

5<sup>th</sup> International Conference  
of the Polish Society for Human and Evolution Studies

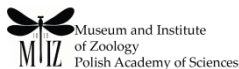


Centre of New Technologies, Warsaw, Poland  
24 – 26 September 2018

## ORGANISERS & SPONSORS



Polish Society for Human and Evolution Studies  
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ul. Wilcza 64, 00-679 Warszawa  
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Centre of New Technologies, University of Warsaw  
ul. Banacha 2c, 02-097 Warszawa  
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Galton Institute  
Learned society concerned with the scientific study of all aspects of human heredity  
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## CONFERENCE ORGANISING COMMITTEE:

Martyna Molak	Museum and Institute of Zoology, Polish Academy of Sciences
Mateusz Baca	Centre of New Technologies, University of Warsaw
Karolina Doan	Museum and Institute of Zoology, Polish Academy of Sciences
Danijela Popović	Centre of New Technologies, University of Warsaw
Hanna Panagiotopoulou-Stawnicka	Museum and Institute of Zoology, Polish Academy of Sciences
Konrad Talmont-Kamiński	University of Białystok

## STUDENT VOLUNTEERS

Aleksandra Fesiuk  
Karolina Porębna  
Weronika Tomaka

## VENUE

Centre of New Technologies, University of Warsaw

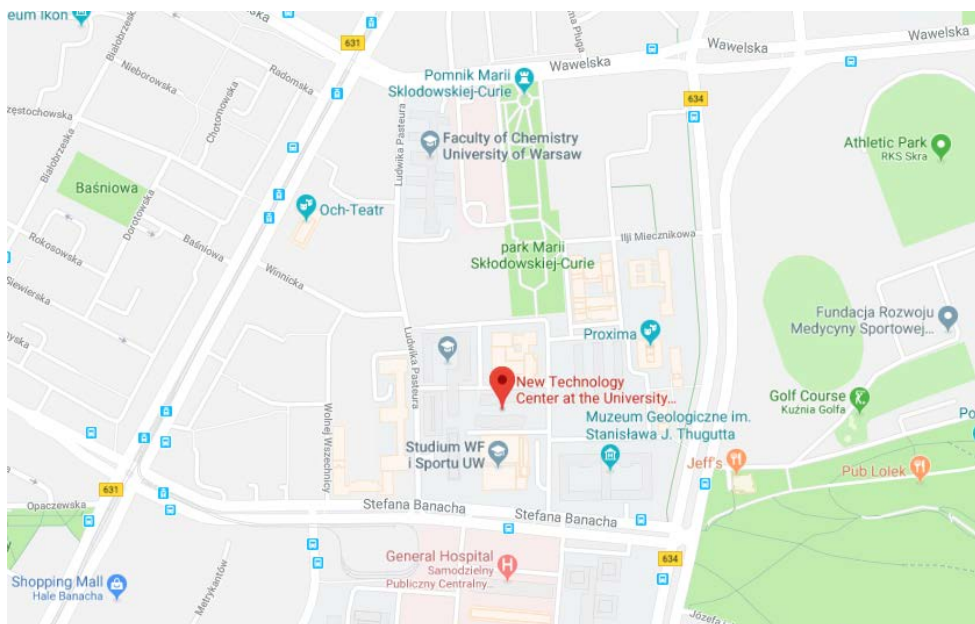
Lecture hall 0142 (ground floor)

ul Banacha 2c, 02-097 Warsaw

[www.cent.uw.edu.pl](http://www.cent.uw.edu.pl)

Note that on Google maps it shows as:

„New Technology Center at the University of Warsaw”



## PUBLIC TRANSPORT

For using public transport we recommend using “JakDoJade” phone app. It finds all directions easily. You can also purchase bus tickets using the App (registration required).

Google Maps has all the directions and public transport timetables as well.

Tickets are available at ticket machines around the city as well as on most buses and trams and in many kiosks shops.

Normal ticket is 3,40 PLN (valid for 20 minutes) or 4,40 PLN (valid for 75 minutes). The tickets are valid on buses, trams, metro and selected trains.

## SOCIAL EVENTS

**Sunday 23<sup>th</sup> September, starting 7pm – pre-conference mixer**

Café Kulturalna

pl. Defilad 1 (Palace of Culture and Science)

[www.kulturalna.pl](http://www.kulturalna.pl)

Located in the most iconic Soviet era building in Warsaw

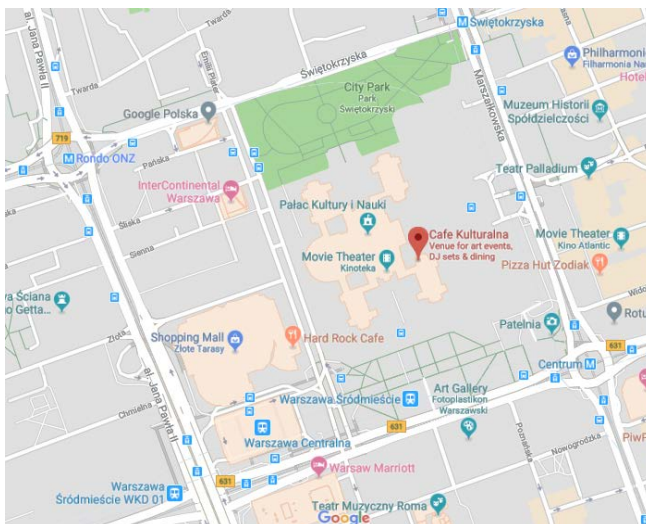
Entry through Teatr Dramatyczny (a theatre)

Public transport from the conference venue: bus 128 or 175 from “Banacha – Szpital” to “Centrum” or tram 25 from „Banacha” to „Centrum”.

