairs, but marginally increased relatedness judgments for opposite sex pairs. Our results suggest that different answers to the same question can be found, depending on which method is used. This highlights the need for standardised methods in the field to allow for valid and generalizable conclusions. Pre-registration, data, code and preprint are available on the Open Science Framework (<https://osf.io/a3t8x/>).

The role of shape and color in human aesthetic perception of real flowers and their photographs

Martin Hůla, Pavlína Šámalová & Jaroslav Flegr

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The beauty of flowers has long been appreciated by humans. Surprisingly, we have very limited knowledge of preferred floral traits and almost no empirical evidence for theories explaining the preference of flowers. This study aimed to identify the relative importance of floral color and shape properties on the rating of the beauty of flowers and to compare our results with hypotheses from evolutionary aesthetics. We also wanted to determine whether the ratings differ when we use real flowers, standardized photographs and edited images from the internet. We collected three data sets from Czech respondents ($n = 60, 150$ and 102) who rated on a scale (0-5) the beauty of flowers. The first two datasets (wildflowers) focused on shapes and the third dataset (ornamental flowers) on colors. We found high negative correlations between perceived prototypicality and complexity in all three datasets ($r_1 = -0.86, r_2 = -0.65, r_3 = -0.93$). Bilaterally symmetrical flowers scored high in complexity and low in prototypicality. Linear models of the wildflowers datasets revealed a positive effect of prototypicality and flower size on the overall rating of beauty. Blue color had a positive effect, but only in the second dataset (dataset 1: $F_{3,32} = 12.45, p < .0001, R^2 = 0.54$; dataset 2: $F_{2,32} = 6.85, p < .0033, R^2 = 0.30$). ANOVA exploring the effect of colors in the ornamental flowers revealed red as the most and yellow as the least preferred color ($F_{4,33} = 8.77, p < .0001$). We observed very high positive correlations between the ratings of real flowers and both standardized and internet photographs. LM's and ANOVA's of the photographs had a similar structure as those of real flowers. These findings suggest that photographs reflect very well the rating of real flowers and might serve as their substitutes.

14.15 - 14.50
Oral session IIa
Great Hall

Chair: Iris Holzleitner

Hierarchy of attachment figures among adult twins and non-twins	Vinicius F. David
Male facial formidability, attractiveness and its hormonal correlates	Jitka Fialová
Body cues of physical fitness affect perception of formidability	Vít Třebický
Sex differences in misperceptions of sexual interest can be explained by men projecting their own interest onto women.	Anthony J. Lee
No Ice Cream After Dinner: A Preference for Falsifying Consequents Alluding to Resource Loss	Ashton Babcock
Girls wear pink and boys wear blue: an evolutionary study of gender stereotypes in Brazil	Italo Ramon Rodrigues Menezes
Context-specific effects of facial dominance and trustworthiness on hypothetical leadership decisions	Hannah Ferguson

Hierarchy of attachment figures among adult twins and non-twins

**Vinicius F. David¹, Raquel de O. Landenberger¹, Tania Kiehl Lucci¹,
Nancy L. Segal² & Emma Otta¹**

¹University of São Paulo, Brazil

²California State University, Fullerton, USA

Twins have been widely studied from the behavioral-genetic research perspective, but the nature of this relationship itself has received less attention. Attachment theory, originally focused on understanding the nature of the infant-caregiver relationship, has been extended to adult relations, and may offer an useful theoretical framework for understanding the nature of the relationship between adult twins. This study aims to compare the relative rank of twins and non-twins with their siblings and (both parents). Our hypothesis is that twins are more likely than non-twins to use one another as attachment figures. A total of 230 participants (80 identical twins – MZ, 49 fraternal twins – DZ, and 101 non twins – NT) answered a Portuguese version of the Attachment Features and Functions (AFF) questionnaire, developed by Tancredy and Fraley (2006), with 16 items ranging from 1,0 to 7,0. A multivariate analysis of variance (MANOVA) showed an interaction effect between attachments and type of brotherhood ($p < 0,001$). Auxiliary analyses showed that MZ twins positioned their siblings at the top of the attachment hierarchy (6.1 + 1.0), in a higher position than DZ twins (5.4 + 1.2) and NT (4.9 + 1.4). Fathers were positioned at the lowest level positions in the attachment hierarchy by all groups, while mothers were positioned above fathers in all groups. It is notable that NTs were more attached to their mothers than to their siblings, and more attached to their siblings than to their fathers. The same pattern has been found among DZ twins, but was less pronounced, relative to the NTs. Among MZ twins, we found the reverse: MZ twins were generally more attached to their co-twins than to their mothers. Our results showed that attachment seems to be related to genetic factors, since MZ siblings seem to be more attached to each other, even more than with their mothers.

Male facial formidability, attractiveness and its hormonal correlates

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Previous studies have reported an association between perceptions of various facial characteristics (e.g., attractiveness, dominance, masculinity) and testosterone (T) and more recently also cortisol (C) levels. Testosterone has been suggested to affect certain facial characteristics related to dominance or formidability judgments, such as facial width-to-height ratio (fWHR). However, the results of these studies are rather mixed. Here, we investigated the association between perceived formidability, attractiveness and T and C levels. Moreover, we tested the relationship between hormone levels and fWHR. We collected standardized 360° photographs from 45 Czech MMA fighters (mean age = 26.6, range = 18–38) which were consequently evaluated regarding their formidability and attractiveness by 94 raters (46 men) and 150 raters (35 men), respectively. Moreover, we measured fWHR of each fighter from photographs and collected saliva samples on three consecutive mornings to determine their basal T and C levels. Our results showed that neither T, C, nor T/C levels ratio predicted perceived formidability, attractiveness or fWHR. We found weak positive correlation between rated formidability and fWHR. Our null-findings converge with some former studies finding no association between hormone levels and perceived facial characteristics. However, the results suggest possible connection between facial morphology and perception of formidability.

Body cues of physical fitness affect perception of formidability

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Growing body of evidence suggests that people are sensitive to various cues to formidability in men and use them to assess fighting ability. Interestingly, most of the previous research on perception of formidability is based on facial stimuli. So far, only few studies investigated perception of bodies though physique is arguably of primary importance when it comes to formidability judgments. In the present study, we tested possible relationship between the perception of formidability based on bodies and various measures of physical performance. For this purpose, we collected data from 44 Czech Mixed Martial Arts (MMA) fighters regarding their fighting success and physical fitness (isometric strength, anaerobic performance, lung capacity, body composition). We created standardized life-size 360° body photographs which were assessed by 71 raters (35 males) on their formidability. We found no significant association between perceived and actual fighting ability in our sample. The results of a multiple linear regression analysis showed that taller fighters and those with higher isometrics strength were judged as more successful. In line with previous investigations our results suggest that certain physical performance-related characteristics are perceived from bodies. However, ratings of fighting success based on bodies do not relate to the actual fighting performance. Our findings thus highlight the role of physique in formidability assessments.

Sex differences in misperceptions of sexual interest can be explained by men projecting their own interest onto women

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Sex differences in misperceptions of sexual interest have been well documented by previous research; however, little is known about the mechanism behind such a cognitive bias. In the current study, 1226 participants (578 men, 630 women) participated in a speed-dating study, where participants rated their sexual interest in each other, as well as the sexual interest they perceive from their partners. Participants also completed the Sociosexual Orientation Inventory (SOI) self-rated their own attractiveness. Data was analysed using mixed effects modelling, which allowed us to differentiate between two types of accuracy: mean-level bias (e.g., do men in general overperceive sexual interest?) and tracking accuracy (e.g., can individuals accurately perceive and interpret their partners' displays of sexual interest?). Consistent with previous findings, we found that men tended to overperceive sexual interest from their partners, while women tended to underperceive sexual interest. However, this sex difference could be completely explained by raters projecting their own levels of sexual interest onto their partners, and men compared to women being more interested in their partners. Participants with unrestricted sociosexual orientation or rated themselves higher on attractiveness were also more likely to overperceive sexual interest from partners. While partner's actual interest predicted rater's perception of sexual interest (representing some degree of tracking accuracy), this effect was not moderated by participant sex, SOI, self-rated attractiveness, or the rater's own interest in the partner. Overall, these findings challenge the widely accepted notion that sex differences in misperceptions in sexual interest have evolved as a specialised adaptation due to different

No Ice Cream After Dinner: A Preference for Falsifying Consequents Alluding to Resource Loss

Ashton Babcock & John Taylor

Southern Oregon University, USA

Evidence from multiple disciplines supports the notion that experiencing scarcity affects cognition in a variety of ways, regardless of what resource is scarce. Whether it is time, money, calories, or friends, scarcity appears to affect lower-level cognitive functions in both disadvantageous and beneficial ways. No research has yet implicated conditional reasoning as one of the areas of cognition vulnerable to scarcity. The present study serves to investigate that gap using a modified Wason selection task to measure conditional reasoning ability and an episodic recall task to prime for scarcity. Participants in the scarcity condition ruminated on their own personal experiences with scarcity, and participants in the control condition simply wrote about recent experiences they'd had. All participants then attempted to solve the same conditional reasoning problems. Some of the problems related to scarcity and resource management and some had neutral, abstract content. Half the resource problems had a negative outcome as the consequent ("I won't get to have ice cream after dinner") and the other half had a positive outcome ("I'll get a promotion"), with conditionals representing money, time, caloric, and social scarcities. We hypothesized that participants who were primed for scarcity would have a tendency to falsify resource loss conditionals and confirm resource gain conditionals, thus, arriving at the correct answer more often when the conditional alluded to resource loss. Conversely, the results show this tendency regardless of scarcity priming. This suggests a confirmation bias for resource acquisition, but a motivation to falsify resource loss consequents, whether the participant has been reminded of scarcity beforehand or not.

Girls wear pink and boys wear blue: an evolutionary study of gender stereotypes in Brazil

Italo Ramon Rodrigues Menezes¹, Juliana Ma F. De Lucena², Ivani Brys¹

¹ *Federal University of Vale do São Francisco, Chile*

² *University of Pernambuco, Chile*

Gender stereotypes comprise a set of ideas and expectations for appropriate behavior for males and females. Childhood is an important period for social development, in which gender stereotypic behaviors such as gender biased toy preferences are observed. The evolutionary approach suggests that phylogenetically acquired sex differences are socially reinforced by the affordances of the environment, i.e. the individual's perceived possibilities of action in its environment. Considering that Brazil ranks 95th in the Economic World Forum global gender gap report, we performed an online retrospective survey to investigate what were the preferred childhood games, activities that were encouraged by the parents, and the childhood environment characteristics of a sample of Brazilian undergraduate students ($n = 194$). Fisher's test and chi-square analyses showed significant associations between gender and the studied variables. The female gender was associated with the color pink ($p < .01$), dolls ($p < .01$), playing house [$X^2(1) = 55.6, p < .01$] and parental behaviors that stimulate body posture vigilance, such as sitting with legs together [$X^2(1) = 62.53, p < .01$]. The male gender was associated with the color blue ($p < .01$) and playing ball [$X^2(1) = 55.6, p < .01$], and restrictive parental behaviors, such as parents not liking boys playing house [$X^2(1) = 33.03, p < .01$]. Our results show gender differences in child behavior and preferences, and that the behavior of Brazilian parents reproduces social patterns that reinforce gender stereotypes in childhood. We therefore conclude that actions aiming at promoting childhood gender equality must be considered when planning public policies focused on reducing the gender gap in Brazil.

Context-specific effects of facial dominance and trustworthiness on hypothetical leadership decisions

Hannah Ferguson¹, Anya Owen², Amanda C. Hahn¹, Jaimie Torrance², Lisa DeBruine² & Benedict C. Jones²

¹Humboldt State University, USA

²University of Glasgow, Scotland, UK

Social judgments of faces predict important social outcomes, including leadership decisions. Previous work suggests that facial cues associated with perceptions of dominance and trustworthiness have context-specific effects on leadership decisions. Facial cues linked to perceived dominance have been found to be preferred in leaders for hypothetical wartime contexts and facial cues linked to perceived trustworthiness have been found to be preferred in leaders for hypothetical peacetime contexts. Here we sought to replicate these effects using images of women's faces. Consistent with previous work, a linear mixed effects model demonstrated that more trustworthy-looking faces were preferred in leaders during times of peace and more dominant-looking faces were preferred in leaders during times of war. These results provide converging evidence for context-specific effects of facial cues on hypothetical leadership judgments.

15.30 – 16.05
Oral session IIb
Great Hall

Chair: Iris Holzleitner

Charlie Bucket effect: Two grandmothers decrease survival probability	Petr Tureček
Does women's interpersonal anxiety track changes in steroid hormone levels?	Amanda C. Hahn
Women's predicted earlier pregnancy announcement to her blood versus affinal relatives	Melanie MacEacheron
Ethological analysis of the jealousy response in infants 10-20 months old following Tinbergen's four questions	Ana Maria Fernandez
An Ethological Study of Camgirls: Plentiful, Sexually Available Virtual Women for Hire	Laura Johnsen
Inquiring about the type of group relationships that could have promoted the success of the first human groups	Cristina Acedo-Carmona
Jealousy-evoking economic game effect on related emotions	María Teresa Barbato
The Mental Health Crisis: How can Ethology help? PTSD and the false hand illusion	Colin Hendrie

Charlie Bucket effect: Two grandmothers decrease survival probability

Petr Tureček¹, Alice Velková² & Jan Havlíček³

¹Department of Philosophy and History of Science, Faculty of Science, Charles University, Czech Republic

²Department of Demography and Geodemography, Faculty of Science, Charles University, Czech Republic

³Department of Zoology, Faculty of Science, Charles University, Czech Republic

It was previously demonstrated that grandmothers contribute to the survival of their grandchildren. Here we tested how is this effect modulated by socio-economic status (SES) of parents, total number of available grandmothers and the grandmother's side (maternal vs paternal). Parental social status, grandmother presence and survival until the age of 5 was unambiguously identified in 7066 individuals (2836 high SES farm holders, 2356 intermediate SES cottagers and 1874 low SES houseless lodgers) born in West Bohemia between 1709-1834. We controlled for the relatedness between the individuals. The association between the grandmother presence in child's proximity and child's survival from 0 to 5 years of age was evaluated. Cox proportional hazards were evaluated along 3 orthogonal contrasts: Firstly, children that had at least one grandmother vs children that had none, secondly, children that had both grandmothers vs children that had only one, thirdly, children that had only maternal grandmother vs children that had only paternal grandmother. We used two different criteria for grandmother proximity: presence within the microregion and presence within the village of birth. Both methods gave similar results when it came to the first contrast. Contribution of maternal and paternal grandmother did not differ significantly. Having any grandmother significantly increased grandchildren survival as compared to none (HR=1.23, 95% CI = 1.02-1.48, respective HR=1.22, 95% CI = 0.99-1.51). Unexpectedly, we found strong negative effect in grandchildren who had both grandmothers living within the same village as compared to the individuals with only one grandmother living in such close proximity (HR=0.51, 95% CI = 0.33-0.79). These differences were present in houseless lodgers (lowest SES category) only. The observed effect can be due to the competition for resources among poor relatives within a restricted area.

Does women's interpersonal anxiety track changes in steroid hormone levels?

Amanda C. Hahn¹, Lisa DeBruine², Lola A. Pesce¹, Andrew Diaz¹ & Benedict C. Jones²

¹Humboldt State University, USA

²University of Glasgow, Scotland, UK

Findings for progesterone and anxiety in non-human animals led to the hypothesis that women's interpersonal anxiety will track changes in progesterone during the menstrual cycle. There have been few direct tests of this hypothesis, however. Consequently, we used a longitudinal design to investigate whether interpersonal anxiety (assessed using the anxious jealousy subscale of the relationship jealousy questionnaire) tracked changes in salivary steroid hormones during the menstrual cycle in a large sample of young adult women (N=383). We found no evidence for within-subject effects of progesterone, estradiol, their interaction or ratio, testosterone, or cortisol on anxious jealousy. There was some evidence that other components of jealousy (e.g., reactive jealousy) tracked changes in women's cortisol, however. Collectively, these results provide no evidence for the hypothesis that interpersonal

Women's predicted earlier pregnancy announcement to her blood versus affinal relatives

Melanie MacEacheron¹ & Maryanne L. Fisher²

¹University of Western Ontario, Canada

²Saint Mary's University, Canada

Miscarriage can indicate low female fertility. Women's psychology may include a desire to hide pregnancy until noticeable, thus disguising any miscarriage if it occurs. Women might derive, however, support from relatives in early pregnancy: when both miscarriage and conditions that can impair ability to independently make a living (morning sickness, tiredness) are more likely. Conceptuses are usually as related to pregnant women's affinal as blood relatives. Her blood relatives, though, are more likely to support her due to inclusive fitness, whether she miscarries or not. Her affines, if she appears infertile enough, might decrease support, or encourage her male partner to re-partner, maximizing their inclusive fitness. We predict surveyed (e.g., via MTurk) women will report announcing pregnancy later to affinal than blood relatives, especially when doing so may injure women's reputations as fertile. Data collection will be underway at time of presentation. Power analysis indicates $N=271$ will render $\text{power} \geq .80$ at $\alpha = .05$, assuming small effect size. Hypotheses: (1) Women will report disclosing first pregnancy sooner to blood versus affinal relative of same sex and relative type (e.g., father versus father-in-law), controlling for gestational age when learned pregnant, emotional closeness to recipient, culture, religion, and anticipated support level from male (ex-)partner. (2) Women reporting second pregnancy will report earlier disclosure to blood versus affinal relatives of same sex and relative type, controlling for factors from (1), plus interaction of whether first pregnancy miscarried with blood versus affinal relatedness of disclosure recipient. Specifically, women will disclose even later to affinal cf. blood relatives if first pregnancy miscarried. (3) Women will report greatest pressure from partner who is father, as compared to her parents, parents-in-law, siblings, or siblings-in-law, to announce earlier than desired. Pressure, of this type, to announce to her affinal relatives, will be greater than that to announce to her blood relatives.

Ethological analysis of the jealousy response in infants 10-20 months old following Tinbergen's four questions

Ana Maria Fernandez¹, Michele Dufey², Isabel Puga¹, Elisabeth Oberzaucher³ & Maryanne L. Fisher⁴

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In this work, we explore the jealousy response of infants between 10 and 20 months of age using Tinbergen's proximate and ultimate levels of analysis. We specifically aim to illustrate the hypothesized evolved function of jealousy. Following Bowlby's and Ainsworth's conception of attachment as a behavior that is motivated to maintain close proximity, caring, and safety, we argue jealousy is a mechanism with the proximate function of sustaining these behaviours from the mother. This jealousy is especially noticeable beginning at six to nine months of age, when attachment is clearly set in the infant. In terms of the adaptive function and phylogeny of jealousy, Bowlby and Ainsworth's classical work explained the prevalence of infant attachment seeking behaviors in terms of securing fitness and overall survival, which is a cross-culturally prevalent phenomenon. Phylogenetically, the pervasive examples of imprinting in birds, pair-bonding in mammals, and comfort seeking in primates have sustained the function of attachment to enhance fitness and social development, and jealousy is the proposed mechanism to protect this close pair-bonding. We observed 40 mother infant-dyads that came to the laboratory and were exposed to the mother receiving a social rival (real life baby doll) and recorded the infant's response during the jealousy evocation. The results show the proximate mechanisms and developmental basis of infant jealousy to protect attachment (with proximity seeking, active protest, and affective changes), which demonstrates the robust impact of this complex emotion from early development in close-bonded social species. Acknowledgment: This research was funded by Fondecyt grant

An Ethological Study of Camgirls: Plentiful, Sexually Available Virtual Women for Hire

Laura Johnsen¹, Isaac Cormier² & Maryanne L. Fisher²

¹Binghamton University, USA

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Camgirls are defined as “young women that operate their own webcams to communicate with a broad audience online, often engaging in explicit behaviour in real-time in return for financial compensation” (Bleakley, 2014, p. 893). Never in our evolutionary history have we had so much access to sexually explicit imagery, let alone live-action sexual performances such as performed by camgirls. This unfettered access can be overwhelming for viewers, and competitive for camgirls who are attempting to extract resources from viewers. Viewers can open multiple shows at once, akin to a strip-club environment, but add or subtract shows by simply exiting out of the webpage in which the show is playing. The number of camgirls is staggering; LiveJasmin.com reported over 2000 models at any given moment, with 35-40 million daily visitors in 2017. Given that there are numerous websites, and therefore tens of thousands of camgirls, there is competition amongst the performers to solicit interest from viewers. Here we examine the various behaviours camgirls use to obtain viewers and explore whether their appearance and behaviors reflect evolutionary themes regarding mate preferences. Data were collected from the models featured on the homepage of online website “CamSoda.com”, a popular live streaming adult webcam platform. Over eight days, we took screenshots of the first 15 camgirls on the homepage twice a day. We coded their behaviors (ranging from fully dressed, no sexual activity to fully nude, masturbation with hand and toy), facial appearance (e.g., full face shown, face in profile, bottom half of face shown), body type, and recorded how many viewers were watching each show. We predict that camgirls with more viewers will reflect evolutionary themes of fertility (youthful appearance, low waist-to-hip ratio) and will be engaging in more sexually explicit behavior, such as nudity and masturbation, as it

Inquiring about the type of group relationships that could have promoted the success of the first human groups

Cristina Acedo-Carmona & María F. Muñoz-Doyague

University of León, Spain

Species have developed diverse ways to get in-group bonds between their members: by responding to chemical substances, mating impulses or territorial pressures. However, human species has the ability to use abstract cognitive mechanisms to create such bonds. These capabilities allow them to create different types of ties, either conforming groups with egalitarian or hierarchical relationships or a combination of both of them. In this study, we analysed what types of group bonds could be the most favourable to generate success in the group. Such favourable conditions could have been those of the first human groups, which promoted their survival. To do this, we compare networks created from different type of bonds (work collaborations, help, advice, motivation, friendship, trust) in groups that develop a similar activity. We add in our analysis some measures of the possible effects of these bonds networks, at an individual level about group members (levels of creativity, motivation, satisfaction, commitment or group loyalty), and at a group level about the current relationships among them (group climate, relationships between peers or superiors, or group culture). Finally, we relate the special features of these groups to their level of group productivity, which is measured by some material indicators specific to each activity. We will describe the features of the group bonds networks with greater productive success.

Jealousy-evoking economic game effect on related emotions

María Teresa Barbato¹, Ana Maria Fernandez² & Carlos Rodriguez-Sickert¹

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²Laboratory of Evolution and Interpersonal Relationships (LERI), University of Santiago, Chile

In long-term mating, individuals take advantage of all the benefits derived from a cooperative heterosexual relationship. If we consider that natural selection produced sex differences in the design of adaptations to solve the problems surrounding reproduction, then the design of human jealousy, which is an emotion triggered by the perceived risk or the actual loss of a valued relationship, must also be triggered by distinct evoking acts that are specific adaptive challenges for women and men in the exclusivity of their pair-bond. In this context, we present a pilot study with a novel method to experimentally trigger adaptive sex-differences in jealousy. We were able to measure the actual behavioral induction of jealousy through an interpersonal dictator game tailored for women and men. We do find that this protocol exerted the expected evocation of jealousy for both sexes. In addition, in this experiment we analyzed four emotions (happiness, indifference, fear, and trust) and the results confirm adaptive sex differences in jealousy. But with regards to the target emotions, we do not find a systematic change as it happens with jealousy. We discuss how changes in jealousy, but not the results for the other emotions, are consistent with predictions from parental investment theory and the implications of these results for the conception of jealousy as a basic emotion protecting close attachment bonds.

The Mental Health Crisis: How can Ethology help? PTSD and the false hand illusion

Colin Hendrie & Georgia-Mae Forster

School of Psychology, University of Leeds, England, UK

Previous studies (Patel and Hendrie, 2018) have revealed marked differences in facial expressions seen following first and second exposures to the false hand illusion. This illusion involves participants placing both hands on a flat surface with one hand placed on the far side of a screen so that it could not be seen. A false hand was placed on the participant's side of the screen so that it could be seen. The hidden real hand and the seen false hand were then both simultaneously stroked with a soft brush in identical fashion until the participants reported that they perceived the false hand to be their own. At this point the false hand was hit with a hammer. This procedure was filmed for subsequent analysis. On the first exposure participants' responses typically involved elements of fear (eyes narrowed – FAC 4; lips tightened – FAC 24) prior to the hammer blow and surprise (eyebrows raised – FAC 1; jaw-drop – FAC 26) followed by joy (FAC 6+12+25+26) in the period immediately afterwards. Responses in subsequent trials were markedly different and showed only elements of fear. The present study sought to exam responses when the second exposure was 7 days after the first exposure rather than immediately afterwards as in the initial study. Initial findings reveal that the effects of the first exposure to the illusion were replicated and that the fear response only on the second exposure persisted for at least 7 days. Participants were also asked prior to the second exposure to recall particular environmental cues that were present during the first exposure only, as post-traumatic stress is often accompanied with vivid flashbulb memories of the event that caused the stress. Data will be discussed in the context of using the ethological method to model PTSD using non-invasive methods such as the false-hand illusion.

16.30 - 18.30**Workshops**

Data visualisation	Room A
Introduction to Registered Reports and the Open Science Framework	Room C
The Fallacies of Significance Tests, the Use of Maximum Likelihood Methods and Contrasting Correlations versus Associations	Room B

Data Visualisation

Lisa DeBruine

Institute of Neuroscience and Psychology, University of Glasgow, Scotland, UK

In this workshop, you will learn to visualise data in beautiful and reproducible ways using the `ggplot2` package in R. In the first half of the workshop, you will make basic graphs for representing continuous and categorical data, including box plots, violin plots, and density plots. You will also learn how to set custom labels, represent factorial designs with different colours or facets, superimpose different types of graphs, deal with overlapping data, and create multi-panel figures. Bring your own data for the second half of the workshop, where you will learn to wrangle data into the best format for visualisation and generate your own plots. Workshop materials will be available at <https://psyteachr.github.io/msc-data-skills/> (please install R and R Studio before the workshop using the instructions in Appendix A).

Introduction to Registered Reports and the Open Science Framework

Iris Holzleitner¹

¹University of Glasgow, Scotland, UK

Publication bias distorts the scientific record, often creating the impression that certain effects are considerably more robust than they are. Absence of open data and analysis code means that previously reported effects cannot easily be reappraised in light of development of new statistical methods and knowledge. Registered Reports can neutralise publication bias by ensuring that the outcome of studies do not influence journals' decisions about whether to publish the work. The Open Science Framework is a free and reliable platform for open sharing of data and code. The first part of this workshop will be a Q and A discussing our experiences writing registered reports, focusing on their role in both large-scale collaborative projects (the Psychological Science Accelerator) and our first-year postgraduates' research programs. The second part of this workshop will teach attendees how to use the Open Science Framework effectively for sharing data and code.

The Fallacies of Significance Tests, the Use of Maximum Likelihood Methods and Contrasting Correlations versus Associations

Hermann Prossinger

Department of Evolutionary Anthropology, University of Vienna, Austria

t-tests and similarly constructed significance tests, which putatively test null hypotheses, are ubiquitous in published psychology and behavioral studies literature, despite their being fallacious. In Part I of this workshop, I explain why they are fallacious and proceed to debunking these, replacing them with maximum likelihood methods. Maximum likelihood methods explicitly calculate the likelihoods of various considered/proposed/postulated hypotheses. Akaike's Information Criterion, corrected for finite sample size (AICC) must be used to prevent maximally likely hypotheses from modelling statistical noise.

In Part II, I first show (a) why it is erroneous to assume that correlations are normally distributed, (b) why correlations need not imply linear relations between variables, and (c) how to calculate correlation uncertainties using Monte Carlo methods. I then present methods showing how to determine associations for categorical (nominal) variables, which (per definition) cannot correlate.

Friday 23rd August

09.00 – 10.00	
Plenary II	
Natalie Sebanz How t(w)o act together: Coordination mechanisms in human joint action	Great Hall <i>Chair: Elisabeth Oberzaucher</i>
10.20 – 10.55	
Oral session IIIa	Great Hall <i>Chair: Amanda Hahn</i>
10.55 - 11.35	
Discussion session IIIa & Refreshments	Great Hall
11.35 – 12.10	
Oral session IIIb	Great Hall <i>Chair: Amanda Hahn</i>
12.10 - 12.50	
Discussion session IIIb & Refreshments	Great Hall
14.15 – 16.15	
Symposium	
Marina Butovskaya Mechanisms of cooperation and helping in industrial and small-scale-societies: meeting evolutionary social-cultural perspectives	Room A
Maryanne L. Fisher Human Behaviour: Unexpected Turns and Methodological Challenges	Great Hall
Daniel Redhead Relational Approaches to Understanding Human Behavior	Room B
16.45 – 18.45	
Carol Weisfeld Romantic Relationships on Many Levels: Physiological, Personality, and Cultural Predictors of Love	Room A
Caroline Allen Making sense of scents: Investigating human olfaction	Great Hall

PLENARY

How t(w)o act together: Coordination mechanisms in human joint action

Natalie Sebanz

Central European University, Hungary

Humans are able to perform a wide range of joint actions, from carrying heavy objects together, dancing and making music, to having conversations. What are the mechanisms enabling joint action? This talk will provide an overview of research that has begun to unravel the behavioural, cognitive, and neural processes supporting joint action planning and coordination. On the one hand, philosophers of action have stressed the importance of forming shared intentions. This has raised fundamental questions on how own and others' intentions relate to each other and whether human joint action might involve attitudes or intentions that are qualitatively different from those involved in individual actions. On the other hand, research inspired by ecological psychology and dynamical systems has stressed the importance of informational coupling mechanisms that support emergent behavioural coordination in a wide range of species. The focus on planning on the one hand and coordination on the other raises an important question: How are planning processes and coordination processes linked? Recent research in cognitive psychology and cognitive neuroscience provides some answers to this question. Several mechanisms support intentional coordination: One simple yet powerful strategy to facilitate coordination is to reduce the variability of one's own actions, making them more predictable for others. A second key principle is to mutually engage in predictions about each other's actions at the sensorimotor level. Furthermore, individuals alter the kinematics of their movements to make them more expressive and to communicate information that goes beyond what can be inferred based on observing regular goal-directed actions. While much of this research has focused on egalitarian dyadic joint actions, new findings also shed light on effects of role and task distributions in more complex group contexts. It will be discussed what we can learn from joint action research for increasing affiliation and cooperation, for improving the design of collaborative robots, and for enhancing our understanding of aesthetic experiences during joint action observation.

10.20 – 10.55
Oral session IIIa
Great Hall

Chair: Amanda Hahn

Frontal hemispheric asymmetries as neural correlates of Behavioral Immune System activation	Ivana Hromatko
The height preferences in romantic pairs for representatives of Indian Diaspora	Daria Dronova
Sensory impairment reduces altruism regardless of the recipient's sensory status	Anna Oleszkiewicz
The Influence of Three Domains of Disgust on Attractiveness	Michał Stefańczyk
Tolerating free-riders as a signal of group strength in lions and humans	Juan Perote-Peña
Can you tell what he wants by his courtship style?	Kateřina Potyszová
Necessary dealbreakers and dealmakers in mate choice	Zsófia Csajbók
Using Observational Research in a Large Enrollment Undergraduate Course	Jessica S. Kruger

Frontal hemispheric asymmetries as neural correlates of Behavioral Immune System activation

Ivana Hromatko¹ & Andreja Bubić²

¹Department of Psychology, Faculty of Humanities and Social Sciences, University of Zagreb

²Chair for Psychology, Faculty of Humanities and Social Sciences, University of Split

What do behavioral inhibition system and behavioral immune system have in common (except for the abbreviation)? Both represent avoidance tendencies, the latter being more specific regarding the triggers of withdrawal motivations. However, whereas the behavioral inhibition/activation systems are considered to be relatively stable, trait-like features, activation of behavioral immune system is usually conceptualized as situation dependent, mostly elicited by pathogen threat related cues. Frontal hemispheric asymmetries have often been used as neural correlates of the aforementioned approach/withdrawal tendencies. The aim of this study was to compare the frontal EEG activity – both resting and during the presumed activation of the behavioral immune system – between participants with high vs. low scores on Behavioral Inhibition Scale (BIS/BAS scales; Carver & White, 2013). Out of 62 participants who initially completed the BIS/BAS scales, two extreme groups were formed, based on their z-scores: high-BIS (n=9) and low-BIS (n=9) group. EEG was recorded by a Nihon Kohden electroencephalograph with electrodes placed according to the international 10-20 system. The frontal asymmetry indexes $\ln(R/L)$ were calculated within the alpha frequency band on frontal electrodes (fp1/fp2; f3/f4; f7/f8). After the baseline recordings (eyes closed or open), participants were exposed to a set of neutral photographs, followed by a set of photographs previously shown to induce disgust, i.e. activate behavioral immune system (infected wounds, soiled public toilets, helminths etc.). Our results indicate no differences between high- and low-BIS individuals on either pair of electrodes during baseline situations. However, high-BIS group showed larger shifts in asymmetry scores while watching the disgust-inducing photographs, as compared to neutral photographs, than the low-BIS group. This pattern of results suggests that high-BIS individuals attend to pathogen threat related cues more readily than low-BIS individuals. Psychoneuroimmunological aspects of these findings will be discussed in more detail.

The height preferences in romantic pairs for representatives of Indian Diaspora

Daria Dronova & Marina Butovskaya

Institute of ethnology and anthropology, Russian Academy of Sciences, Russia

Studies in recent years have demonstrated that the norm for the man in a pair to be taller is not universal for all human societies. On the one hand, the spread of such norm in Western societies is confirmed by a number of studies in European countries (Salska et al., 2008; Pawlowski 2003; Fink et al., 2007). On the other hand, researchers of traditional societies reported different data on the preferences of sexual dimorphism in a romantic pairs (Sear, Marlowe, 2009; Sorokowski, Butovskaya, 2012; Sorokowski et al., 2015). In this study respondents were not residents of India, but representatives of the Indian Diaspora in Tanzania, who continued to follow their traditional culture and its strict rules. These people were separated from the country of origin, although retained cultural connection and currently live surrounded by other ethnic communities who are the indigenous population in the area. The data were collected in Dar-es-Salaam (Tanzania). The total sample included 105 individuals (51 male and 54 female), with the mean age of 39 years (range: 19-65; SD=11,2). The data was statistically analyzed in SPSS-23. The method of stimuli drawings of six pairs with SDS (sexual dimorphism in stature = male height/female height) ratios from 1,19 to 0,96 was used. Significant gender differences in the assessment of the preferred degree of sexual dimorphism in the couple was demonstrated ($\chi^2=11.38$; $df=4$; $p=0.023$). The influence of cultural factors on sexual dimorphism preferences will be discussed. This study was supported by the RFBR grant 18-39-00128.

Sensory impairment reduces altruism regardless of the recipient's sensory status

Anna Oleszkiewicz, Michał Pieniak, Michał Stefańczyk & Agnieszka Sorokowska

University of Wrocław, Poland

Readiness to share with others at own cost have been known to vary significantly as a function of even minimal cues about the recipient. At the same time, sensory impaired individuals elicit more altruistic behaviours from others. Here, we tested whether information about sensory impairment in the recipient (blindness or deafness or no impairment) would increase of the amount of money given to the anonymous partner in the Dictator game. In the experimental paradigm we manipulated the sensory status of the recipient by indicating that the person is sensory impaired (in the same way as the participant) or not. Sample included blind (n=100) and deaf (n=100) individuals and their fully functional counterparts (n=200). They were roughly matched with sex, age, socio-economic status and education. Results indicate higher readiness to share in fully functional control sample as compared to sensory impaired subjects, regardless of the recipient's sensory status. We discuss this finding from the perspective of social and evolutionary psychology.