Dress code: casual



Image source: [smartcityblog.pl](http://smartcityblog.pl)



**Monday 24<sup>th</sup> September, 7pm – welcome reception / conference dinner**

### **Pub Lolek**

ul. Rokitnicka 20

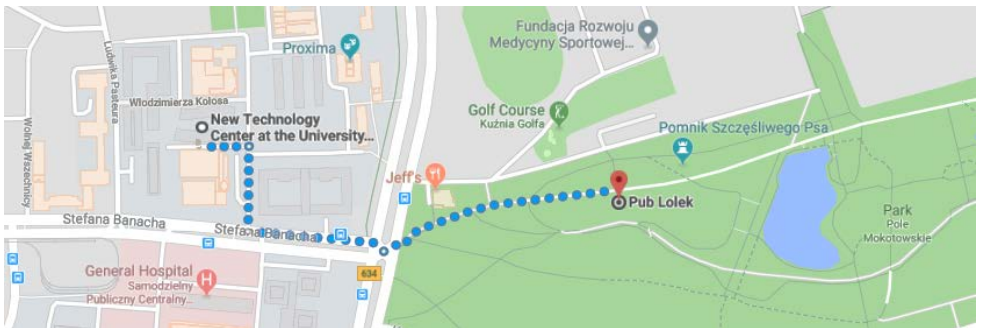
[www.publolek.pl](http://www.publolek.pl)

A walking distance from the conference venue (~10 minutes)

Dress code: casual



Image source: [myguidewarsaw.com](http://myguidewarsaw.com)



**Tuesday 25<sup>th</sup> September, 7pm – conference bar night**

### **4 Pokoje**

ul. Wileńska 19

(district of Praga; one of “10 of Europe’s coolest neighbourhoods” by Independent)

[www.4rooms.pl](http://www.4rooms.pl)

Public transport from the conference venue:

tram 25 from „Banacha” to “Dw. Wileński”

Dress code: casual



## PLENARY LECTURES

24.09 10:50

**Grażyna Jasińska**

Jagiellonian University, Cracow

Grazyna Jasienska, Ph.D., is a biological anthropologist whose research interests include reproductive ecology, human fertility, life history, and implications of evolutionary biology for medicine and public health. She is the author of *The Fragile Wisdom: An Evolutionary View on Women's Biology and Health* (Harvard Univ. Press, 2013). She established Mogielica Human Ecology Study Site in rural Poland where her team conducts longitudinal projects on human life history, fertility and health.

She received a MA and PhD in biological anthropology from Harvard University and MSc in biology from Jagiellonian University. She is a professor at Institute of Public Health, Jagiellonian University, Krakow, Poland and senior research scientist at Department of Anthropology at Yale University. She is founder and president of the Salus Publica Foundation for Public Health which supports research and aims to improve quality of life in rural communities.



### *Evolutionary perspective on women's reproduction and health*

"Nothing in female health makes sense except in the light of evolution", a paraphrase of the famous quote from Theodosius Dobzhansky summarizes best the main approach of this talk. In discussing women's health and disease prevention Grażyna Jasienska will combine evolutionary ideas with latest research in the area of human reproductive ecology, evolutionary medicine and public health. Disease prevention for women is difficult because there are inevitable trade-offs between different physiological functions. There are genetic trade-offs that make women thrive when they are young and suffer the consequences when they are old. There are costs of reproduction that need to be paid in older age. There are also some features of physiology and metabolism that were adaptive because they increased female biological quality in our evolutionary past, but today they make health particularly vulnerable to the modern environment.

Jan Havlíček's main research interest is in evolutionary aspects of social perception. His group studies how odours, faces and voices influence impression formation, primarily in mating and competitive contexts, mainly within the theoretical frameworks of signalling, sexual selection and dual inheritance theory. His interests further include romantic relationship formation and interaction of biological and cultural evolution. His background is in biology (BSc) and anthropology (MSc). He received a PhD (2004) from Charles University, Prague, for a study on human chemical communication. He works as Associate Professor at the Charles University, Faculty of Science and as the senior researcher at the National Institute of Mental Health. He has published over 80 academic papers (h-index = 22), including articles in *Psychological Science* and *Proceedings of the Royal Society B*. Currently, he is the principle investigator of the University research centre „Nature and Culture: Historical, Cultural, and Biological Concepts of Human Nature”.



### *MHC, mate choice and reproduction*

Major histocompatibility complex (MHC) is a key part of adaptive immune system functioning. There is ample evidence across various vertebrates indicating preferences for MHC-dissimilar and diverse partners. However, the results of human studies are rather inconsistent. The current meta-analyses found no systematic preference for MHC-dissimilar partners. Further, there was no effect of hormonal contraception as reported in some early studies. In contrast, meta-analyses showed a moderate but systematic preference for MHC heterozygous partners. Although MHC similarity may have a limited effect on mate choice, several studies show that it negatively affects sexual satisfaction. Finally, it was shown that couples sharing a high number of MHC alleles are frequently having problems to conceive. The main drawback of the majority of available data is that they are based on genetically highly heterogenous populations mainly from Europe and Northern America. Future studies should thus focus on MHC-related mate choice in more homogenous small-scale societies controlling for a number of potentially confounding factors.