The influence of three domains of disgust on attractiveness

Michał Stefańczyk

University of Wrocław, Poland

The emotion of disgust provides us with information about possible danger in our environment, either a natural or a social one. Disgust can be divided into three aspects – pathogen disgust, sexual disgust and moral disgust, each independent and occurring as a reaction to a different set of elicitors. The factor that links these three domains is the ‘get-away’ reaction, which pushes us away from potential threat. On the other hand, one’s attractiveness results in the “forward” movement, which leads us closer to the attractive object, physically or emotionally. The author wanted to collate the two tendencies of getting further (disgust) and closer (attractiveness) in terms of liking and wanting to spend time with a person who elicits disgust in three different ways. The participants (N = 332) were asked to read one version of the story, in which an attractive person presented in a photo behaved in a disgusting manner (pathogenically, sexually or morally). Next, they rated the person in respect of their attractiveness and participant’s willingness to become friends, colleagues, and lovers. It was found that morally disgusting stories decreased all of the person’s ratings (attractiveness, ‘friendship’, ‘colleague’ and ‘sexual desire’) comparing to the control group; pathogenically disgusting stories decreased person’s attractiveness and ‘friendship’ rating, but not ‘colleague’ rating or sexual desire felt toward them; and sexually disgusting stories decreased only ‘friendship’ and ‘colleague’ rating. Further analyses found big sex differences, especially in rating of ‘sexual desire’ and in the sexual disgust condition, with men rating the person less strictly than women. The results show a deep influence of disgust on our judgements and preferences, and underscore sex differences in disgust.

Tolerating free-riders as a signal of group strength in lions and humans

Juan Perote-Peña

University of Zaragoza, Spain

Free-riders erode cooperation, since they benefit from it but avoid paying the costs, so for cooperation to evolve, it is imperative to detect and punish this opportunistic behavior. Nevertheless, free riders seem to be tolerated in some cases even when they have been detected by the contributing members of the group. Evidence of this phenomenon has been found in lions' prides, where lionesses cooperate sharing the prey and rearing the cubs, but some of them avoid risks in hunting, are timid or reluctant to defend the group and, while the more cooperative lionesses seem to be aware of who they are, no apparent retaliation or punishment has been observed. Humans are other example where, in some contexts, free-riding behavior is overlooked or tolerated, although we have clear adaptations to detect free-riders and punish them. For example, anthropological evidence shows that a high degree of unconditional food-sharing ("tolerated theft") is common among hunter-gatherers' societies. This seemingly altruistic behavior from the part of the cooperative members of the group is not easily explained by sexual selection: lionesses do not need to signal good genes to males and, in the case of humans, male hunters could display their hunting qualities in a less costly way. I propose a theoretical evolutionary model with a different kind of signal to explain the evolution of the tolerated free-riding in both lions and humans: when competition between groups is intense and information about strength is asymmetrically distributed, the group size is even more important because it can serve as a reliable estimate of strength, but a preference for large groups per se incentivizes free riding. Only groups with a certain fraction of cooperative individuals can afford to maintain some free riders in their ranks, making the signal of the size that deters aggression from other groups credible.

Can you tell what he wants by his courtship style?

Kateřina Potyszová, Jitka Lindová & Tereza Zikánová

National Institute of Mental Health, Czech Republic

Courtship is a process consisting of many steps which are determined by their function and lead to further progress. Specific flirting behaviour forms part of courtship and it's most commonly defined as behaviour that increases the likelihood of promoting attention and interest from a sexual target. People may engage in flirting interactions for various reasons; such as involving themselves in long-term/short-term relationship, entertainment etc. Some studies suggests that specific flirt behaviour can change depending on the person's intent for long term or short term relationship. The aim of this study was to examine different courtship strategies in heterosexual men depending on the desired level of commitment and to identify various reasons why heterosexual men flirt. We used semi-structured interviews on a sample of 20 heterosexual men of 20-35 years. The interviews were analyzed using open coding and categorical analyses. Our results show that heterosexual men tend to use more general forms of pro-social behaviour when pursuing a long-term relationship, such as presenting themselves as more intelligent, funny, patient, they are more nervous and use less physical contact. On the contrary, they use more specific behavior and flirt when pursuing short term relationships; more direct physical contact, double entendre, complimenting the other person more openly, expressive laughter etc. The results also show that flirt is used when pursuing short-term relationship or just for entertainment. Similarly to previous studies, the results of this study suggest differences in expressing behaviour depending on the type of courtship situation.

Necessary dealbreakers and dealmakers in mate choice

Zsófia Csajbók¹, Jan Havlíček¹ & Mihály Berkics²

¹Faculty of Science, Charles University, Czech Republic

²Institute of Psychology, Eötvös Loránd University, Hungary

Recent research suggested that individuals weigh obnoxious traits in a potential partner (i.e., dealbreakers) more severely than the preferred characteristics (i.e., dealmakers). In our previous studies we identified the most important 7-7 relationship dealbreakers and dealmakers. Following the established “budget allocation” paradigm our aim was to investigate which are the core necessities superior to the mate choice luxuries among these dimensions. Heterosexual adults (N = 1,175; 57% female; M(age) = 23.86 years) were asked to design their ideal long- and short-term mates on a low and an abundant budget (21 and 42 points to distribute, respectively). The participants had to create their partners using either the 7 dealbreakers or the 7 dealmakers at once. As suggested, necessities were then identified by subtracting the allocated scores in the low budgeted task from the scores given in the high budgeted round. Those factors were considered as necessities which were highly rated on a low budget but in relaxed budget their additionally assigned score decreased on the benefit of luxurious items. Men’s dealbreakers were to avoid bad hygiene and ugliness in a potential partner at any cost both in short- and long-term contexts. Their necessary long-term dealmakers, on the other hand, were to have warm, attractive, and intelligent partner. Both men and women allocated the most scores to have an attractive and passionate short-term partner. Women’s long-term dealbreakers were bad hygiene and abusiveness, while their necessary dealmakers were warmth and intellect. In accordance with the evolutionary theories, men’s necessities in mate choice were the good physical characteristics but surprisingly the traits denoting good motherhood potentials in long-term ideals appeared only in the dealmakers’ task but not in the dealbreakers. The budget allocation method showed complementarity of the dealbreaker and dealmaker concepts and thus allows a more comprehensive understanding of mate choice psychology.

Using observational research in a large enrollment undergraduate course

Jessica S. Kruger¹ & Michael Jabot²

¹Department of Community Health and Health Behavior, University at Buffalo, USA

²Department of Curriculum and Instruction, SUNY Fredonia, USA

Experiences beyond the walls of the traditional classroom can help provide context and a deeper understanding of course content. Utilizing observational research methods is one way to get students to gain practical experience with course content. Undergraduate students in a large enrollment (400 student) public health course were provided with an on-line application to record smoking behaviors on the college campus and track the location of cigarette butts. The purpose of this exercise was to engage students in tracking the location of where people were smoking and if they observed people using e-cigarettes on campus. Students utilized a Geographical Information System enabled tracking app created for this project. In order to not duplicate data collected, students were instructed to pick up the cigarette butts and these were collected to create a visual display. Nearly half the class (46%) voluntarily participated in this optional portion of the coursework, collecting over 1400 cigarette butts over the course of one week. Students utilized the data collected to generate 3D maps of campus and create a presentation made to Faculty Senate to advocate for health promoting policies, as the campus is technically a smoke free campus. This demonstrates the utility of observational research for advocacy and student engagement in large enrollment courses.

11.35 - 12.10
Oral session IIIb
Great Hall

Chair: Amanda Hahn

Collaboration in Semi-Naturalistic Context: Twin Study of Tacit Coordination	Nancy L. Segal
The relationship between visual discomfort and scores on the Trypophobia Questionnaire as a function of tryphobic image phase and amplitude spectral profiles	R. Nathan Pipitone
Are men with more reactive immune system perceived as attractive and healthy?	Žaneta Slámová
Shopping for High Heels – Do Singles and Women With a Higher BMI Buy Higher Heels?	Stephanie Josephine Eder
Sizing up the competition: individual moderators of men's dominance perceptions	Thomas Richardson

Collaboration in semi-naturalistic context: Twin study of tacit coordination

Nancy L. Segal, Francisca J. Niculae & William D. Marelich

California State University, Fullerton, USA

Tacit coordination (TC) refers to circumstances in which “two parties have identical interests and face the problem not of reconciling interests but only of coordinating their actions for their mutual benefit when communication is impossible.” (Schelling, 1960). Hamilton’s (1964) inclusive fitness theory generates the following hypothesis: Coordinated actions should occur more frequently between individuals who share relatively higher proportion of genes than those sharing relatively fewer. Support for this prediction comes from twin studies showing greater cooperation between genetically identical twins (monozygotic or MZ) than genetically non-identical twins (dizygotic or DZ). However, coordination is distinct from cooperation in that coordination involves behavior on the part of both interactants, whereas cooperation involves behavior by an actor that eventuates in benefits for both partners. The present twin study of TC is the third wave of an ongoing study taking place in the Twin Studies Center of California State University, Fullerton. The present larger sample includes 65 MZ twin pairs and 42 DZ twin pairs, ranging in age from 12-72 years. Zygosity was assessed by either a standard physical resemblance questionnaire or DNA analysis when available. Modeled after the TC research by Mehta (1994), individual twins independently answered a series of questions (e.g., name a book, where in the park will you meet your twin?), then repeated this task with the instruction to produce the same answer as their co-twin. Previous analyses, reported in 2008 and 2014, found significant effects from zygosity (twin type) and condition (self vs. pair) effects. Specifically, MZ twins outscored DZ twins, and greater coordination was expressed in the coordination than individual situation. The present findings will be compared with the earlier ones, promising to refine theories concerning genetic contributions to coordination and partner success.

The relationship between visual discomfort and scores on the Trypophobia Questionnaire as a function of tryphobic image phase and amplitude spectral profiles

R. Nathan Pipitone & Chris DiMattina

Florida Gulf Coast University, USA

Trypophobia refers to the visual discomfort experienced by some people when viewing small clusters of holes or similar objects. Trypophobic images deviate from the commonly observed $1/f$ amplitude spectra characterizing natural images by containing excess energy at mid-range spatial frequencies, and adaptive interpretations of Trypophobia have been proposed regarding detection of poisonous animals and infectious diseases. Previous work provided partial support for the idea of excess mid-range frequency energy causing visual discomfort in tryphobic images, but full manipulations of image phase and amplitude spectra have yet to be conducted. Here, we independently manipulated the phase and amplitude spectra of 31 Trypophobic images using standard Fourier analysis to assess the relationship between scores on the Trypophobia Questionnaire (TQ) and visual discomfort when viewing the original or manipulated images. For each tryphobic image used (with its original amplitude and phase spectra), we created 3 additional images (phase-scrambled and/or amplitude spectrum shaped to $1/f$). Human observers filled out the TQ and rated both the original and manipulated images for levels of visual discomfort. Results demonstrate a strong relationship between discomfort levels and TQ scores when viewing the original phase and amplitude images and when viewing the original phase / $1/f$ amplitude images. But, there was no correlation between discomfort levels and TQ scores when participants viewed the original amplitude / phase-scrambled images. We also calculated a mid-power ratio (relative to $1/f$ spectra) for each original tryphobic image in order to assess the relationship between the amount of excess energy and visual discomfort. Image mid-power ratio correlated strongly with the original image discomfort levels, and to a lesser extent for phase-scrambled images. These results show that although the amplitude spectrum of tryphobic images may play some role in causing visual discomfort, the phase spectrum (small clusters of objects) plays a larger role.

Are men with more reactive immune system perceived as attractive and healthy?

Žaneta Slámová^{1,2}, Dagmar Schwambergová^{1,2}, Jitka Fialová^{1,2}, Vít Třebický^{1,2} & Jan Havlíček^{1,2}

¹Faculty of Science, Charles University, Czech Republic

²National Institute of Mental Health, Czech Republic

Visual appearance plays a key role in social interactions and people tend to make relatively accurate and congruent judgments about others (e.g., age, sex but also attractiveness or health) based on facial cues. It has been previously shown that people with more reactive immune system are perceived as healthier and more attractive and it is therefore hypothesised that selecting partner with higher immune system reactivity may improve chances of increasing own's reproductive success. Here, we tested a possible association between the reactivity of immune system in response to foreign antigens and perceived facial healthiness and attractiveness in men and visual changes occurring during immune system activation. Further, we investigated the role of skin colour in formation of these assessments. We collected standardized facial photographs of 21 men aged 18-40 years before and two weeks after vaccination against hepatitis A (Twinrix) and meningococcus (Menveo). At the same time intervals and one month after the vaccination, we obtained participants' blood samples to determine levels of IgG and IgM antibodies (markers of reactivity of immune system). Eighty-eight women aged 18-40 years rated photographs regarding their attractiveness. Moreover, photographs and skin patches were assessed for their healthiness. We also measured skin colour before and after vaccination from the facial photographs. We did not find any association between reactivity of the immune system (assessed by levels of antibodies) and perceived facial attractiveness. However, participants with activated immune system (two weeks after vaccination) were rated as less attractive and their skin was significantly paler. Skin colour (yellowness and redness) was also related to perceived attractiveness. Our results suggest that people are sensitive to visual cues to current health status, and facial skin colours play role in such assessments. However, we did not find any relationship between facial attractiveness and measures of the immune system reactivity.

Shopping for high heels – do singles and women with a higher BMI buy higher heels?

Stephanie Josephine Eder & Elisabeth Oberzaucher

University of Vienna, Austria

Men react more interested, overt and helpful towards women in higher heels: Wearing high-heeled shoes affects how a woman moves, and perceived proportions of legs, bust and bottom. The present study addresses the question which factors determine who chooses comfortable shoes over sexiness, and vice versa. Little is known about women's motives to buy shoes that make them appear sexier, yet are harmful to their health: Previous studies found no correlation of women's tendency to choose higher heels with self-estimated attractiveness or body height. However, previously neglected factors may influence women's shopping decision: By increasing the perceived body height, wearing heels lowers the perceived body mass index (BMI). At the same time, the physical challenge imposed by high heels might prohibit older women with a higher BMI from wearing them. Relationship status might affect the choice of foot wear, too: High heels increase sexiness and signal sexual interest, both of which might be of more relevance to single women. We hypothesized that (1) women who are single buy higher heels than women who are in a romantic relationship, (2) women in the reproductive age buy higher heels than postgenerative women and (3) women with a high BMI choose higher heels than women with low BMI, as long as the BMI is under 30 (obesity), which is when body weight forbids the wearing of high-heeled shoes. 160 Women of four different age classes (<18, 18-30, 31-55, >55) were asked to provide information about their relationship status and BMI shortly after a shoe purchase. The new shoe's heel was measured, and a questionnaire about shoe buying habits completed. Our findings contribute to the understanding of shopping decisions and

Sizing up the competition: individual moderators of men's dominance perceptions

Thomas Richardson & Tucker Gilman

University of Manchester, England, UK

There is considerable evidence that ratings of men's facial dominance contain valid cues to their threat-potential. Communicating dominance through facial cues and accurately judging the dominance of others would have been adaptive for our ancestors, particularly males engaging in violent intrasexual competition. However, men vary in their ability to detect these cues in other men's faces. Previous research indicates that less dominant men are more sensitive to cues of facial dominance/threat, which may be because the consequences for incorrectly judging these traits are more severe for them. The current study aimed to replicate previous results, and investigate several other possible biological and social factors on men's sensitivity to facial dominance cues. Eighty-six men of varying ages recruited from the wider community completed a facial dominance sensitivity task: they viewed twenty pairs of faces that were transformed to be higher or lower in masculinity (a trait very highly correlated with dominance). Participants indicated which of the two faces appeared most dominant. How often they chose the high masculinity face as more dominant served as their facial dominance sensitivity (FDS). We also measured height, age, weight, bicep circumference, grip strength self-perceived dominance and exposure to violence during childhood. Mixed-effect models failed to replicate associations between height and FDS. Only age and self-perceived dominance were related to FDS, contrasting previous studies in students. Older men showed lower sensitivity to dominance cues in other men's faces, and men who reported being more dominant showed higher FDS. We propose that older men show reduced FDS because participation physical intrasexual competition declines with age. Dominant men's higher FDS may reflect more experience of intrasexual competition. We will also present data from a second, pre-registered replication and expansion in 100 men, where explore the interaction between own age and dominance and stimulus age and dominance in detail.

14.15 - 16.15 Symposium	
Marina Butovskaya Mechanisms of cooperation and helping in industrial and small-scale societies: meeting evolutionary social-cultural perspectives	Room A
Maryanne L. Fisher Human Behaviour: Unexpected Turns and Methodological Challenges	Great Hall
Daniel Redhead Relational Approaches to Understanding Human Behavior	Room B
16.45 - 18.45	
Carol Weisfeld Romantic Relationships on Many Levels: Physiological, Personality, and Cultural Predictors of Love	Room A
Caroline Allen Making sense of scents: Investigating human olfaction	Great Hall

Symposium I
Mechanisms of cooperation and helping in industrial and small-scale-societies: meeting evolutionary social-cultural perspectives

Chair: Marina Butovskaya

Room A

Marina Butovskaya

Do infants of caring parents survive better in genetic perspective: the case of the rural population of North-Central Tanzania with natural reproduction profile

Valentina Burkova

Empathy, anxiety, agreeableness, aggression and 2D:4D ratio in Russian students from Moscow

Victoria Rostovtseva

Group cooperation is male business: testing multilevel effects in experimental setting

Anna Mezentseva

Cooperative Face: experimental study on facial morphology and pro-sociality in Buryats

Symposium overview

The phenomenon of cooperation and mutual help is one of the key issues in human evolution. Today it is known that humans are not the only creatures, who behave altruistically and cooperatively, and hence these phenomena in humans are deeply rooted in their evolutionary past. However, anthropologists, evolutionary psychologists and ethologists up-till now continue to put forward various hypotheses to explain the prevalence of cooperation and mutual assistance in human society. Within the symposium, it is planned to discuss the current state of art on the role of evolutionary mechanisms in the formation of sustainable attitudes for cooperation and mutual help in humans. Particular attention will be addressed to the issues of the role of cultural-specific moral principles for cooperation in societies with different types of economic relations, including small-scale and modern industrial societies. Speakers will target the general goal of the symposium from different angles, and using different methodology: evolutionary theory, ethology, molecular genetics, physical anthropology and developmental psychology. Direct observational, as well as experimental data, collected by speakers will be presented. We also invite other ISHE summer-school participants to join our discussion on nature-nurture interaction in practicing cooperation and helping behavior. The work was supported by Russian Science Foundation (project № 18-18-00075).

Do infants of caring parents survive better in genetic perspective: the case of the rural population of North-Central Tanzania with natural reproduction profile

Marina Butovskaya^{1,2}, **Vasiliy Alexandrovich Vasilyev**³, **Evgeniya Mikhaylovna Sukhodol'skaya**³, **D.I. Jorgenson**³, **Dmitry Shibalev**³, **Valentina Burkova**¹, **D.V. Karelin**⁴, **Daria Dronova**¹ & **Oleg E. Lazebny**⁵

¹Department of Cross-Cultural Psychology and Human Ethology, Institute of Ethnology and Anthropology, Russian Academy of Sciences, Russia

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⁵Department of Evolutionary and Developmental Genetics, Koltzov Institute of Developmental Biology, Russian Academy of Sciences, Russia

The goal of this study was to test if the differences in OXTR and MAOA genes activities in mother and fathers may effect survival of their children till the age of five. The three small-scale East African societies, with traditional reproduction profiles were selected for this study (Hadza, Datoga and Isanzu). 852 adult individuals (490 men and 362 women). Data on age and the number of children survived till the age of 5 y. were collected, as well as buccal epithelium for DNA analysis. Two gene polymorphisms were tested in our study. OXTRsnp rs53576 alleles, supposedly associated with oxytocin sensitivity in social cooperation settings. MAOA polymorphic region uVNTR, with a different number of 30-nucleotide repeats. Short uVNTR alleles with a lower transcriptional activity, and long uVNTR alleles with higher transcriptional activity associated with emotional reactivity and aggression in association with maltreatment in childhood. The GLM univariate two-way interaction analysis with the number of children survived standardized for age of tested individual (male or female) as dependent variable and gender, ethnic and MAOA and OXTR genes alleles polymorphism as independent variables was conducted. Ethnic was the only main significant factor for children survival, Hadza children survived the worst. Three interaction effects were significant: gender x OXTR ($p < 0,003$), gender x MAOA ($p < 0,02$) and OXTR x MAOA ($p < 0,04$). Our data suggest that child of mothers and fathers with AA OXTR genotype survived the least successfully, compared to carriers of AG and GG genotypes. For men with GG OXTR genotype more children survived independent of MAOA uVNTR type. For women with AGOXTR genotype in association with heterozygous MAOA uVNTR type the better children survival was demonstrated. The study was supported by the Russian Science Foundation (grant 18-18-00075).

Empathy, anxiety, agreeableness, aggression and 2D:4D ratio in Russian students from Moscow

Valentina Burkova, Marina Butovskaya & Daria Dronova

¹Institute of ethnology and anthropology, Russian Academy of Sciences, Russia

The goal of this paper is to reveal the level of empathy, anxiety, agreeableness, aggression in Russian students, to study the degree of sensitivity of students towards people with disabilities. We used 2D:4D ratio as biomarker of prenatal androgenization. Data was collected in Moscow megapolis. Sample consisted of 119 students (40 males, 79 females). All participants completed questionnaires on aggression (Buss-Perry), empathy (Baron-Cohen), anxiety (Spielberger), agreeableness (NEO). We presented the set of stimulus photos of people with disabilities and registered the reactions of respondents on these stimuli. After that respondents filled out the same questionnaires. We measured 2nd and 4th digits length using Manning method (1998). Results showed significant sex differences in 2D:4D ratio, physical and verbal aggression, personal anxiety and agreeableness. In general females were more empathetic, although difference wasn't significant. We didn't find significant correlation of empathy with personality traits. Students didn't demonstrate significant increase in the levels of personal anxiety and empathy after watching stimulus photos. Images of people with disabilities didn't provoke anxiety and empathy among Moscow students. These results can be explained largely by environmental factors: life in megapolis has been associated with exposure to many stressful stimuli every day. Differences in the level of empathy before and after viewing stimulus photos correlated significantly with sex, 2D:4D ratio (right hand), as well as rations on agreeableness (cooperation). These results are interpreted in the framework of the concepts of femininity (as reflection of prenatal estrogenization of the brain), as predictor of higher empathy and cooperation, regardless of environmental factors. The study was supported by Russian Science Foundation (project№18-18-00075).

Group cooperation is male business: testing multilevel effects in experimental setting

Victoria Rostovtseva¹, Anna Mezentseva² & Marina Butovskaya¹

¹Institute of ethnology and anthropology, Russian Academy of Sciences, Russia

²Department of Ethnology, Lomonosov Moscow State University Russia, Russia

We report results obtained in two similar experimental studies on human cooperation, using economic games as schemas for inter-personal (dyadic, Prisoner's Dilemma) and group interactions (iterated Public Goods Game). Experiments were conducted applying almost identical design: same-sex groups and dyads; "face-to-face" interactions with no verbal communication; same subjects participating in groups and in dyads, but with different (stranger) partners. First experiment involved 200 subjects (100 males, 100 females; aged 20 ± 2 y.), who were Buryats (Mongoloid, traditionally nomadic pastoralists of Southern Siberia); second experiment was held only among male subjects (51 Russians, and 51 Buryats, aged 25 ± 3 y.), constituting either ethnically homo- or heterogeneous groups and pairs. Russians and Buryats differ substantially in appearance, thus this visual cue was used as a natural feature for distinction between in- and out-group members. Results of the first study revealed that men were significantly more cooperative and altruistic than women, but this difference occurred only in group interactions. In dyads both men and women behaved at the similar level of cooperativeness, whereas more than a half of male subjects, who applied selfish strategies in dyads switched to cooperative and altruistic strategies in groups. Female cooperativeness didn't differ between dyadic and group interactions. Thus, it was demonstrated that males were substantially more prone to cooperate in same-sex groups. Results of the second study revealed that both Buryat and Russian young men significantly more often followed cooperative and altruistic strategies in ethnically homogeneous groups, then in heterogeneous. This effect was not detected in dyadic interactions (both in homo- and heterogeneous male pairs cooperativeness remained at the similar levels). Obtained results provide evidence for strong modulating effect of group-interactions on men's individual behavior. This finding will be discussed from evolutionary perspective. The study was supported by Russian Science Foundation (project № 18-18-00075).

Cooperative Face: experimental study on facial morphology and pro-sociality in Buryats

Anna Mezentseva¹, Sonya Windhager², Victoria Rostovtseva³ & Marina Butovskaya

¹Department of Ethnology, Lomonosov Moscow State University Russia, Russia

²Department of Theoretical Biology, University of Vienna, Austria

³Institute of ethnology and anthropology, Russian Academy of Sciences, Russia

It is known, that specific facial structures may reflect developmental (e.g. physical strength) or hormonal (e.g. masculinity/femininity) characteristics. Such features may be of interest in relation to human behavior and psychology. In present study we investigate mechanisms of human cooperation in real-time “face-to-face” social conditions. The main goal of the study was to evaluate possible association between facial morphology and individual predispositions to behave cooperatively, and to see whether people with specific face morphology can induce cooperation in partners. Another aspect of our analysis was presumable relation between facial form and a number of self-reported personality traits. The study was conducted in experimental setting using economic games (Prisoner’s Dilemma, Public Goods Game) with real monetary pay-offs. Subjects of the study were Buryat students (mean age 20 ± 2 y.), who participated in group and dyadic interactions with stranger partners of the same sex. Each participant was photographed full face, meeting all requirements of anthropological photo. Association between facial morphology and cooperativeness was estimated using geometric morphometrics analysis. Personality traits were evaluated as self-reports on 4 scales of aggression: physical and verbal aggression, anger and hostility (Buss, Perry, 1992), and the Big Five (neuroticism, agreeableness, extraversion, openness to new experience, and conscientiousness). The results are urged to reveal probable association between facial traits, pro-social behavior and personality, and to see how people with certain facial morphology are treated by their partners in context of cooperative interactions. The study was supported by Russian Science Foundation (project № 18-18)-

Symposium II.
Human Behaviour: Unexpected turns and methodological challenges

Chair: Maryanne L. Fisher

Great Hall

Maryanne L. Fisher

When failure is an option: Three (not-so successful) studies in women's receptivity to men's financial status

Ana Maria Fernandez

Challenges to separating emotional and sexual infidelity in real life accounts of a betrayal

Jitka Lindová, Tereza Zikánová & Kateřina Ježková

How not to study the development of courtship

Elisabeth Oberzaucher

The unpredictable nature of human subjects – How to develop appropriate ethological tools

Symposium overview

Fisher will talk about problems encountered while attempting to perform an ethological study on whether men's advertised wealth influences women's mating interest. Although much prior research suggests women are easily swayed by signals of men's wealth, two independent and well structured observational studies did not yield this finding. To further examine the topic, a survey was developed based on the premise of the observational work, and again, failed to replicate the effect for the most part. Although a fourth study is currently underway (and expected to again not lead to a difference), Fisher will discuss problems in observational work and the need to, at times, move to other approaches to ensure a predicted finding really does (not) exist. Fernandez focusses on betrayal in relationships by way of using the well-established distinction between sexual and emotional infidelity. She examines physiological changes in response to thinking about infidelity, with the expectation of replicating past findings regarding sex differences in response to the two types of infidelity. However, her initial steps showed that most recollections did not separate the two forms, although past work clearly led to this expected finding. Further, in later steps of the project, and despite several strong efforts, physiological changes were not found. Her research led to inventing alternative methods. Lindová and colleagues discuss unanticipated hurdles (and opportunities) when examining courtship. Their research begins with an ambitious study to explore the various ways that courtship develops from childhood to adolescence into adulthood. The design is quickly redirected at the start due to a failure to replicate a result that should have been easily found. This outcome led to several interesting conclusions, and a highly refined study design. After a few more twists, including funding issues and ethical considerations, the research yielded novel findings based on the inability to document some specific behaviours. Oberzaucher closes the symposium with a presentation on the need to form an iterative process when conducting observational research. In human ethology, it is necessary for observations to be structured in a way that allows for accurate testing of a hypothesis. However, at times, even seemingly simple studies require their methods to undergo revision prior to data collection on real-world "field" settings. She provides examples of studies that have required the observational methods to be revised due to unexpected issues.

When failure is an option: Three (not-so successful) studies in women's receptivity to men's financial status

Maryanne L. Fisher

Saint Mary's University, Canada

There are numerous strengths to using an ethological approach to study human behavior. However, there are also situations when using such an approach fails to yield meaningful conclusions due to unanticipated factors. The aim of this presentation is to review a "case study" that highlights particular challenges in performing unobtrusive studies of human behaviour that involve minimal but manipulated interventions. Here we report two investigative attempts to examine women's receptivity to men with high versus low financial status, as indicated by conspicuously placed automatic teller machine receipts. The receipts contained a masculine name and a telephone number, and the dependent variable was whether women tried to communicate with the man or not. We present some of the known situational and contextual issues that may have influenced receptivity, and speculate on possible reasons for why using an ethological approach failed. We briefly report on a survey-based experiment that was successfully employed to test the idea in a more controlled manner.

Challenges to separating emotional and sexual infidelity in real life accounts of a betrayal

Ana Maria Fernandez

Laboratory of Evolution and Interpersonal Relationships, University of Santiago, Chile

In this work I will discuss the difficulties experienced when trying to interview people who had been victims of romantic betrayal, and I sought to differentiate which were victims of sexual or emotional infidelity. The research had its bases in analyzing sex differences in the physiological response to sexual and emotional infidelity with a real life event. From a parental investment perspective women were thought to react more physiologically to the recall of emotional infidelity, while men were expected to be physiologically more reactive to sexual infidelity. The design contemplated interviewing 10 men and 10 women between 18 and 35 years of age and assessing their cardiovascular, respiratory and skin response to the imagery of the events. The procedure followed Damasio's protocol to evoke the emotional reaction, by having participants recall the event while the situation was described to them in a two minute interval. During the initial part of the study I began with the challenge: when people who had been romantically betrayed described to me the partner's transgression, I found that most of the recalls were impossible to separate into their sexual and emotional components. I tried hard, using different structuring strategies, to direct their attention and specify which kind of infidelity they had suffered. Due to this persistent challenge across the overall design, it was only possible to measure men's and women's physiological response to infidelity, but not the sex differentiated response to sexual or emotional infidelity separated. I will discuss the challenges and the alternative methods developed up to date, advising that a promising observational design turned impossible to implement.

How not to study the development of courtship

Jitka Lindová, Tereza Zikánová & Kateřina Ježková

National Institute of Mental Health, Czech Republic

Courtship behaviour of humans has been very rarely studied in a developmental perspective, and we bring some evidence about why this might be the case. We approached this topic ingenuously with an ambitious study design, which included studying children, adolescents and adult females, and using interviews, behavioural observation in semi-natural situations and role playing, as well as motion capturing and following cross-gender and cross-cohort rating of behaviour. Starting with the least complicated cohort, adult women, we first faced a surprising failure of an otherwise very promising research method, based on Moreno's sociodrama, and consisting of re-enacting a social interaction, which had provided reliable and rich data in a concurrent study on relationship communication. It turned out that courtship is too volatile to be retrieved and replayed. Motion capturing a professional actor performing courtship behaviours revealed two additional unexpected findings: 1) behaviour perceived as attractive when observed with the original female body is not always comparably attractive when transformed to a different body of an avatar, 2) fine courtship displays often cannot be carried over through motion capturing. With a refined design, we collected data on adults and advanced to adolescents and children. Our naïve intention to overtly focus on eventual courtship displays, besides other interesting forms of behaviour, in underaged subjects was soon deservedly punished by rejecting our grant proposal out of ethical reasons. We therefore continued by studying interpersonal behaviour between (opposite-sex) peers, which was supported and funded. We planned to rely mainly on techniques resembling pretend play or allow kids to spontaneously express their behaviour. However, based on data obtained so far, we can make some preliminary conclusions: children behave spontaneously only when you do not want them to; despite what is known about pretend play, children are not able to imagine being in a hypothetical situation; children do not seem to remember what happened to them in the past, and if they do, they find it unfeasible to describe it in more than two words. Turning to positive results, we found children to show a remarkable ability to accurately imitate others' behaviours, specifically when an experimenter was showing them a simplified example of how they might behave in the experimental situation.

The unpredictable nature of human subjects – How to develop appropriate ethological tools

Elisabeth Oberzaucher

Faculty of Life Sciences, University of Vienna, Austria

Ethological observations of human behaviour can be the foundation for an understanding of how and why people act in the way they do. Especially in behaviours that are not governed by conscious decisions, observations are the method of choice. In ethological studies we pose a hypothesis, and develop a method to test it. One of the most challenging part of this kind of research is to develop tools that will cover the behaviour of interest reliably and not to get lost in the complexity of human behaviour. Even for experienced ethologists, it is highly necessary to test their methods before they set out to collect their dataset. Supposedly simple behaviours might turn out more complex than expected, or people might not show the anticipated behaviours at all. Usually, the method builds upon an ad libitum observation, followed by a testing period that reveals necessities for adaptations and refinement of the observation tool. Especially when doing field studies, this optimisation process should be completed before the field season starts. In this talk I will present cases that required a reworking of the methodology after testing it in the field.

Symposium III.
Relational approaches to understanding human behavior

Chair: Daniel Redhead

Room B

Cody Ross

Network-structured economic games demonstrate positive assortment of cooperators in two populations of Afrocolombians

Daniel Redhead

The Dynamics of Cooperation and Status in a Small-Scale Society

Elsbeth Ready

Replicating reciprocity in evolutionary studies of cooperation

Eleanor Power

Cross-cultural variation in the structure of human social relations: baselines, variance, and the role of measurement

Symposium overview

Whether gossiping between friends, sharing the returns of a hunt with neighbours, or the emergence of a coalition to raid a nearby community, human social interactions are structurally patterned and are an essential component of human adaptation. Over recent decades, a growing body of interdisciplinary research has utilized social network theory and methodology to demonstrate how structural patterns in social relationships emerge, and their association with evolutionary mechanisms that may underpin human cooperation. The proposed symposium showcases recent work in human behavioral ecology that highlights the utility of adopting a network perspective to examine the adaptive importance of social ties. First, the symposium will begin with a brief ten-minute introduction to research on social networks, and then outline two recent studies that highlight the benefits of using a relational perspective to answer complex questions about human behaviors. By pairing data from network-structured economic games with community census and social network data among two Afrocolumbian populations, Dr. Cody Ross demonstrates that positive assortment in both experimental and observational giving networks is characterized by reciprocity and religiosity, and not kinship or wealth homophily. Dr. Daniel Redhead then presents a longitudinal study—examining cooperation networks across an 8-year period among the Tsimane of Bolivia—that outlines that cooperation emerges over time through several structural processes, such as reciprocity and transitive closure. These temporal data further show that similarity in social status between connected individuals emerges through a process of network influence. Dr. Redhead consequently posits that cooperation networks and allocation of social status likely co-emerge in human groups. Second, the symposium will feature two papers that bring into question current methodological paradigms used for collecting social network data and their relationship to theory in evolutionary anthropology. Dr. Elspeth Ready will introduce recent research from two Inuit communities in the Canadian Arctic, demonstrating that multiple mechanisms sustain food sharing in Inuit communities. However, focusing on reciprocity, Dr. Ready also demonstrates potential methodological limitations in our ability to collect evidence for the evolutionary mechanisms underpin human cooperation. Building on these considerations, Dr. Eleanor Power will then present recent research that explores the diversity of human social support networks. Specifically, Dr. Power compares network measures across a large body of observational and self-reported social support network data that capture a diverse range of human relationships, and examines how the different data collection techniques have a bearing on the structural characteristics of the resulting network. Finally, the symposium will close with a ten-minute panel discussion, where audience members may ask general questions about theory and methodology in social network analysis.