25.09 09:15

## Russell Gray

Max Planck Institute for the Science of Human History, Jena

Russell Gray is the Director of the Department of Linguistic and Cultural Evolution at the Max Planck Institute for the Science of Human History In Jena, and holds adjunct positions in the School of Psychology at the University of Auckland and the Department of Philosophy at the Australian National University. His research spans the areas of cultural evolution, linguistics, animal cognition, and the philosophy of biology. He helped pioneer the application of computational evolutionary methods to questions about linguistic prehistory and cultural evolution. His core research focuses on questions about the history of languages, cultures and people in Southeast Asia and the Pacific.

His linguistic work set the stage for his recent research applying ecological and evolutionary methods to questions about the cultural evolution of religion and the development of large-scale stratified societies both in the Pacific and around the globe. He has published over 100 journal articles and book chapters including nine papers in *Nature* and *Science*.



### *The cultural evolution of religion*

abstract TBA



26.09 09:15

## **Wolfgang Haak**

Max Planck Institute for the Science of Human History, Jena

Dr Haak is the leader of the Molecular Anthropology Group. His group works at the interface of human genetics, medical sciences, archaeology, anthropology, and linguistics. His main aim is to investigate and evaluate ancient human genome-wide data in the light of data from neighbouring disciplines to generate a detailed and comprehensive portrait of human prehistory over the last 20,000 years. His portfolio ranges from global outlooks on population affinities, migrations and past demography to intra-group relationships, and also encompasses the interaction with and response to changing environmental factors, such as climate, diet and disease.



*Europe's genetic prehistory*

abstract TBA

# Programme

## Sunday 23.09

- 19:00 Pre-conference mixer (a non-official meeting at a bar)  
Café Kulturalna  
Address: pl. Defilad 1 (Palace of Culture and Science)

## Monday 24.09

- 08:30 Registration for the conference  
& putting up posters
- 10:15 Conference opening
- 10:50 Grażyna Jasieńska PLENARY LECTURE: Evolutionary perspective on women's reproduction and health
- 11:50\* Petr Tureček, Alice Velková and Jan Havlíček The effect of grandmothers on their offspring reproductive outcome depends on socio-economic status
- 12:10 Coffee break
- 12:30\* Anna Apanasewicz, Magdalena Piosek, Patrycja Wychowaniec, Anna Ziomkiewicz-Wichary, Magdalena Babiszewska and Olga Barbarska Is the fluctuating asymmetry related to breast milk composition?
- 12:50\* Martha Lucia Borrás-Guevara, Carlota Batres and David I. Perrett Further evidence that physical indicators of formidability are less preferred by women in violent contexts
- 13:10\* Vít Třebický, Jitka Fialová, David Stella, Karel Kleisner and Jan Havlíček Congruence in facial perception of portrait, profile and 360° rotation photographs
- 13:30 Lunch break

- 14:30 Jan Havlíček PLENARY LECTURE: MHC, mate choice and reproduction
- 15:30 Zsófia Csajbók, Anthony J. Lee and S. Craig Roberts Olfactory Preference for MHC Similarity – A Twin Study Suggests Genetic and Shared Environmental Factors
- 15:50 Jitka Fialová, Vít Třebický, Klára Coufalová, David Stella and Jan Havlíček Factors affecting perception of fighting ability in MMA fighters using 360° facial photographs
- 16:10 Poster session (including coffee break)
- 17:15 PTNCE annual meeting (PTNCE members only)
- 19:00 Welcome reception / conference dinner  
Pub Lolek  
Address: Rokitnicka 20

## Tuesday 25.09

- 09:15 Russell Gray PLENARY LECTURE: The cultural evolution of religion
- 10:15 Konrad Talmont-Kaminski Does wearing odd socks help to make more babies?: The evolutionary function of ritual and anxiety, and the feeling of loss of control
- 10:35\* Michał Misiak and Piotr Sorokowski The adaptive nature of moral concerns regarding wasting food
- 10:55\* Yitzchak Ben Mocha Humans conceal sex across cultures. But why?
- 11:15 Coffee break
- 11:45 Pavel Duda and Jan Zrzavý A global phylogeny of human populations based on genetic and linguistic data
- 12:05 Sławomir Waciewicz, Przemysław Zywicki, Roland Muehlenbernd The evolutionary stability of linguistic politeness in requests

12:25*	Monika Boruta-Żywiczyńska and Marek Placiński	The syntax of pantomime and its influence on comprehension
12:45*	Rafał Mišta	Simulation Model of Diffusion and Differentiation of Folk Tunes
13:05*	Edit Szabo, Daniel N Jones, and Tamas Bereczkei	Listen to what others say – Mind reading is easier when stimuli mimic conversations
13:25	Lunch break	
14:50	Marina Butovskaya, Valentina Burkova and Dmitry Karelin	Does fairness associate with prosociality: urban and rural African adolescents compared
15:10*	Victoria V. Rostovtseva and Marina L. Butovskaya	Ethnical parochialism in cooperative behavior: evidence from the "face-to-face" experiment
15:30	Karel Kleisner, Šimon Pokorný, Tomáš Kočnar and Robert Mbe Akoko	Preference and size-dependent perception of sexual dimorphism in African and European faces
15:50*	Tomasz Adam Bielawski	'Let's talk about your mother...' - is there a way to truly investigate unconsciousness? Neurobiological and psychiatric approach to epigenetic mechanisms underlying subcortical-derived, cognitive abilities
16:10	Coffee break	
16:45	“Talking ‘bout evolution sounds like a whisper” – science communication in the time of fake news and pseudoscience – discussion panel (Michał Misiak, Boguslaw Pawlowski, Barbara Pietrzak, Konrad Talmont-Kaminski)	
19:00	Social event 4 pokoje Address: Wileńska 19	