Network-structured economic games demonstrate positive assortment of cooperators in two populations of Afrocolombians

Cody Ross

Department of Human Behavior, Ecology and Culture, Max Planck Institute for Evolutionary Anthropology, Germany

Across cultures, humans show high levels of cooperative behavior, even towards unrelated and unfamiliar individuals. Price's covariance equation indicates that for cooperation to be stable, there needs to be a mechanism that makes cooperators preferentially direct aid to other cooperators. Diverse behavioral mechanisms can lead to such 'positive assortment' among cooperative individuals, for example kin discrimination, reciprocation, reputation, homophily, and religiosity-biased interactions. Much previous work has demonstrated that resource transfers in small-scale societies can be explained by these mechanisms. However, despite its theoretical importance, little work has investigated the extent to which these mechanisms actually affect assortment of cooperative individuals in network relationships. Here, we draw on a set of "RICH" games, a new field methodology designed to collect network-structured economic game data, allowing us to measure both the cooperative propensities of individuals, and the extent to which cooperators preferentially direct aid to other cooperators. We pair this experimental data with community-wide census and social network data to investigate the extent to which inter-personal relationships in a community are structured by the cooperative propensities of individuals, and which mechanisms, if any, explain this positive assortment. We first demonstrate positive assortment among cooperators in both social and resource transfer networks. We then show that reciprocation and religiosity (but not kinship or wealth homophily) increase the extent of positive assortment among cooperators in experimental and observational giving networks, and that only reciprocation increases the extent of positive assortment in friendship networks. Moreover, we show that positive assortment in the friendship networks cannot be fully explained by the suite of predictor variables that we have included, indicating that some mechanism that we have not yet considered allows cooperators to maintain positive assortment. Lastly, by applying the analytical framework we developed to a different data set from a recent study on assortment in the Hadza, we demonstrate the broader utility of our methods for wider cross-cultural analyses.

The dynamics of cooperation and status in a small-scale society

Daniel Redhead

Department of Human Behavior, Ecology and Culture, Max Planck Institute for Evolutionary Anthropology, Germany

Why humans evolved to cooperate with unrelated individuals may have depended on informal status hierarchy. We propose that higher status individuals may cooperate with lower status individuals to maintain status, and lower status individuals cooperate with higher status individuals to attain higher status. We test these predictions among men from a village of Tsimane forager-horticulturalists in Amazonian Bolivia. Three waves of peer-rated status rankings and reported cooperation partners were collected over an eight-year period and analyzed using stochastic actor-oriented modelling. Results indicate that cooperative relationships were characterized by reciprocity, transitivity, and kin preference. In addition, higher status individuals were more likely to both receive and initiate cooperative ties across the 8-year period, and—through a process of network influence—individuals gained status the higher the status of their cooperation partners. This study provides one of the first longitudinal assessments of cooperation in a non-industrial setting, and identifies that observed similarity between cooperative partners is a product of network influence, rather than network selection.

Replicating reciprocity in evolutionary studies of cooperation

Elsbeth Ready

Department of Human Behavior, Ecology and Culture, Max Planck Institute for Evolutionary Anthropology, Germany

Drawing on recent advances in social network analysis, we reconsider food sharing—a classic problem in human behavioral ecology—using independent datasets from two Inuit communities in the Canadian Arctic (Kangiqsujuaq, Nunavik, and Nain, Labrador). Using Exponential Random Graph analysis, we find that, in both communities, traditional resource harvesting and sharing practices depend upon household participation in the cash economy. Partly as a result of these factors, food sharing has different benefits for different households. These findings highlight the importance of heterogeneity in economic and social position even within small populations, and suggest that such heterogeneity can facilitate cooperation. However, one key result of our analyses—the importance of reciprocity in Kangiqsujuaq—does not appear in Nain, a result that calls into question the validity of different social network data collection methods for testing certain evolutionary hypotheses. We argue that to understand the role of reciprocity (direct or indirect) in sustaining human cooperation, we need to have a better understanding of the range of observed variation in human social support networks, and of how data collection methods impact observed network structures. On a theoretical level, we suggest that to better understand the evolutionary mechanisms underlying cooperation we need to investigate hypotheses that pay closer attention to the relationship between social-economic position and risk preferences, and to the different timescales over which individuals are most

Cross-cultural variation in the structure of human social relations: baselines, variance, and the role of measurement

Eleanor Power

Department of Methodology, London School of Economics, England, UK

The collection of data on social relations between individuals has had a long history in the behavioral sciences, and has additionally experienced a recent florescence. Despite this, we still have a limited understanding of the diversity of human social networks, and lack a sense of the distribution of basic network summary statistics observed across different social networks. Further, we have not yet established how the many methodological choices entailed in the process of gathering social network data influence the resulting measures. Here, we compile a large corpus of observational and self-reported social support network data representing a range of different relationships (e.g., food sharing, loan giving, friendship ties, advice), primarily in small-scale, face-to-face communities. We examine the range of network summary statistics (e.g., reciprocity, transitivity, average degree) across different types of social support ties, and additionally consider how methodological decisions (e.g., single or double sampling, node and tie aggregation) impact the structure of the observed network. Characterizing the distribution of basic network properties (and the impact of methodological choices on such measures) is not only important empirically, but also theoretically, as network processes such as reciprocity and triadic closure have been proffered as key mechanisms facilitating cooperation and social learning. By delineating the range of these measures observed cross-culturally, we hope to facilitate the design of social network studies more appropriate to testing different hypotheses about mechanisms sustaining cooperation.

Symposium IV.
**Romantic relationships on many levels: Physiological,
personality, and cultural predictors of love**

Chair: Carol Weisfeld

Room A

Kateřina Fiurařková

Effect of hormonal contraception use during relationship formation on subsequent relationship satisfaction

Francesca Singleton

Hormonal contraception and the effects of informative intervention on relationship satisfaction

Alena Āiřenkova

Manipulative strategies in conflicts of romantic couples with anxious and non-anxious personality profile

Carol Weisfeld

Looking beyond children: Spousal behaviors predicting marital satisfaction across cultures

Symposium overview

This symposium presents research findings on predictors of romantic attraction and satisfaction at the levels of physiology, personality profiles, and cultural contexts – in short-term and long-term heterosexual couples.

Effect of hormonal contraception use during relationship formation on subsequent relationship satisfaction

Kateřina Fiurařková¹, S. Craig Roberts², Jana Hlaváčová¹, řárka Kaňková¹, & Jan Havlíček^{1,3}

¹Faculty of Science, Charles University, Czech Republic

²University of Stirling, Scotland, UK

³Group of Evolutionary and Social Perception, National Institute of Mental Health, Czech Republic

Previous studies testing the influence of oral contraceptives (OC) on relationship satisfaction have produced mixed results. These discrepancies might be explained by the “Congruency hypothesis”, which predicts that relationship satisfaction is determined by the congruency (or non-congruency) between current use of OC and use during relationship formation. This is because OC appear to alter women’s mate preferences, so that attraction to their partner may have changed in non-congruent women. Previous studies have shown that women in a non-congruent state were less sexually satisfied with their partner, even though generally they were more satisfied in their relationship. The aim of our study was to test the congruency hypothesis in two samples which consisted of i) 660 couples attending the In vitro Fertilisation Clinic and ii) 123 couples who conceived naturally; none of the women was currently using OC. Both partners completed a questionnaire on relationship and sexual satisfaction; women also provided information on OC use during relationship formation. Based on previous studies, we expected that women who used OC at the time of relationship formation would report lower sexual satisfaction with their partner than women who did not use OC during relationship formation. In contrast to previous studies, we did not find a significant difference in sexual satisfaction between OC users and OC non-users in both samples. We also found that in the set of naturally conceived women, women who used OC when they met their partners showed significantly higher relationship satisfaction than women who did not use OC at this time. Our results could have been affected by specific sets of couples in our samples, or by a possible ceiling effect in

Hormonal contraception and the effects of informative intervention on relationship satisfaction

Francesca Singleton, Paxton D. Culpepper, Kelly Cobey & S. Craig Roberts

University of Stirling, Scotland, UK

Hormonal contraceptives (HC's, e.g. the pill) are believed to suppress biological processes associated with women's preferences for partner qualities which are reflective of genetic fitness. That is, women may prioritize cues of partner genetic fitness to a lesser extent than those who are non-users. Preference differences between users and non-users may become especially relevant when a woman initiates or discontinues HC use, so that her current use becomes incongruent with her use when she first met and chose her partner. Any changes in congruency of HC use may influence women's mate preferences and as a result, her relationship dynamics. We know that, in real couples, incongruent use of HC's may have a negative effect on sexual satisfaction, relationship jealousy and perceived attractiveness as well as self-perceived attractiveness. These consequences are presumably unbeknownst to couples. Therefore, we present a study to investigate whether providing couples with an informed basis for external issues associated with HC use improves relationship satisfaction, as potentially knowing the source of these issues may alleviate issues and have an ameliorating effect. We collected measures of sexual satisfaction (e.g., Sexual Desire Inventory) and general satisfaction (e.g. Relationship Assessment Scale) from 46 heterosexual British couples over a seven-month period. Twenty-three couples were exposed to information relating to psychological and physical side-effects of HC use (intervention information), while 23 were exposed to information depicting the physical side-effects only. Relationship satisfaction responses for the duration of the study will be compared between couples who received intervention information, and couples who did not. We predict that incongruent HC couples will be less satisfied than congruent HC couples. Also, we expect relationship satisfaction (both sexual and general) will increase in couples exposed to the intervention. We hope to provide further insight into the area of contraceptives and intrapair relationship dynamics.

Manipulative strategies in conflicts of romantic couples with anxious and non-anxious personality profile

Alena Čiženkova^{2,3}, Eva Richterová¹, Dan Fayette¹, Anna Fišerová², Filip Šinkner¹, Kateřina Potyszová¹, Katarína Prikrylová^{1,2} & Jitka Lindová^{1,2}

¹Group of Evolutionary and Social Perception, National Institute of Mental Health, Czech Republic

²Department of Anthropology, Faculty of Humanities, Charles University, Czech Republic

³Group of Evolutionary Sexuology and Psychopathology, National Institute of Mental Health, Czech

There is a vast array of strategies that can be used during conflicts in romantic relationships, manipulation being one of them. Evolutionary theory predicts that the role of manipulation can be high in the case of romantic partners, who can use social information about their partners to manipulate them. Increased rate of use of manipulative strategies can be expected in partners with an anxious personality. In our study, 15 long-term (5 with a non-anxious profile, 5 with both partners having an anxious profile, 5 with one of the partners having an anxious profile) romantic couples (aged 18-45) were tested with an interactive procedure called Psychodrama, and they were videotaped while re-enacting a conflict in a laboratory setting. Preliminary results suggest that couples with a non-anxious profile use more direct and constructive strategies, e.g. outlining the cause and consequences of the problem, offering solutions and exploring alternatives. Couples where both partners have an anxious profile tend to use more coercive strategies such as emotional pressure and dismissal of partner's arguments. In couples with only one partner having an anxious profile, conflicts usually revolve around inducing guilt by appealing to partner's love and relationship obligations, expressing sadness and being hurt. Findings support the assumption that people with an anxious

Spousal behaviors predicting marital satisfaction across cultures

Carol Weisfeld¹, Elizabeth M. Hill¹, Marina Butovskaya², E. Olcay Imamoğlu³, Jiawen Wang¹ & Glenn E. Weisfeld⁴

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Sociological studies of marriage, including some oft-quoted meta-analyses, identify children as a possible source of conflict leading to separation and divorce. These meta-analyses typically include individualistic cultures as opposed to collectivistic groups. One meta-analysis that included collectivistic cultures (Dillon & Beechler, 2010) found that the presence of children accounted for a very small negative impact on marital satisfaction ($d = -.11$, $r = -.06$). If presence and number of children explains about 1 percent of the variance in marital satisfaction, what accounts for the remaining 99 percent? An evolutionary viewpoint would see children as a desired outcome of marriage, and also recognize sex differences and cultural differences in criteria that are important for mate choice and marriage maintenance. In our cross-cultural research, we utilized the Marriage and Relationship Questionnaire, which demonstrates cultural and gender invariance. Using the MARQ datasets from the U.S.A., Turkey, Russia, China and England (over 2700 couples), our regression analyses identified ten predictors (aside from children) that explained from 55% to 65% of the variance in marital satisfaction: kindness, humor, dependability, physical attraction (self and spouse), money problems, health, sexual satisfaction, being easy to get along with, and having the same outlook on life. Sex differences and cultural differences of great interest emerged. Overall, predictors related to compatibility (both sexes), resource provision (especially females), sexual satisfaction and physical attractiveness were significant across cultures. Unique cultural patterns, such as the relative importance of physical attractiveness for Russians and humor for Americans, were discovered. We suggest that an evolutionary, cross-cultural approach may add significantly to our understanding of marriage.

Looking beyond children: Spousal behaviors predicting marital satisfaction across cultures

Carol Weisfeld¹, Elizabeth M. Hill¹, Marina Butovskaya², E. Olcay Imamoğlu³, Jiawen Wang¹ & Glenn E. Weisfeld⁴

¹*University of Detroit Mercy, USA*

²*Institute of Ethnology and Anthropology, Russia*

³*Middle East Technical University, Turkey*

⁴*Wayne State University, Detroit, USA*

Sociological studies of marriage identify children as a source of conflict leading to separation and divorce. Twenge's (2003) meta-analysis found that the number of children negatively impacts marriage satisfaction (with a small effect size). Another meta-analysis including collectivist cultures (Dillon & Beechler, 2010) found that the presence of children accounted for a small, but significant, negative impact on marital satisfaction ($d = -.11$, $r = -.06$). An evolutionary viewpoint would see children as a desired outcome of marriage, and also recognize sex differences and cultural differences in criteria that are important for mate choice and marriage maintenance. If presence and number of children explains less than 1 percent of the variance in marital satisfaction, what accounts for the remaining 99 percent? In our cross-cultural research, we utilized the Marriage and Relationship Questionnaire, which demonstrates cultural and gender invariance. Using the MARQ datasets from the U.S.A., Turkey, Russia and China (over 1600 couples), our regression analyses identified ten predictors (aside from children) that explained from 55% to 65% of the variance in marital satisfaction: kindness, humor, dependability, physical attraction (self and spouse), money problems, health, spouse's sexual responsiveness, being easy to get along with, and having the same outlook on life. Sex differences and cultural differences of great interest emerged. Overall, predictors related to compatibility (both sexes), resource provision (especially females), sexual satisfaction and physical attractiveness (males) were significant across cultures – the evolutionary significance of these factors is profoundly obvious. Unique cultural patterns, such as the relative importance of physical attractiveness for Russians and humor for Americans, were discovered. We suggest that an evolutionary, cross-cultural approach may add significantly to our understanding of marriage.

Symposium V.
Making sense of scents: Investigating human olfaction

Chair: Jan Havlíček

Great Hall

Lucie Kuncová

Father-Partner similarity in body odour doesn't affect relationship and sexual satisfaction

Dagmar Schwambergová

Is reactivity of immune system related to human body odour quality?

Caroline Allen

Preparation for fatherhood: A role for olfactory communication during human pregnancy?

S. Craig Roberts

Does handshaking provide a means of olfactory communication in humans?

Symposium overview

It is well-established that many non-human species can detect information from conspecifics via olfaction. The information available from odour is used by both competitors and mates and appears to be wide-ranging, including, but not limited to reproductive status, competitive ability, and genetic compatibility. Olfactory signals not only reveal characteristics, but have also been found to induce physiological and behavioural changes in the perceiver, such as accelerating or delaying the onset of puberty and inducing ovulation. Though once largely disregarded, the role of olfaction in human communication has now developed into an area of great interest, and there is a wealth of evidence supporting the idea that olfaction may mediate human social interactions. This symposium brings together researchers in this field to present some of the most recent findings investigating the role of olfaction in human communication and interactions. Jan Havlicek will act as chair for the symposium. There will be a brief 10 minute introductory talk outlining the field of olfaction and recent findings. Following this there will be four presentations (10 minutes plus 5 for questions each), and a final ten minute session where the presenters will be available for more general questions related to the field. Kuncová and colleagues will present findings investigating the hypothesis that odour similarity between parents and potential partners can have an impact on relationship and sexual satisfaction. Schwambergová and colleagues present findings relating to the potential role of body odour as a cue to genetic quality. Allen and colleagues will present findings from their study which is the first to experimentally test whether body odours from women during pregnancy provide a mechanism for the upregulation of men's interest in infants. Finally, Roberts and colleagues will present some novel work investigating hand odours, and their potential role in olfactory communication.