## Wednesday 26.09

- 09:15 Wolfgang Haak PLENARY LECTURE: Europe's genetic prehistory
- 10:15 Piotr Podlipniak Phonotactics and pitch syntax as two evolutionarily different communicative systems of *Homo sapiens*
- 10:35\* Paulina Pruszkowska-Przybylska, Agnesis of the third molars in the Polish population from the Neolith to modern times  
Justyna Karkus and Joanna Mietlińska
- 10:55 Malgorzata E. Arlet Female reproduction and infant survival in an African arboreal primate
- 11:15 Coffee break
- 11:45 Katarzyna Pisanski, Anna Voice modulation in human mate choice  
Oleszkiewicz, Justyna Plachetka,  
Marzena Gmiterek and David Reby
- 12:05 Agnieszka Żelaźniewicz, Judyta Hand-grip strength and disgust sensitivity in  
Nowak and Bogusław Pawłowski women
- 12:25 Bogusław Pawłowski, Agnieszka Facial attractiveness, perceived health and age,  
Żelaźniewicz and Judyta Nowak and visceral fat tissue amount in women
- 12:45 Best student talk and best student poster award
- 13:05 Conference closing
- 
- 13:30

If a multiple-author talk is not presented by the first author, the name of the presenting author is underscored

\*student talks – subjected to “best student talk” award vote

## POSTERS

Poster session – Monday 24.09 16:10 – 17:15

- |     |  |   |
|-----|--|---|
| 1*  | Alena Cizenkova, Nicole Komjatiova, Tereza Zikanova, Katerina Klapilova, Lucie Krejcova  | Female sexual response in reaction to static male stimuli: a VPG study  |
| 2   | Karolina Doan, Martyna Molak-Tomsia, Karolina Porębna, Paweł Dąbrowski, Maciej Oziembłowski, Wiesław Bogdanowicz and Hanna Panagiotopoulou | Genetic characteristics of the inhabitants of Wrocław during the early modern period in their ethnic, biological and epidemiological contexts |
| 3*  | Daria Dronova  | Symbolic communication with the deceased in the culture of the Ulch   |
| 4*  | Martyna Dziekan, , Roberto Baiocco, Antonio Chirumbolo, Fiorenzo Laghi, Mara Morelli, Dora Bianchi, Michał Misiak and Piotr Sorokowski     | Can sexting behavior predict promiscuity?   |
| 5*  | Vojtěch Fiala, Farid Pazhoohi, Vít Třebický, Šimon Pokorný and Karel Kleisner  | Facial sexual dimorphism as possible cue of facial attractiveness perception in Iran and Czech Republic samples                               |
| 6   | Andrzej Galbarczyk, Magdalena Klimek, Ilona Nenko, Grazyna Jasienska   | The number of sons and maternal health at older age   |
| 7*  | Alicja Hudzik and Bogusław Pawłowski   | Does face attractiveness compete with breasts?  |
| 8   | Krzysztof Kościński  | Breast firmness is of greater importance for woman's attractiveness than breast size  |
| 9*  | Karolina Milkowska, Andrzej Galbarczyk and Grazyna Jasienska   | Occupation and disgust sensitivity in phases of menstrual cycle   |
| 10  | Judyta Nowak, Agnieszka Żelaźniewicz and Bogusław Pawłowski  | Facial attractiveness and nasopharyngeal carriage of Staphylococcus aureus in women   |
| 11* | Adrianna Nowicka and Bogusław Pawłowski  | Are long and narrow women's necks perceived as the most attractive?   |

- |  |   |
|--|---|
| 12* Dagmar Schwambergová, Žaneta Slámová, Jitka Fialová and Jan Havlíček               | Is reactivity of immune system related to body odour quality?   |
| 13* Žaneta Slámová, Dagmar Schwambergová, Jitka Fialová, Vít Třebický and Jan Havlíček | Association between reactivity of immune system and facial attractiveness   |
| 14* Zuzana Štěřbová, Jan Havlíček, Klára Bártoová, Jaroslava Varella Valentova         | Positive relationship with father predicts father-partner similarity and enhances romantic relationship adjustment of the daughters |
| 15* Aleksandra Poniewierska, <u>Aleksandra Szczepańska</u> and Mateusz Kościcki        | A synthetic view of the origins of language   |
| 16* Klaudia Zbyrowska, Agnieszka Żelaźniewicz, Judyta Nowak and Bogusław Pawłowski     | Potential trade-off between attractiveness and length of reproductive live in women?  |
| 17* Pavel Šebesta, Vít Třebický, Jitka Fialová, Klára Coufalová, & Jan Havlíček        | Acoustic correlates of formidability perceptions of shouts and utterances and actual fighting success in amateur MMA fighters       |

If a multiple-author poster is not presented by the first author, the name of the presenting author is underscored