Father-Partner similarity in body odour doesn't affect relationship and sexual satisfaction

Lucie Kuncová, Zuzana Štěrbová & Jan Havlíček

Faculty of Science, Charles University, Czech Republic

Previous studies have shown that women tend to prefer and choose partner resembling their father in various characteristics. Thus, the father-partner similarity can positively affect relationship and sexual satisfaction. However, no study has yet tested this association. We collected body odour samples from 25 women's partners and fathers. Each woman completed questionnaires to assess her relationship (RAS) and sexual satisfaction (NSSS). The body odour similarity was evaluated by 128 independent female raters. Results showed that raters found partner's body odour significantly more similar to the father's body odour. Contrary to our expectation, the perceived father-partner similarity in body odour had no influence on relationship and sexual satisfaction. Despite that the body odour plays an important role in women's mate choice, our results indicate that the father-partner similarity in body odour does not affect woman's relationship and sexual satisfaction. Future studies should focus on the influence of father-partner similarity in other characteristics on relationship and sexual satisfaction.

Is reactivity of immune system related to human body odour quality?

Dagmar Schwambergová^{1,2}, Žaneta Slámová^{2,3}, Jitka Fialová^{1,2} & Jan Havlíček^{1,2}

¹Department of Zoology, Faculty of Science, Charles University, Czech Republic

²National Institute of Mental Health, Czech Republic

³Department of Philosophy and History of Sciences, Faculty of Science, Charles University, Czech Republic

It has been shown that body odour provides cues about reproductive and health status. Hence, body odour might also serve as a cue to some aspects of genetic quality, such as immunoreactivity. Previous studies have found that women perceive male faces with more reactive immune system (assessed by levels of antibodies against hepatitis B) as more attractive. Whether similar association would be found for body odour was not investigated yet, so we aimed to test a possible relationship between body odour quality and reactivity of immune system. We hypothesized that body odour of individuals with higher immune system reactivity (with higher levels of antibodies) will be perceived as more attractive and healthier. We collected body odour samples from 21 men aged between 18–40 years at the baseline before and two weeks after vaccination against hepatitis A and B (Twinrix) and meningococcus (Menveo). We also obtained participant's blood samples to determine levels of specific antibodies (selected as markers of reactivity of immune system), testosterone, cortisol and CRP. Subsequently, a panel of 88 female raters aged 18–40 years assessed body odour samples for their intensity, attractiveness, and healthiness on a 7-point scale. In contrast to our hypothesis, we found no significant association between levels of antibodies induced by vaccination against hepatitis and meningococcus and perceived body odour attractiveness, intensity, and health. We also didn't find any significant difference between the levels of steroid hormones - testosterone and cortisol - before and after vaccination. The hedonic ratings of body odour before and after vaccination didn't statistically differ either. Therefore, from our findings we can conclude that body odour doesn't serve as a cue to immunoreactivity.

Preparation for fatherhood: A role for olfactory communication during human pregnancy?

Caroline Allen¹, Kelly Cobey², Jan Havlíček³, Francesca Singleton⁴, Amanda C. Hahn⁵, Colin Moran⁴ & S. Craig Roberts⁴

¹Newcastle University, England, UK

²University of Ottawa, Canada

³Faculty of Science, Charles University, Czech Republic

⁴University of Stirling, Scotland, UK

⁵Humboldt State University, USA

There is evidence across a range of bi-parental species that physiological changes may occur in partnered males prior to the birth of an infant. It has been hypothesised that these hormonal changes might facilitate care-giving behaviours, which could augment infant survival. The mechanism that induces these changes has not been identified, but evidence from several species suggests that odour may play a role. The current study investigated this in humans by recording testosterone and psychological measures related to infant interest and care in men (n=91) both before and after exposure to odours from either pregnant women or non-pregnant control women. We found no evidence for effect of odour cues of pregnancy on psychological measures including self-reported sociosexual orientation and social dominance scores, ratings of infant or adult faces, or testosterone levels. However, we found some preliminary evidence that brief exposure to post-partum odour increased the reward value of infant faces, with some indication that this increase began in late pregnancy. Our study is the first to show that the odour of peri-partum women may lead to upregulation of men's interest in infants.

Does handshaking provide a means of olfactory communication in humans?

S. Craig Roberts¹, Francesca Singleton¹ & Jan Havlíček²

¹University of Stirling, Scotland, UK

²Charles University, Czech Republic

In many species, meetings between individuals are characterised by brief or even extensive olfactory investigation. Inter-individual assessments made in this way enable individual discrimination or recognition and perhaps shape appropriate responses in subsequent interaction, such as in decisions about escalating aggression or whether to accept a mate. A recent study claimed that in humans, handshake greetings might have a similar role: it suggested that people often smell their hands after a handshake. I will present results of a study aiming to further test this idea. Experimental participants attended a session in which they greeted each of four confederates in a staged interaction lasting 90 seconds. Approximately 180 participants were tasked with remembering information about the confederates. Interactions were scripted for confederates, in order to standardise the task, but at the beginning of the greeting one confederate of each sex shook hands with the participant, the other two confederates did not. This enabled us to compare behaviour of male and female participants to both male and female confederates in a balanced design, and by covertly filming each interaction, we were able to score the extent to which participants assessed the smell of their hands immediately following the greeting. Furthermore, following the interactions, participants underwent a memory task in which they recalled details about the confederates. The results of this study will be presented and the implications of the results discussed, as well as comments on the ethical and procedural difficulties presented by such studies.

Saturday 24th August

09.00 – 10.00	
Plenary IV	
Annie Wertz Exploring the cognitive consequences of human-plant interactions in infancy	Great Hall <i>Chair: Maryanne L. Fisher</i>
10.20 – 10.55	
Oral session IVa	Great Hall <i>Chair: John Richer</i>
10.55 - 11.35	
Discussion session IVa & Refreshments	Great Hall
11.35 – 12.10	
Oral session IVb	Great Hall <i>Chair: John Richer</i>
12.10 - 12.50	
Discussion session IVb & Refreshments	Great Hall
14.15 – 14.50	
Oral session Va	Great Hall <i>Chair: Benjamin Banai</i>
14.50 - 15.30	
Discussion session Va & Refreshments	Great Hall
15.30 – 15.55	
Oral session Vb	Great Hall <i>Chair: Benjamin Banai</i>
15.55 - 16.30	
Discussion session Vb & Refreshments	Great Hall

16.30 - 18.30**Workshops**

Data visualisation	Room A
Introduction to Registered Reports and the Open Science Framework	Room C
The Fallacies of Significance Tests, the Use of Maximum Likelihood Methods and Contrasting Correlations versus Associations	Room B

PLENARY

Exploring the cognitive consequences of human-plant interactions in infancy

Annie E. Wertz

Max Planck Institute for Human Development, Germany

Plants have been central to human life across evolutionary time. There is considerable evidence in the archeological record that, for many millennia, humans consumed a variety of plant foods and used plant resources to manufacture artifacts. Studies of modern indigenous societies whose living conditions more closely resemble those of ancient populations have documented the myriad ingenious ways that humans can exploit foraged plant resources to make a living. Elaborate food preparation techniques transform otherwise inedible plant parts into nutritious meals. Chemical compounds are extracted to aid in hunting and fishing, as well as for medicinal and ritual use. Plant fibers are woven into countless intricate forms. This kind of reliance on plant resources requires a considerable amount of detailed knowledge. However, acquiring knowledge about plants is neither straightforward nor risk-free. Consider the problem of learning which plants in a particular environment are edible. Although some plants (or plant parts) are edible, others are toxic. This is because all plants produce chemicals to deter herbivores and some of these chemicals can be quite harmful, and in some cases deadly, to humans. Further, because plants are in co-evolutionary relationships with many different herbivorous species, there are no morphological features of plants that reliably predict human-relevant edibility or toxicity. How then does each individual human determine which plants are food and which ones are fatal? Employing a trial-and-error strategy under these circumstances would be extremely costly. Instead, I argue that the human mind contains a collection of behavioral avoidance strategies and social learning mechanisms for safely acquiring information about plants over the course of ontogeny. I call this collection of cognitive systems Plant Learning and Avoiding Natural Toxins, or PLANT. In this talk, I will present evidence from a series of studies with human infants testing PLANT. The results indicate that 8- to 18-month-olds exhibit a striking reluctance to reach out and touch plants compared to other types of entities, a strategy that would protect them from the type of harm that plants can inflict (poisoning, physical injury). A separate set of studies demonstrates that 6- and 18-month-olds engage in selective social learning of plant edibility. In these studies, infants watch an adult eating pieces of fruit from a plant and a manmade object. Despite seeing the same social information demonstrated with both object types, infants identify the plant, but not the artifact, as being edible. Taken together, these findings provide support for the proposed PLANT system and have broader implications for the evolution of social learning mechanisms and the intergenerational transmission of human culture.

10.20 – 10.55
Oral session IVa
Great Hall

Chair: John Richer

Even grandpas can do the job well: Positive effect of grandfather's presence on offspring survival	Jan Havlíček
Proximity and touching: Observational research on mate guarding in humans	Kraig S. Shattuck
Evolutionary Theory and the Social Sciences: The Case of Evolutionary Sociology	Manfred Hammerl
Visible or not? Displays of emotional arousal	Lucie Krejčová
Food wasting moral judgments predicts reproductive success	Michał Misiak
The nature of the twin relationship in childhood as a function of varying genetic relatedness	Paula Coeli Araújo Short
Facial emotion recognition in Germany and an indigenous group in Uganda: Evidence against Ekman's universality assumption	Martin Krippel

Even grandpas can do the job well: Positive effect of grandfather's presence on offspring survival

Jan Havlíček, Petr Tureček & Alice Velková

Faculty of Science, Charles University, Czech Republic

A positive effect of grandmother's presence on probability of survival of their grandchildren is well documented. In contrast, there is no agreement on whether grandfathers similarly contribute to survival of their grandchildren. In our current study we employed a large historical dataset to assess the effect of grandfathers' presence on grandchildren's survival from birth till five years of age. We further tested differences between paternal and maternal grandfathers and controlled for family socio-economic status (SES). The dataset was obtained from church registers and consisted of 7066 individuals (2836 high SES farm holders, 2356 intermediate SES cottagers and 1874 low SES houseless lodgers) born in West Bohemia between 1709-1834. We employed Cox regression with three orthogonal contrasts: i] no grandfather vs. at least one grandfather present, ii] one grandfather vs. two grandfathers present and iii] maternal vs. paternal grandfather present. We found no effect of grandfather's presence in families with high and intermediate SES. In contrast, in low SES families grandfathers increase probability of grandchildren's survival. Having at least one grandfather significantly increased the grandchildren's survival as compared to none (HR=1.25, 95% CI = 1.04-1.49). The contrasts distinguishing between two and one grandfathers (HR=1.01, 95% CI = 0.68-1.50) and maternal and paternal grandfathers (HR=1.20, 95% CI = 0.82-1.66) were not statistically significant. This effect was not only due to collinearity with grandmaternal availability. Similar test with orthogonal contrasts did not find a difference between the presence of grandmother and grandfather neither on maternal (HR=1.04, 95% CI = 0.75-1.43) nor on paternal (HR=0.84, 95% CI = 0.57-1.22) side. Our results indicate that the contribution to the offspring survival might not be specific to grandmothers and based on local conditions might be substituted by other family members such as grandfathers.

Proximity and touching: Observational research on mate guarding in humans

Kraig S. Shattuck & Glenn E. Weisfeld

Wayne State University, USA

Mate guarding behaviors are strongly selected for in species that suffer from infidelity and cuckoldry. Two forms of mate guarding behaviors that have been found in self-report studies on humans are proximity and touching. Proximity actively prevents infidelity through the physical act of being present. Touching indirectly prevents infidelity by signaling to any potential rivals that their partner is taken, as well as signaling to the partner that they are being watched. More observational research of mate guarding behaviors is needed though. With this in mind, we hypothesize that proximity and touching will be used as forms of mate guarding when in the presence of a potential romantic rival. Couples participating in the study interacted with an attractive confederate and their proximity and touching behaviors were recorded. Results show that proximity and touching behaviors increased while in the presence of the confederate. When an attractive confederate was present, couples sat closer to and touched each other more often than they did when they were alone, showing that humans engage in these forms of mate guarding.

The Evolutionary Theory and the Social Sciences: The Case of Evolutionary Sociology

Manfred Hammerl

University of Graz, Austria

Evolutionary behavioral Sciences often rightly claim that social sciences don't consider human evolutionary history in their explanatory models. Out of the observation that discussions on this issue are scarce at evolutionary conferences, this review traces the development of evolutionary sociology, a small but viable field within sociology. At the latest when Wilson published 'Sociobiology: The New Synthesis' in 1975, an adversarial debate arose a) between sociologists and evolutionists, and b) within sociology itself. The rise of new evolutionary disciplines represented a challenge for areas of sociology and their representatives. Although there were evolutionary sociologists as early as in the 1970s, evolutionary sociology couldn't gain much ground up to now and the gap between evolutionists and sociologists couldn't be closed so far. On the basis of a literature review a) milestones in the development of evolutionary sociology will be depicted, b) frequent misconceptions/misbeliefs within sociology about evolutionary behavioral sciences and evolutionary theory will be presented, c) main causes of sociology's "biophobia" will be identified, and d) future perspectives for the discipline of evolutionary sociology (and its coexistence with other evolutionary behavioral sciences) will be discussed. In sum (but non-exclusive), scientific facts clearly point to a stronger integration of evolutionary explanations in many areas of sociology but most often political reasoning, worldviews, and also a lack of biological training (or a lack of understanding why biology should be relevant) inhibit exactly that. The value of integrating evolutionary explanations in the social sciences as well as the prospect of coexistence and cooperation with other evolutionary behavioral sciences are key points for discussion at the conference.

Visible or not? Displays of emotional arousal

Lucie Krejčová¹, Ondřej Novák¹, Tereza Řezníčková², Denisa Průšová¹, Vít Třebický¹ & Kateřina Klapilová¹

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Background: Previous studies have suggested that color and thermal changes in face and body are triggered by various forms of emotional arousal such as fear, proud as well as sexual arousal (Leary et al., 1992). Two phenomenon are related to color changes in face – blushing and sex flush, but the continuity of these two types is not known. The aim of our study was to test color and thermal changes during emotional and sexual imagery. Methods: Color and thermal reactions of 21 women (mean age = 23.9, SD=4.9) in their face and neck were taken during standardized conditions (black tent, no make-up, dressed in black fabric, covered hair). After 15 minute of calibration (baseline), women were leaded to imagine about 5 different situations: embarrassment, pride, courtship, body focused sexual arousal and sexual fantasy. The content of imagery was based on their own experiences, order of situations was randomized. Analysis: For each condition, the moment with the strongest observed emotion was chosen for analysis. The temperature and color was examined in six selected regions (ROIs) in face and neck - forehead, eyes, nose, cheeks, mouth and upper chest. Results: All experimental situations caused changes in redness and temperature (tested by ANOVA). The significant temperature changes to baseline was measured in all areas in embarrassing and body focused sexual arousal situation (all $p > .001$). The significant changes in redness were found in all areas in both sexual conditions and courtship situation (all $p > .001$). Pearson correlation analysis didn't show any significant relation between temperature and color changes. Conclusion: Our study showed that all experimental situations triggered temperature and color changes in face. Changes in redness were visible and therefore could serve as a social cue, e.g. for recognizing of emotional state/sexual arousal between individuals.

Food wasting moral judgments predicts reproductive success

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Humans consider food wasting to be immoral and the harshness of these judgments vary across cultures. It is hypothesized that these differences reflect the impact of unstable ecology and harsher moral judgments of food wasting may serve as a cultural adaptation for food insecurity. However, there is still no evidence of any direct adaptive benefits of harsh moral judgments of food wasting that may facilitate adaptation to an unstable ecology. We hypothesize that people who have harsh moral judgments toward food wasting waste less food and therefore have a better nutritional status (as indicated by body fat percentage) than people who do not consider food wasting immoral. In turn, people with a better nutritional status should be able to achieve greater reproductive success in an unstable ecology. We designed a mediation model to test this hypothetical mechanism. We conducted our study on two traditional populations: Hadza hunter-gatherers (n = 70) and Datoga pastoralists (n = 69). Both of these populations inhabit an unstable ecological niche, where food acquisition is much more challenging than for market-reliant populations. Our results indicate that food wasting moral judgments are linked to reproductive success. People who judged food wasting as more immoral tended to have more children. However, nutritional status did not seem to mediate this relationship. Our results suggest that food wasting moral judgments may serve as an adaptation. Nevertheless, a direct mechanism is still to be investigated. We

The nature of the twin relationship in childhood as a function of varying genetic relatedness

Paula Coeli Araújo Short, Isabella França Ferreira, Ana Carla Crispim, Tania Kiehl Lucci & Emma Otta

Department of Experimental Psychology, Institute of Psychology, University of São Paulo, Brazil

Twin birth rates have been increasing in Brazil, but research on twin relationship continues scarce. The USP Twin Panel research team filled this gap studying Monozygotic (MZ) and Dizygotic (DZ) twin relationship in the dimensions of Proximity, Dependence, Rivalry, Conflict, and Dominance. This study aims to investigate mothers' perception of their children relationship as a function of zygosity, sex and age. The sample size was composed by 882 mothers of twins (41,6% MZ pairs and 58,4% DZ pairs, 1-12 years-old) who answered the Brazilian version of the Twin Relationship Questionnaire. Closeness ($F(1, 880) = 22.026, p < 0.001$), dependence ($F(1, 880) = 39.413, p < 0.001$) and dominance scores ($F(1, 880) = 10.739, p = 0.001$) were higher among MZ twins than among dizygotic twins. No significant interaction effects were found between zygosity and sex. However, when we analyzed the interaction between zygosity and age, MZ pairs were closer than DZ pairs at the age range of 1-3 years old ($F(2, 876) = 4.685, p = 0.009$). Our findings highlight the special nature of the twin relationship and are in agreement with the Theory of Kin Selection in which MZ twin pairs are hypothesized to have stronger bonds than DZ twins who are not genetically identical.