\*student poster – subjected to “best student poster” award vote

## TALKS AND POSTERS

abstracts in alphabetical order by the presenting author's last name

presenting author in bold

student talks and posters subjected to "best student poster" award vote marked with ★

Talk, 24.09 12:30★

**Anna Apanasewicz**<sup>1</sup>, Magdalena Piosek<sup>2</sup>, Patrycja Wychowaniec<sup>3</sup>, Anna Ziomkiewicz-Wichary<sup>1</sup>,  
Magdalena Babiszewska<sup>1</sup>, Olga Barbarska<sup>4,5</sup>

<sup>1</sup> Department of Anthropology, Institute of Immunology and Experimental Therapy Polish Academy of Science

<sup>2</sup> Institute of Psychology, University of Wrocław

<sup>3</sup> Department of Human Biology, University of Wrocław

<sup>4</sup> Laboratory of Human Milk and Lactation Research, Department of Neonatology, Medical University of Warsaw

<sup>5</sup> Department of Medical Biology, Medical University of Warsaw

*Is the fluctuating asymmetry related to breast milk composition?*

Many researchers think the fluctuating asymmetry can be related to biological quality. They argue that people (both males and females) who have less fluctuating asymmetry get better assessments in attractiveness studies. However, little is known about how the fluctuating asymmetry affects the biological quality and reproductive functions. One of females' reproductive functions is lactation. The lactation is very important because breast milk composition affects infant's biological and psychological development and health. We study the relationship between female's fluctuating asymmetry and her breast milk composition.

The participants were 127 females who have 4-months-old infants. These women were not diagnosed with any chronic disease. Their breast milk samples were examined using Miris analyser. We estimated the total content of proteins (g/100 ml), carbohydrates (g/100 ml), fats (g/100 ml), dry mass (g/100 ml) and energetic value (kcal/100 ml) of the breast milk samples. Furthermore, we took anthropological measurements, such as knee breadth, ankle breadth, elbow breadth, wrist breadth, 2nd finger length, and 4th finger length. Afterwards, we calculated several measurements and average fluctuating asymmetry rate. We tested correlation, using R software, between the measurements and average fluctuating asymmetry rate and breast milk composition.

We did not find any connection between the measurements and average fluctuating asymmetry rate and breast milk composition in both girls' and boys' mothers.

Our study does not indicate the relationship between the fluctuating asymmetry and breast milk composition. Based on this research we do not verify the fluctuating asymmetry impact on female's reproductive functions.



Talk, 26.09 10:55

**Malgorzata E. Arlet**

Adam Mickiewicz University in Poznań

*Female reproduction and infant survival in an African arboreal primate*

We present results from a 9-yr (2004-2012) study of female reproductive performance and infant survival in relation to mother's age and rank, presence of immigrant males, rainfall, and fig fruit abundance in four groups of gray-cheeked mangabeys (*Lophocebus albigena*) in Kibale National Park, Uganda. We found that females had a rank- and age-specific reproductive pattern, with high-ranking females maturing earlier, having their first births earlier, and exhibiting significantly slower reproductive aging than low-ranking females. We also found that infants of older mothers had higher survival than those of younger mothers but that high rank did not confer a significant benefit on infant survival. Female infants had higher survival than male infants. Moreover, we found a significant relationship between the presence of male immigrants and infant mortality (falls and unexplained disappearances) to 18 months. Finally, we found that reproduction was aseasonal and not correlated with rainfall, but that births were positively correlated with the abundance of *Ficus* spp. fruits. Our results show broad similarities between arboreal, forest-dwelling gray-cheeked mangabeys and their more terrestrial, open habitat-dwelling papionin relatives in the importance of dominance rank in estrous cycle initiation, first reproduction, and reproductive aging.

Talk, 25.09 10:55 ★

**Yitzchak Ben Mocha**

Max Planck Institute for Ornithology, Germany

*Humans conceal sex across cultures. But why?*

Over almost a century prominent anthropologists, sociologists and zoologists maintain that the preference to conceal "socially accepted" sexual activity from conspecifics' sight is a "human universal". Surprisingly, despite long interest, no systematic evidence was ever presented to support this claim, and the few hypotheses that have been suggested to explain the function of this human preference have never been tested. Here we analyse the largest ethnographic database (eHRAF World Cultures) to investigate the above-mentioned questions in a systematic way for the first time. Preliminary results show that: (i) in 95% of the examined cultures pairs take measurements to conceal the sensory stimulus of their sexual act from other humans' perception (n=90 cultures); and (ii) the extent to which social norms require exclusive mating relationships between spouses is positively correlated with the degree of sexual modesty. These results provide the first systematic evidence that concealed sex is – at least – a widespread human preference. They furthermore lend support to the hypothesis that sex concealment functions to maintain spouse monopolisation.