Facial emotion recognition in Germany and an indigenous group in Uganda: Evidence against Ekman's universality assumption

Martin Krippel¹, Lard Dumke¹, Anna Tcherkassoff²

¹*Otto-von-Guericke University of Magdeburg*

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Cross-cultural emotion recognition studies of Ekman have been criticized, because of the used forced choice format and relatively low recognition rates in isolated cultures (Russell, 1994). The aim of our study was to compare emotion recognition rates of a western German culture with a relatively isolated people from Uganda (Karamojong) with material consisting from more than the usual six basic emotions, and with a more open response format. We hypothesized that the recognition rates in the Ugandan group would be lower than in the German group. We also hypothesized an In-Group advantage for both groups. The sample consisted of 62 German (42 students) and 62 Ugandan (originally 67) participants. We presented eight types of emotion pictures and neutral faces (Keltner & Cordaro, 2014) in printed form (white and black posers). Additionally to the usual six basic emotions, contempt, sympathy and interest were added. Participants could categorize one emotion out of the nine a priori terms, including neutral, choose an own term or could choose "I do not know". Results support the hypotheses of better recognition rates in the German (64%) than in the Ugandan (36%) sample. Analyzed separately for each a priori emotion, Germans had significantly higher recognition rates than Karamojong, apart from disgust. The In-Group advantage showed only up for the German sample. All in all the recognition rates are low. For the Karamojong they are too low to support Ekman's universality assumption of facial emotion expression in its evolutionary basic emotion theory, although one may argue that emotion recognition is not the right paradigm to test the theory.

11.35 - 12.10
Oral session IVb
Great Hall

Chair: John Richer

Reproductive effort as the best predictor of life satisfaction: Evidence from a Brazilian sample	Renata Pereira de Felipe
Why are cultures so divers? Findings from New Guinea	Wulf Schiefenhövel
The Role of Ritual in Creation of Strong Commitment: Example from Community with Shared Nonreligious Interest	Silvia Boschetti
Behavioural Cues that Lead to Food Sharing	Isaac Cormier
Self-reported Health is Related to Body Height and Waist Circumference in Rural Indigenous and Urbanized Latin-American Populations	Juan David Leongómez
Social and health gaming motivations lead to greater benefits of Pokémon GO use	Martyna Dziekan
Extending Ethology and Psychotherapy dialogue in Insecure Attachment: Contributions of the Polyvagal Theory	Michele Dufey

Reproductive effort as the best predictor of life satisfaction: Evidence from a Brazilian sample

Renata Pereira de Felipe¹, Ana Carla Crispim¹, José Henrique Benedetti Piccoli Ferreira¹, Marco Antonio Correa Varella¹, Jaroslava Varella Valentova¹, Ahra Ko², Michael Varnum², Cari Marie Pick² & Douglas Kenrick²

¹University of São Paulo, Brazil

²Arizona State University, USA

In research of facial attractiveness, beauty and sexual attractiveness are mostly used interchangeably. While some studies further specify attractiveness as physical, the majority of studies usually assesses both constructs by simply asking participants to rate the attractiveness of a stimulus. Differences in the perception of face attractiveness do not only vary between participants, but also within participants, depending on stimulus selection and instruction. For instance, attractiveness ratings of the same face can vary more between different pictures than between different faces. Also, studies have repeatedly shown differences in ratings of the same stimulus according to the instruction to rate them from their own (private taste) or the perspective of others (shared taste). We propose that (1) face attractiveness can be differentiated into sexual attraction, beauty, and social attraction (assessed by trustworthiness and liking). We also investigate (2) how the relationships between those scales change when asking to evaluate faces from different perspectives (self, other, male, female) and (3) whether the nature of the stimuli affect these relationships. We conducted two studies to test these assumptions. In study 1 we asked female participants to rate male ambient faces (n=20) from their own perspective and then again from the perspective of other people in general. Ambient faces yield in a higher variance of results because they are not standardized and add context information by cues such as different hairstyles etc. In study 2 we asked female participants to rate standardized pictures of male faces from the London Dataset (n=30). They were instructed to give a general rating, a rating from their own, a male and a female perspective. Results showed different relationship patterns between all scales, especially for beauty and sexual attractiveness. Relationships also changed according to perspective and stimuli.

Why are cultures so divers? Findings from New Guinea

Wulf Schiefenhövel¹, Marian Vanhaeren², Nicolas Antunes^{2,3}

¹*Max-Planck-Institute for Ornithology, Germany.*

²*Université de Bordeaux, France.*

³*Römisch-Germanisches Zentralmuseum, Germany.*

Around the time of administrative contact towards the end of the 19th century the island of New Guinea had approximately 1,000 ethnolinguistic groups. Their languages and cultures were usually very different from each other. Quite a large number of the languages of smaller groups has already disappeared, as marriages across the linguistic borders mostly result in the two partners speaking a trade language for daily communication; this will also be the (usually only) language of their children, the original languages are thereby dying out within a few generations. Other languages and cultures are more resilient, because they are big in number of members and /or exhibit a high pride in their own cultural traditions. At the moment (2019) an estimated

700 ethnolinguistic groups still survive. What may have caused this bewildering variety of different societies? Inherent drift, migration and ecology have been proposed as main explanatory factors. We have used Ecolinguistic-Niche-Modelling (ELNM) to test whether low ecological risk and rough topography are able to explain linguistic diversity. We will confront also the other proposed conventional hypotheses for language and culture diversification and less discussed evolved groupinherent, socio-dynamic processes like cultural pseudospeciation, enhanced through typical warfare, against the New Guinea record.

The Role of Ritual in Creation of Strong Commitment: Example from Community with Shared Nonreligious Interest

Silvia Boschetti^{1,2}, Stefano Parmigiani³, Harold Dadomo³, Paola Palanza³, Tomáš Hladký¹ & Jakub Binter^{1,2}

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²Faculty of Science, Charles University, Czech Republic

³Department of Neuroscience, Faculty of Medicine, University of Parma, Italy

Rituals are practices of veneration and devotion to some higher power, shared cultural icons or ideology, which can be represented by high-status individuals within the community. Alteration of mental state is one of key components of rituals but also of sexual experience. From this point, consensual bondage-discipline, sadism-masochism (BDSM) oriented groups, are especially interesting due to ultimate combination between mutual power-exchange, causing of altered mental state through degrading or painful practices, and sexual reward. We analyzed data about 1636 dominant and 2098 submissive members of the BDSM community where we investigated the willingness to perform or not ritualized behavior and the choice about the type of relationship: 24/7 and one-night stand. The individuals on both ends of the submissive-dominant spectrum displaying willingness to participate in rites of passage or (pseudo)religious ritual during the BDSM practices choose the totalizing type of the relationship. We suggest that it is not the actual belief, but ritualized behavior connected to the role that serves as catalyst during creation of a strong bond. To further extend on the finding we chose 13 extreme activities (e.g., torture, public nudity, contact with urine) count of which we compared to the means to willingness to participate in rituals. The result suggests that the willingness to participate in higher number of extreme activities grows with the willingness to participate in ritualistic behavior. Therefore, rituals play role not only in bond creation between the two individuals but may also impact actual behavior. We believe our study supports importance of ritualized behavior in other than religious sup-groups of population. Interestingly, individuals may have pre-existing expectation of deeper investment in the relationship associated with ritual participation, but only in case the interaction is repeated and presumably intensive and this share affinity with the religious rituals repetition.

Behavioural Cues that Lead to Food Sharing

Isaac Cormier, Ashley Tiller & Maryanne L. Fisher

Saint Mary's University, Canada

Food sharing in various primate species, including our own, has been studied. Chimpanzees are thought to be non-altruistic and share only with kin or reciprocating individuals. However, some primates (e.g., common marmosets) share in a pattern more aligned with recent data on humans. Indeed, most researchers have examined the patterns of sharing behaviour and relationships of sharing members. We instead focus here on behavioral prompts that may lead to food sharing. In particular, we investigate reactions to staring by those possessing food. McGrew (1975) documents staring as a form of begging for food in chimpanzees, leading to nonaggressive transfer and distribution of foods. We documented individuals' reactions to staring, for short intervals, when they possessed food and were sitting alone in a large mall food court. Data collection is underway.

Self-reported health is related to body height and waist circumference in rural indigenous and urbanized latin-american populations

Juan David Leongómez¹, Oscar R. Sánchez¹, Milena Vásquez-Amézquita¹, Eugenio Valderrama², Andrés Castellanos-Chacón², Lina Morales-Sánchez² & Isaac González-Santoyo³

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²*Cornell University, USA*

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Body height growth is a life history component. It involves important costs for its expression and maintenance, which may originate trade-offs on other costly components such as reproduction or immunity. Although previous evidence has supported the idea that human height could be a sexually selected trait, the explanatory mechanisms that underlie this selection is poorly understood. Moreover, despite the association between height and attractiveness being extensively tested, whether immunity might be linking this relation is scarcely studied, particularly in non-Western samples. Here, we tested whether human height is related to health measured by both, self-perception, and relevant nutritional and health anthropometric indicators in three Latin-American populations that widely differ in socioeconomic and ecological conditions: two urbanized samples from Bogota (Colombia) and Mexico City (Mexico), and one isolated indigenous population (Me'Phaa, Mexico). Using Linear Mixed Models, our results show that, for both men and women, self-rated health is best predicted by an interaction between height and waist, and that the costs associated to a large waist circumference are differential for people depending on height, affecting taller people more than shorter individuals in all population evaluated. The present study contributes with information that could be important in the framework of human sexual selection. If health and genetic quality cues play an important role in human mate choice, and height and waist interact to signal health, its evolutionary consequences, including its cognitive and behavioral effects, should be addressed in future research.

Social and health gaming motivations lead to greater benefits of Pokémon GO use

Martyna Dziekan¹, Lukasz Dominik Kaczmarek¹, Michał Misiak², Maciej Behnke¹ & Przemysław Guzik³

¹*Adam Mickiewicz University, Poland*

²*University of Wrocław, Poland*

³*Medical University in Poznań, Poland*

Several studies provided evidence for the effectiveness of gamification of health behaviors (e.g., exercising or walking) via video games. However, little is known about whether individuals who endorse specific gaming motivations are more likely to derive health benefits from gaming. Building upon previous studies on gamification of health behaviors, we examined whether specific gaming motives (e.g., potential health benefits) influenced Pokémon GO gaming time and gaming health outcomes. We introduced health motivation as a novel component among previously established gaming motives, which reflects the ongoing gameplay transformation and increased health potential of modern games. Volunteers (N = 444) completed two measurements of Pokémon GO motivations, gaming time, physical activity, and time spent outdoors within a 6 week interval. The results supported the Pikachu effect hypothesis as health motivation and social motivation were related to health outcomes. Furthermore, we replicated previous findings indicating that individuals who spent more time playing Pokémon GO were more physical active. We also evidenced a new Pokémon GO playing behavioral benefit, i.e., increased time spent outdoors among more active players. We explored meaningful individual differences; for example, men played more and derived more benefits from Pokémon GO. These findings suggest that health motivation operates in parallel with previously identified main motives for gaming. Accounting for motivation is essential for a more accurate prediction of gaming time and gaming-related health behaviors.

Extending Ethology and Psychotherapy dialogue in Insecure Attachment: Contributions of the Polyvagal Theory

Michele Dufey

Universidad de Chile, Chile

Attachment theory offers an ethological perspective to psychotherapy, as it puts forth the instinctual nature of early dyadic bonding and its consequences for the shaping of emotional experiences throughout the lifespan (Sabe, 2004). This viewpoint has gained particular interest in working with insecurely attached individuals, as they pose a major challenge for psychotherapy due to their difficulties to welcome proximity seeking behaviors offered by therapists (i.e., conforming a therapeutic bond or exploring emotional experiences), and their tendency to misread the emotional cues in their interactions. This presentation aims at expanding the scope of an ethological perspective in psychotherapy with insecurely attached people by including the neurobiological model of emotional regulation offered by the polyvagal theory (Porges, 1995, 2011). I will first introduce the neurophysiological foundations of interpersonal affiliation proposed by the theory, which emphasizes the existence of three hierarchical evolved levels in the autonomous nervous system, that are related to particular adaptive strategies in response to environmental challenges. The evolved subsystems comprise: a) the ancient immobilizing-freezing strategies associated with defense in lower vertebrates such as reptiles; b) the fight-or-flight subsystem that is typical of mammalian interactions; and c) the phylogenetically newer social engagement subsystem which allows for the emergence of complex emotional and social interactions in higher primates and humans. The latter subsystem is recruited by environmental cues of safety and has a shared biological basis with cranial nerves that innervate face, neck, and ear muscles, all of which are critical in processing verbal and non verbal features of human communication. According to this framework, an integrative hypothesis will finally be discussed, addressing the question of how clinicians may enhance their therapeutic skills by considering the ethological perspective offered by both attachment and polyvagal theories. Under this rationale, therapists should pay special attention to detect and support clients' behavioral cues of defensiveness such as mistrust and distance in vocal prosody, gaze, and facial expressions, in order to foster the down-regulation of the older defensive adaptive strategies. By promoting the experience of calmness and safety within the therapeutic space, psychologists would gradually facilitate the leveling of clients' social engagement system and its extrapolation to everyday close relationships.

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14.15 - 14.50
Oral session Va
Great Hall

Chair: Benjamin Banai

He writes a lot, she gets to the point – sex differences in bathroom graffiti	Kathrin Masuch
Pathogen disgust sensitivity changes according to the perceived harshness of the environment	Carlota Batres
Politicians' facial width-to-height ratio is not related to voting behavior: a real world study	Benjamin Banai
Relationship between anxiety-related personality traits and anxiety-related physiological responses	Dino Krupić
Watching People People Watch: Using Eye Tracking to Study the Perception of Social Interactions	Coltan Scrivner
Men's Mating Orientation Does Not Moderate the Accuracy with Which They Assess Women's Mating Orientation from Facial Photographs	Tara DeLecce
Combining Observational and Survey Methods to Investigate Loyalty in a University Rivalry	Daniel J Kruger
The effect of carotenoid-rich smoothie consumption on skin colour and perceived health of Asian faces	Tan Kok Wei

He writes a lot, she gets to the point - sex differences in bathroom graffiti

Kathrin Masuch^{1,2}, Susanne Schmehl² & Elisabeth Oberzaucher^{1,2}

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²Urban Human, Austria

Whether graffiti are a special kind of art or pure vandalism, for behaviour scientists graffiti are first and foremost a special form of communication. Previous research on graffiti showed that – due to social conventions – women are not as likely as men to create graffiti. In times of female emancipation and changing social standards, this sexual dimorphism might be declining. Public bathrooms are most suitable for research on graffiti as they offer privacy and the sex of the author can be reliably assigned. Robin Dunbar (1996) claimed that the content of gossip is shaped by evolutionary strategies. In conversations, females tend to talk more about social interactions and support, whereas men are more likely to verbally intimidate possible competitors. To test whether these assumptions apply to nonverbal and anonymous communication, we examined the bathrooms of 165 pubs, restaurants, bars and cafes in Vienna, Austria. We chose locations of high variability to ensure high social and educational diversity of visitors. We classified a total of 4747 graffiti, 2990 in men's and 1757 in ladies' rooms. Data analysis showed sex differences in how men and women use graffiti as a form of expression. Women produce more graffiti conveying social information and sexual content. Generally, more graffiti are found in men's rooms. Our findings partially support earlier findings, i.e. that men produce larger numbers of graffiti, but also raise new questions: The fact that in women's graffiti showed sexual content more often could be explained by the SIDE-model by Reicher, Spears and Postmes (1995), who claimed that breaking with social norms is easier in

Pathogen disgust sensitivity changes according to the perceived harshness of the environment

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²University of St Andrews, Scotland, UK

Much research has explored behaviours that are linked with disgust sensitivity. Few studies, however, have been devoted to understanding how fixed or variable disgust sensitivity is. We therefore aimed to examine whether disgust sensitivity can change with the environment by repeatedly testing university students whose environment was not changing as well as university student cadets undergoing intensive training at an army camp. We found that an increase in the perceived harshness of the environment was associated with a decrease in pathogen disgust sensitivity. Our results support the idea that disgust sensitivity is malleable depending on the environment. More specifically, we propose that in a harsh environment, where survival may be more difficult, pathogen disgust sensitivity may decrease to allow the consumption of available resources.

Politicians' facial width-to-height ratio is not related to voting behavior: a real world study

Benjamin Banai & Irena Pavela Banai

Department of Psychology, University of Zadar, Croatia

Influence of facial features in social cognition and perception has been widely established across multiple domains of psychology and other disciplines. Moreover, it has been shown that the effects of facial features play a role in an election process. For example, candidates whose faces were perceived as more competent stand a better chance of winning the election. Researchers interested in the evolutionary background of the leadership also showed that politicians whose faces were perceived as more masculine or dominant were favorable, especially under threat of out-group conflict or among more conservative voters. However, research on the influence of politicians' facial morphology in relation to election outcome is lacking. Hence, we examined if a simple and widely used measure, a facial width-to-height ratio (fWHR), plays a role during actual elections. fWHR is assumed to be related to testosterone levels, and faces with greater fWHR should be perceived as more masculine, dominant and threatening. Therefore, we assumed that politicians with larger fWHR would have a better chance of winning the elections. To test this assumption, we used the dataset from an already published research that contained faces of candidates in US gubernatorial and Senate elections, as well as election results, political affiliation, sex and race of the candidates. fWHR was calculated for a total of 262 white, male candidates, and used as a predictor of an election outcome, and the candidate's vote share. Results showed that fWHR predicts neither election outcome, nor the candidate's vote share across several logistic and linear regression analyses. Also, the interaction of candidate's fWHR and political affiliation was not a significant predictor of an election outcome. These results imply that fWHR does not contribute to success in actual elections, which is interpreted in the context of ongoing debate on validity of fWHR.