Talk, 25.09 15:50★

**Tomasz Adam Bielawski**

Department of Psychiatry, Medical University of Wrocław, Poland

*'Let's talk about your mother...' - is there a way to truly investigate unconsciousness?  
Neurobiological and psychiatric approach to epigenetic mechanisms underlying subcortically  
derived, cognitive abilities.*

Darwin overthrew the anthropocentric paradigm, Freud exhibited unconsciousness as a real force co-driving our decisions. Nowadays we know unconscious processes are desires and tendencies inherited from our parents, as well as evolutionary distant ancestors. These cravings and predispositions are written with the language of genes and imprinted into our existence. This improves our understanding of various psychiatric symptoms, psychosomatic states and psychological mechanisms. Nowadays we face the possibility of exploring unconscious processes and their influence on molecular activity within organisms. Cytoarchitecture and molecular processes of evolutionarily old, subcortical brain structures alters depending on environmental pressure. To control and effectively examine such phenomena in laboratory conditions, we need precision of goals, ingenuity and a capable mathematician. We use the paradigm of learning from positive and negative reinforcement. It allows us to search for one's unconscious tendency to follow a certain goal (the "biggest carrot") or to run away from negative stimuli (the "harshest stick"). Clinical experiments allow us to observe how environmental pressure (for example positive history of trauma) activates epigenetic mechanisms of genes-control, that results in occurrence of diagnostic symptoms presented by patients. Studies in our department are aimed at better understanding of neurobiological mechanisms of unconscious reinforcement learning and towards marking genes, which are responsible for the characteristic phenotype of different mental diseases. We are also interested in the epigenetic role of traumatic experiences in developing psychosis. Future results may help with swift psychiatric diagnostics and effective screening procedures.

Talk, 24.09 12:50★

**Martha Lucia Borrás-Guevara<sup>1</sup>**, Carlota Batres<sup>1,2</sup> and David I. Perrett<sup>1</sup>

<sup>1</sup>Perception Lab, School of Psychology and Neuroscience, University of St Andrews, Scotland, United Kingdom

<sup>2</sup>Gettysburg College, Psychology Department, Gettysburg, PA, United States of America

*Further evidence that physical indicators of formidability are less preferred by women in violent contexts*

Prior literature suggests that women who feel more vulnerable to within-partnership violence, prefer less masculine/formidable male faces. Facial cues to Body Mass Index (BMI), correlate positively with masculinity and strength in men. To date, however, no study has researched the effects of fear of different types of violence on women's preferences for facial cues to BMI. The current investigation thus studied the influence of individuals' perceptions of violence on preferences for facial correlates of men's BMI. Our study took place in Colombia, with 70 women recruited in Bogota and surrounding small towns (mean age +/- SD= 27.9 +/- 6.2). Participants were

asked to choose between pairs of transformed faces that typify the shape correlates of high and low BMI, of either European, or Salvadoran men. Once the forced choice task was finished, participants answered a survey about their health (e.g., frequency of illnesses over the past year), media access (e.g., internet frequency use), education level (e.g., graduating from high school) and experiences/perceptions of violence (e.g., frequency of being robbed, feelings of danger). Results showed that Colombian women who had experienced/perceived more violence, preferred male faces of low BMI Salvadoran men. Preferences for facial cues of low BMI were explained significantly by violence (public) experience/perceptions, even after controlling for all other variables (including age, education, health and media access). These results may reflect women's strategy to avoid male partners capable of inflicting harm.

Talk, 25.09 12:25★

**Monika Boruta-Żywiczyńska, Marek Placiński**

Centre for Language Evolution Studies, Nicolaus Copernicus University

### *The syntax of pantomime and its influence on comprehension*

The question whether a universal “natural word order” shared among all people exists is one which has inspired a debate in cognitive and evolutionary linguistics (Dryer, 2005; Pagel, 2009; Gell-Mann & Ruhlen, 2011). What can provide evidence supporting the existence of such a word order is pantomime - a mode of mimetic and non-conventional communication which conveys information without the use of language in its conventional meaning (Żywiczynski et al. 2018: 307).

Studies of gesture (Goldin-Meadow et al. 2008; Gibson et al. 2012) and pantomime (Hall et al. 2013; Boruta and Placiński 2017) suggest that individuals employ different strategies in order to present non-reversible and reversible events. The results of the aforementioned studies implicate, to a degree, that SOV is the dominant word order for non-reversible events, whereas reversible events are primarily presented in the SVO manner.

Important though the previous research was, it did not pay sufficient attention to whether the message presented in the gestural or pantomimic re-enactment was actually understood by a recipient. We would like to complement our hitherto research with the enquiry whether SVO/SOV structures facilitate the ease of message transfer and decoding. We hypothesise that the SVO order is not easier to guess in the case of reversible events and that syntax does not play an instrumental role in the understanding of non-reversible events.

Our study involved recording an actor who re-enacted 20 events presented to her in the form of pictures. The actor was instructed in detail how to present each scene. Afterwards, the order of pictures was randomized and presented to students. Finally, the students had to guess the scene which was displayed to them.

*Does fairness associate with prosociality: urban and rural African adolescents compared*

The goal of this paper is to reveal the association between the readiness of rural and urban African schoolchildren to take prosocial and fairness decisions and to find to what extent these decisions may be influenced by friendship. We hypothesized that: 1. Rural and urban adolescents will be different in their decision-making in a way, that rural children will be more prosocial and ready to share with anonymous peers; 2. Urban adolescents will be more oriented towards fairness than rural; 3. Males and females will differ in fairness decision-making. Data were collected in rural region of Northern Tanzania (n=282) and Dar es Salaam, capital of Tanzania (n=72). All participants played 3 games with the imagined partner, designed to test their allocation of sweets decisions in favor of self and partner in prosocial, fairness and sharing treatments. In this paper we concentrate on the first two games. No differences between rural and urban adolescents were found in prosocial game neither in the case of friends, nor anonymous peers. Fairness principles in direction of friends were significantly more expressed in rural adolescents, and in direction of anonymous peers—in urban players. Sex differences in decision-making were found for fairness treatment only. Females were more driven by fairness principles both in direction of friends and anonymous peers. We did not find any significant correlation between prosocial game in direction of friends with both types of results in fairness treatments. In the case of prosocial game with anonymous peers, correlation was significant in the case of fairness treatment towards anonymous peers. We discuss these findings in the context of the evolution of altruism and parochialism. Study was supported by Russian Science Foundation (project 18-18-00075).

Poster ★

**Alena Cizenkova**, Nicole Komjatiova, Tereza Zikanova, Katerina Klapilova, Lucie Krejcová

Faculty of Humanities, Prague, Czech Republic

*Female sexual response in reaction to static male stimuli: a VPG study*

Previous research suggests that women's genital arousal is an automatic response to sexual stimuli but it is partly influenced by several conditions. The study of Chivers (2007) showed low sexual response in women to video stimuli depicting attractive naked man in nonsexual context, but sexual response increased in more sexual condition. Displaying aroused genitals should be the most important sexual attractant (e.g. Spape et al., 2014). The goal of the study was to test the difference in female sexual arousal during exposure to erotic photographs displaying men with (1) different level of attractiveness, and (2) different phases of sexual arousal of men presented by erection. Female sexual arousal of 32 heterosexual women, aged 22-45 (M = 31.6, SD = 6.7) were measured by vaginal plethysmograph (BIOPAC system) in reaction to 6 male stimuli (3 attractive/3 unattractive) in three situations: male in underwear, naked male with flaccid penis, and naked men

with erected penis. As control, we used 4 female stimuli in similar conditions and 2 pictures of couples engaged in penile-vaginal intercourse. Mean VPA per category was counted. Using repeated measures ANOVA, we found significant difference in sexual response between male categories,  $F(3.671, 155) = 4.403, p = .003$ . Women showed significant increase in genital arousal to attractive male stimuli ( $p = .026$ ), and to stimuli depicting erected penis ( $p = .033$ ) compare to attractive men in underwear. In case of unattractive male stimuli, women showed similar level of genital arousal to men in underwear and naked men with flaccid penis, but genital arousal increased in reaction to men with erected penis. The results suggest that erected penis itself could be a sexual attractant regardless of model's attractiveness.

Talk, 24.09 15:30★

**Zsófia Csajbók<sup>1</sup>**, Anthony J. Lee<sup>2</sup>, and S. Craig Roberts<sup>3</sup>

<sup>1</sup>Charles University in Prague, Czech Republic

<sup>2</sup>University of Glasgow, Glasgow, United Kingdom

<sup>3</sup>University of Stirling, Stirling, United Kingdom

### *Olfactory preference for MHC similarity – a twin study suggests genetic and shared environmental factors*

Substantial evidence in animals suggests that mate selection is positively influenced by relative dissimilarity at genes in the major histocompatibility complex (MHC), and that MHC-disassortative preferences are mediated by odour. However, evidence for similar preferences in humans is mixed. We tested odour preferences in a sample of 56 monozygotic and 32 dizygotic female twin pairs, where each twin assessed the odours of men with varying numbers of shared MHC alleles. Different twin pairs assessed one of three sets of six male odour donors (18 men in total) for pleasantness and desirability as a long-term partner. We found a significant non-linear effect of MHC similarity on pleasantness and desirability ratings but it disappeared when we accounted for the random effects of donor. Hormonal contraceptive use and relationship status had no effect on either rating. Biometric models showed that 29% of variance in odour pleasantness is due to common environment when controlling for donor effects, while for uncontrolled ratings genetic factors accounted for 48% (the remainder being due to unique environment). In contrast, ratings of long-term partner desirability are mainly due to shared environment: 35% in uncontrolled and 17% in controlled scores. However, all 95% confidence intervals of estimated components were wide and contained zero, perhaps due to low sample size. We suggest that a possible explanation for the non-linear relationship between MHC-similarity and odour pleasantness lies in non-measured donor characteristics (e.g. donors with common alleles are rated as less pleasant). We may also conclude, tentatively, that perception of odour pleasantness and desirability as a long-term partner may be determined differently in terms of genetic and environmental factors.

Poster

**Karolina Doan**<sup>1</sup>, Martyna Molak<sup>1</sup>, Karolina Poręba<sup>1,2</sup>, Paweł Dąbrowski<sup>3</sup>, Maciej Oziembłowski<sup>4</sup>, Wiesław Bogdanowicz<sup>1</sup>, Hanna Panagiotopoulou<sup>1</sup>

<sup>1</sup>Museum and Institute of Zoology, Polish Academy of Sciences, Warsaw, Poland

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<sup>3</sup>Department of Normal Anatomy, Wrocław Medical University, Wrocław, Poland

<sup>4</sup>Faculty of Biotechnology and Food Science, Wrocław University of Environmental and Life Sciences, Wrocław, Poland

*Genetic characteristics of the inhabitants of Wrocław during the early modern period in their ethnic, biological and epidemiological contexts.*