Relationship between anxiety-related personality traits and anxiety-related physiological responses

Dino Krupić

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Anxiety is one of the most leading mental disorder in the world. It is well known that anxiety relates to specific affective, behavioral, cognitive, motivational and physiological responses. Most of these findings we owe to etho-experimental field research on animals. However, although physiology of anxiety in human is well established in the literature, researchers often report very small to non-significant effects in experimental studies. One possible reason for that is the lack of ecological validity of typical provoking stress paradigms (such as e.g. Stroop test). This has motivated many psychologists around the world on the use of virtual reality (VR) in provoking more ecological valid affective responses in well-controlled laboratory settings. Another problem lies in the too broad definition of anxiety presented in most of the current psychological self-report instruments. This study presents the data obtained in the experiment on 95 participants using three different VR applications to provoke stress reaction that was assessed by subjective level of distress and pulse-oximeter that measures heart rate. Approach-Avoidance Tendencies Questionnaire (AATQ; Krupić, in prep.) and the BIS/BAS Scales (Carver & White, 1994) were used as a measure of anxiety defined as a personality trait. In compare to the BIS/BAS anxiety scale that contains items focusing on general fearfulness and tendency to worry, the AATQ anxiety items focus on the occurrence of the anxiety-typical physiological reactions in everyday situations. The relationships between anxiety scales with physiological and subjective measures of stress response were tested by structural equation modeling. Results showed that the BIS/BAS scales predicted the self-reported level of distress, but not the physiological response. In contrast, the AATQ anxiety was useful in prediction of both physiological and subjective response to stress. This finding suggests that more domain-narrowed items in psychometric instruments can be more useful in stress-provoking experimental studies of anxiety.

Watching people people watch: Using eye tracking to study the perception of social interactions

Coltan Scrivner, Kyoung whan Choe, Muxuan Lyu, Dario Maestripietri & Marc Berman

The University of Chicago, USA

Previous studies have suggested that saliency models of attention may not be the best models of gaze for complex social scenes. Instead, researchers have recently shown that social features are better predictors of gaze during scene-viewing. Understanding how people visually evaluate and conceptually categorize social interactions is an important empirical question that has been largely unaddressed in studies of cognition. In this study, we characterized viewing biases associated with social interactions that varied in how violent they were. To do this, we tracked the eyes of 90 participants as they viewed 72 images of social interactions and had them rate the images on a 7-point scale for violence. First, we find that participants looked at faces much less in social interactions than had been previously reported. The presence of a point of contact and the violence rating were major factors in this, suggesting that previous studies might not have used many action-oriented social scenes. Related to this, we find that when images were violent, participants spent significantly less time looking at faces, but significantly more time looking at the points of contact between the individuals interacting in the scene. Finally, regardless of the violent rating for the interaction, our three regions of interest predicted over 70% of the variance in attention to social interactions. These findings provide new insights into the cognitive processes involved in gathering information from both violent and non-violent social interactions.

Men's mating orientation does not moderate the accuracy with which they assess women's mating orientation from facial photographs

Tara DeLecce¹, Robert L. Matchock², Virgil Zeigler-Hill¹ & Todd K. Shackelford¹

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²*Penn State University, Altoona, USA*

Previous research indicates that men can accurately assess women's mating orientation from facial photographs (DeLecce et al., 2014). The current study investigated whether this ability is moderated by men's own mating orientation. Specifically, it was hypothesized that long-term oriented men would be more accurate at facial assessments of women's mating orientation due to cuckoldry concerns compared to short-term oriented men. Because long-term oriented men are more likely to invest in one woman and her offspring, choosing a mate prone to infidelity (based on having a short-term mating orientation) would be more reproductively costly. For short-term oriented men, they would be less likely to invest in one woman and her offspring; therefore, the cost of potential cuckoldry is not as high. To test this hypothesis, 89 men completed the Sociosexual Orientation Inventory (SOI)—an assessment of mating orientation—and rated the perceived faithfulness of 55 women (who also completed the SOI) depicted in facial photographs. Although men were indeed accurate in their faithfulness perceptions of the female targets, men's mating orientation did not moderate the negative association between their faithfulness ratings and the self-reported mating orientation of the female targets. Limitations of the current study and directions for future research are addressed in the discussion.

Combining observational and survey methods to investigate loyalty in a university rivalry

Daniel J Kruger, Michael Falbo, Alyssa Moore & Nathan Schooner

University of Michigan, USA

In-group loyalty and inter-group competition are important aspects of behavior in humans and other social species. Patterns of in group loyalty and inter group competition are expressed in the modern context of American college football, including territorial aspects. Much of this team loyalty is communicated nonverbally, for example wearing apparel displaying university names and logos, athletic jerseys, or displaying team paraphilia. The current project combines survey and observational methods to investigate dynamics related to university team loyalty. We predict that observational and survey data will support the notion of unilateral loyalty. The research team visited public places in Michigan and Ohio. A male confederate wore clothing displaying the names and logos of the University of Michigan or Ohio State University, which have a fierce football rivalry. The confederate held a one-page survey on a clipboard and asked approaching adults, "Hello, would you mind taking a quick survey?" Inconspicuous observers recorded subject demographics and relevant study information. The survey contained items assessing loyalty to the two rival universities. Preliminary results (N = 306, data collection continues) indicate that subjects are more likely to react to the confederate's attire if he is wearing clothing from the rival university than the one favored in the current location. The level of survey participants' loyalty to one rival university was inversely related to their loyalty to the other rival university. A greater proportion of participants than expected believed that individuals could have loyalties to multiple universities, usually noting that someone could have family members who have attended each of these schools. Current results partially support the hypothesis that loyalty is considered to be unilateral. For some participants, loyalty to kin appears to trump university rivalries.

The effect of carotenoid-rich smoothie consumption on skin colour and perceived health of Asian faces

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Skin carotenoid coloration is known to reflect fruit and vegetable consumption, and to enhance the perceived health of Caucasian and African faces. Here, we examine whether supplementation with a carotenoid-rich (25mg) fruit and vegetable smoothie may be used to alter facial skin colour and thus enhance healthy appearance of Malaysian Chinese faces. In study 1, we found that daily smoothie consumption significantly increased skin yellowness and skin redness within 4 weeks. In Study 2, participants chose the pre-supplementation facial images as healthier over the post supplementation facial image of the same subject. In Study 3, with facial shape and texture held constant, participants showed no preference for either the image with original colouration, or the one with enhanced carotenoid colouration. In Study 4, when being asked to optimize the healthy appearance of faces, participants increased carotenoid colouration to only approximately one third of the change observed by daily consumption of the smoothie. Together, these findings suggest that a carotenoid-rich smoothie may be used to enhance the healthy-looking carotenoid colouration of Malaysian Chinese faces, but that the current dosage may be too high since the preference for carotenoid colouration may be constrained by preferences for averageness.

15.30 – 15.55
Oral session Vb
Great Hall

Chair: Benjamin Banai

An Operant-Model of Gustatory Discrimination for Sweetness in Marmoset Monkeys (<i>Callithrix</i> sp.).	Luiz Henrique Santana
Referee height influences decision making in British football leagues	Gayle Brewer
Is beauty attractive and trustworthy? It depends. A methodological investigation of rating studies.	Lisa Mira Hegelmaier
Enhancing pro-environmental behaviour using various visual stimuli	Romana Žihlavníková

An operant-model of gustatory discrimination for sweetness in marmoset monkeys (*Callithrix* sp.)

Luiz Henrique Santana¹ & Mariana Dutra Fogaça²

¹University of São Paulo, Brazil

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Comparison of the difference between dietary preference and diet, based on a psychophysical model, is fundamental to prevent comparisons between asymmetric measures and, at the same time, to evaluate from a behavioral point of view if there is independence between perception and preference of sweet taste in a situation of choice. To do so, it is necessary to define how the taste discrimination in non-human animals is given in order to understand how taste perception works and taste thresholds as basic measures to estimate the spectrum of food preferences of a comparative and quantitative point of view. Therefore, this work intends to evaluate the use of an operative task of discriminative choice between sugary sugar solutions as a psychophysical measure of the sweet taste in free living Marmosets monkeys (*Callithrix* sp.). Our findings reveal that gustative discrimination through reinforcement learning in wild marmoset monkeys can produce choice preferences that are not direct related to taste preferences or dietary behavior. After using sweeteners (e.g. sucrose and sucralose) we found that gustative discrimination was easier acquired when comparing sucralose solutions as discriminative stimuli to sucrose solutions. This seems to be in line to previous findings that separates taste perception from calories density detection. Further investigations are researching on the relation between taste threshold and caloric density as predictors

Referee height influences decision making in British football leagues

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Researchers have consistently found male physical height to be positively associated with higher social dominance and more agonistic/competitive behaviour. In contrast, there is conflicting literature relating to the 'Napoleon complex' or 'small man syndrome' which suggests that smaller males might be more assertive and punitive to compensate for their lack of height and associated social dominance. So far, most evidence has come from artificial laboratory settings, or has focused on physical agonistic interactions. Here we assess possible relationships between height and punitive behaviours in a real-world setting. In professional football games referees routinely sanction players based upon universal laws they mandatorily impose. Using a non-experimental correlational design, we recruited 61 male association football referees from four professional leagues in England, and explored relationships between their height and punitive behaviour in the form of yellow cards, red cards, and penalties given during an entire season. Analysis revealed that overall there was no effect of referee height on fouls awarded. However, there was a main effect of height on yellow cards awarded, with shorter referees issuing more yellow cards. The same effect was found for red cards and penalties, though this was moderated by league. In the lower leagues (Leagues 1 and 2) more red cards and penalties were awarded by shorter referees, but in the higher leagues (Championship and Premiership) more red cards and penalties were awarded by taller referees.

Is beauty attractive and trustworthy? It depends. A methodological investigation of rating studies

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In the past years, evidence has been gathered indicating increased attractiveness of female faces at the point of ovulation. However, it is still debated if cycle effects on facial attractiveness are detectable by the human visual system. Next to that, previous studies repeatedly showed that attractive faces are looked at longer compared to less attractive faces, even if differences in attractiveness were subtle and not pre-selected. Eye tracking has not been applied in previous studies to investigate the link between cycle effects on facial attractiveness and gaze duration. In this study, we aim at (1) replicating previous findings and (2) investigate if looking duration is influenced by cycle shifts. We use previously established stimuli from 20 young women with a normal cycle. 20 pairs of photographs of women in their luteal and ovulating phase were presented simultaneously in random order for 10 seconds. Eye movements are recorded while 30 male participants (n= 30, male) looked at them. Then, participants were asked to indicate the preferred face regarding its beauty and sexual attractiveness, followed by assessment of beauty, sexual attractiveness, trustworthiness and likability of each photo. We have started data collection. We expect that (1) an increase in beauty and sexual attractiveness will lead to an increase in looking duration and that this is (2) moderated by cycle effects on facial attractiveness. Trustworthiness and likability are assessed for exploratory purposes.

Enhancing pro-environmental behaviour using various visual stimuli

Romana Žihlavníková¹, Anna Tabášková² & Ivan H. Tuf¹

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People are strongly influenced in decision-making and behavior by an environment, more than they think. Slight changes in the situation, the presence of subtle cues or elicited nonconscious body feelings can generate different, even opposite behavior. Pro-environmental behavior is no exception; it can be influenced by environment, too. One of the processes that can be elicited and can change one's behavior is reputation management. The reputation management (to be perceived as trustworthy, responsible, etc.) is also applied in waste sorting. People tend to perceive waste sorting as responsible behavior, even caring behavior. The second process is the environment alone; cues of how others treat the place. The third is the priming process, a non-reputation stimulus that also can influence one's behavior. We tested visual stimuli (implicit reputation cue, 'broken window effect' stimulus, and priming stimulus) and their effectivity on waste sorting in natural conditions. We used a picture of staring eyes, mirror, priming picture of 'pure nature' and vandalized place around bins. We used public places where there are waste sorting bins already (railways stations in the Czech Republic) and tested if the subtle presence of the visual stimulus will increase waste sorting behavior compared to the control group (no stimulus). Preliminary results show a tendency that implicit reputation cues are more effective than other types of stimuli. Interestingly, however, the mirror was shown to be the aim of vandalism as soon as presented. Final results are planned to be presented at the conference also with the further discussion of the compared stimuli.

16.30 - 18.30

Workshops

Lisa DeBruine Data visualisation	Room A
Iris Holzleitner Introduction to Registered Reports and the Open Science Framework	Room C
Hermann Prossinger The Fallacies of Significance Tests, the Use of Maximum Likelihood Methods and Contrasting Correlations versus Associations	Room B

Data Visualisation

Lisa DeBruine

Institute of Neuroscience and Psychology, University of Glasgow, Scotland, U.K.

In this workshop, you will learn to visualise data in beautiful and reproducible ways using the `ggplot2` package in R. In the first half of the workshop, you will make basic graphs for representing continuous and categorical data, including box plots, violin plots, and density plots. You will also learn how to set custom labels, represent factorial designs with different colours or facets, superimpose different types of graphs, deal with overlapping data, and create multi-panel figures. Bring your own data for the second half of the workshop, where you will learn to wrangle data into the best format for visualisation and generate your own plots. Workshop materials will be available at <https://psyteachr.github.io/msc-data-skills/> (please install R and R Studio before the workshop using the instructions in Appendix A).

Introduction to Registered Reports and the Open Science Framework

Iris Holzleitner¹

¹University of Glasgow, Scotland, UK

²Institute of Neuroscience and Psychology, University of Glasgow, Scotland, U.K.

Publication bias distorts the scientific record, often creating the impression that certain effects are considerably more robust than they are. Absence of open data and analysis code means that previously reported effects cannot easily be reappraised in light of development of new statistical methods and knowledge. Registered Reports can neutralise publication bias by ensuring that the outcome of studies do not influence journals' decisions about whether to publish the work. The Open Science Framework is a free and reliable platform for open sharing of data and code. The first part of this workshop will be a Q and A discussing our experiences writing registered reports, focusing on their role in both large-scale collaborative projects (the Psychological Science Accelerator) and our first-year postgraduates' research programs. The second part of this workshop will teach attendees how to use the Open Science Framework effectively for sharing data and code.

The Fallacies of Significance Tests, the Use of Maximum Likelihood Methods and Contrasting Correlations versus Associations

Hermann Prossinger

Department of Evolutionary Anthropology, University of Vienna, Austria

t-tests and similarly constructed significance tests, which putatively test null hypotheses, are ubiquitous in published psychology and behavioral studies literature, despite their being fallacious. In Part I of this workshop, I explain why they are fallacious and proceed to debunking these, replacing them with maximum likelihood methods. Maximum likelihood methods explicitly calculate the likelihoods of various considered/proposed/postulated hypotheses. Akaike's Information Criterion, corrected for finite sample size (AICC) must be used to prevent maximally likely hypotheses from modelling statistical noise.

In Part II, I first show (a) why it is erroneous to assume that correlations are normally distributed, (b) why correlations need not imply linear relations between variables, and (c) how to calculate correlation uncertainties using Monte Carlo methods. I then present methods showing how to determine associations for categorical (nominal) variables, which (per definition) cannot correlate.

Social calendar

We have prepared a full week for you!

Participation in the social program is optional, but is highly recommended – ISHE is a great place to start collaborations!

Wednesday 21st August

After the conference opening at the University of Zadar, the welcome reception will take place at the **Museum of Ancient Glass**, located near the Venue (Poljana Zemaljskog odbora 1).

During the reception you will have an opportunity to hear traditional **Klapa music**, which is a form of traditional a cappella singing in Dalmatia, Croatia. The word klapa translates as "a group of friends" and traces its roots to littoral church singing. Main elements of the music are harmony and melody, with rhythm very rarely being very important. In 2012 klapa was inscribed in UNESCO Intangible Cultural Heritage of Humanity.

After the reception, we suggest **Ledana bar**, located near the Museum.

Thursday 22nd August

On Thursday there will be a guided tour through the old town – **Zadar Walking Tour**, which starts at 19.00. Meeting point is just in front of the University. We highly recommend this informative and leisurely walk, which also includes **free Maraschino liqueur** and **Pag cheese tasting**.

Walking along Zadar`s streets the guide will show you the entire spectrum of monuments and hidden corners, taking you into the past more than 3000 years.

After dinner on your own, we suggest meeting up in the **Garden lounge bar**.

Friday 23rd August

On Friday we recommend taking the **tourist train** to **Famous beach bar & grill** located on the sandy beach.

Tourist train leaves city center from Branimirova obala (just across the bridge) at 19.30, and one-way ticket costs around 3 euros. The train will return us to the city center at 23.00. If you want to party longer than that, we recommend a nice 45 minutes walk along the coast line or taking taxi service back to the city center.

Please sign up for the train until August 22nd at the registration desk!

Saturday August 24th

On Saturday we will conclude the official program of the meeting with the banquet at the **Hotel Kolovare**, starting at 20.00.

Sunday 25th August

If you stick around for, there will be a post-conference boat excursion to the **Kornati National Park**.

Spend a day touring Kornati National Park, one of the most magical places in Croatia. This group of more than 100 islands and cliffs will seduce you at first sight as you ride along. Stop to swim and explore and enjoy an included breakfast and lunch.

Enjoy pristine nature, be a part of the beauty of this pearl of the Adriatic.

Other useful information

Our hosts have negotiated deductions for many of the local attractions, just bring your name tag and/or confirmation of registration:

International centre for underwater archeology in Zadar – entrance fee is 10 Croatian kunas. ISHE participants will have the opportunity to see “Croatian underwater heritage” exhibition, and real archeological excavations next to the gallery.

Archaeological Museum in Zadar offers 50% discount on entrance fee for ISHE participants.

Museum of Ancient Glass offers 50% discount on entrance fee for ISHE participants

Rector’s palace offers a discount on certain exhibitions. Entrance fee for ISHE participants is 10 Croatian kunas.

The gold and silver of Zadar offers free entrance for ISHE participants.

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