The project focuses on defining the social well-being of the early modern period inhabitants from Wrocław (south-western Poland) by applying various multidisciplinary techniques, including molecular tools. At that time, the human population of Wrocław consisted of various ethnic groups including Poles, Germans, Jews, Czechs, Austrians, Romani and Hungarians. This society was strongly divided economically with those communities living in poverty experiencing much higher mortality. To fulfil the project's objectives, human remains from cemeteries, representing different social groups of Wrocław population dated from the late Medieval up to the 18th century, were archaeologically excavated and assessed. For genetic analyses, mitochondrial and chromosome Y-based markers enabling assignment to haplogroups were chosen. Furthermore, genotyping of single nuclear polymorphisms (SNPs) associated with the phenotype, metabolic pathways and immune systems was applied. In order to define the epidemiological status of the historical Wrocław population, more than 110 markers (both diagnostic and universal) enabling bacterial, virus and protozoan identification were selected and incorporated into the profiling tool. As a first step, we optimized the reaction and sequencing conditions, using both contemporary and historical samples to obtain comparable representation of DNA sequences for each marker. Hereby, we present the adopted procedure and first results of the analysis. The final outcome of this work will allow for a complex characterization of the historical Wrocław population with special emphasis on children whose social status was much different in that time period than nowadays.

Poster ★

**Daria Dronova**

Institute of Ethnology and Anthropology, Russian Academy of Sciences, Moscow, Russia

*Symbolic communication with the deceased in the culture of the Ulch*

Various ways of communicating with the deceased were considered in the analysis of the magic rituals of J.G. Frazer, E.B. Tylor, L. Levy-Bruhl, B.K. Malinowski, W.L. Warner. However, in the XX century, in most cases, the authors do not specifically analyze the ways of communicating with the deceased, describing it in the framework of funeral-memorial ceremonies. We consider this communication in the burial-funeral rite of the Ulch, who live in the village of Bulava of Khabarovsk Krai in Russia.

Particular attention is paid to the things that can be seen as symbols of the connection between the living and the dead at the funeral rites and subsequent memorial rituals. The first one is a

thread, so-called "phone" for communication between living relatives and the deceased. The relatives tie its one end to the dead person lying in the coffin and the other end to the stick near to the grave. The second item, "sugdupu", is a special plaque installed on the grave into which a cigarette is inserted for the deceased person.

These symbols indicate the preservation of traditional ways of communication between the living and the dead nowadays, despite the influence of the Russian funeral rite. It demonstrates the importance of these practices for the Ulch.

The study of communicative actions of thanatological practices will allow to expand and vary studies of burial and commemoration rituals.

This work is supported by the Russian Science Foundation under grant No. 18-18-00082 "Deceased in the world of living: cross-cultural study of the communicative aspects of thanatological practices and beliefs".

Talk, 25.09 11:45

**Pavel Duda, Jan Zrzavý**

Department of Zoology, Faculty of Science, University of South Bohemia, České Budějovice, Czech Republic

### *Towards a global phylogeny of human populations based on genetic and linguistic data*

Over the past three decades, modern human population history has been investigated using phylogenetic analyses of genetic and linguistic data. As a result, a large body of phylogenetic hypotheses is available for a formal meta-analysis. Here we present a "matrix representation with parsimony" (MRP) supertree of 1,961 human populations, based on 388 genetic and linguistic phylogenies. This supertree represents the most comprehensive global phylogeny of extant human populations published to-date, covering all World regions, and ~100 language families. It is in near-perfect agreement with phylogeny based on supermatrix (concatenation) analysis, showing that these conceptually different approaches to phylogenetic inference, using different data, tend to produce a similar phylogenetic patterning of global human population. We argue that, although human population history is certainly not purely tree-like, there is an underlying hierarchical structure (especially at a deeper level) that can be hypothesized as phylogeny. However, the question of large-scale coevolution between genes and languages must be reassessed critically since most of the well-substantiated language families do not form genetically consistent groups. The time-calibrated version of the supertree provides a principled solution to "Galton's problem" (non-independence in cross-cultural data) and provides a useful tool for studying human adaptations, investigating mode and tempo of cultural evolution, and reconstructing evolutionary history of cultural practices on a global scale.

Poster ★

**Martyna Dziekan<sup>1</sup>, Roberto Baiocco<sup>2</sup>, Antonio Chirumbolo<sup>2</sup>, Fiorenzo Laghi<sup>3</sup>, Mara Morelli<sup>4</sup>, Dora Bianchi<sup>2</sup>, Michał Misiak<sup>5</sup> and Piotr Sorokowski<sup>5</sup>**

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<sup>4</sup>Department of Dynamic and Clinical Psychology, Sapienza University of Rome, Rome, Italy

<sup>5</sup>Institute of Psychology, University of Wrocław

### *Can sexting behavior predict promiscuity?*

Humans tend to display a wide array of promiscuous sexual behaviors. Promiscuous individuals tend to engage in frequent and indiscriminate sexual behavior. In our research, we wanted to examine whether sexting can serve as an indirect indicator of this sexual characteristic.

Sexting is an exchange of sexual or provocative content, such as text messages, photos, and videos. Recent evidence has revealed a connection between sexting and risky, as well as aggressive behaviors. It has been linked to impulsivity, sensation seeking, and alcohol and drug abuse.

The aim of this study was to verify whether sexting behavior might be considered as an indicator of promiscuous behavior.

We examined 1000 Poles aged 16-49. Respondents completed the Sexting Behaviors Questionnaire to assess their sexting behaviors. We also asked the participants about their age and gender. To estimate the participants' promiscuity we asked them about the age of their sexual initiation and the duration of their last relationship. Previous research point to the fact that promiscuous people tend to initiate their sexual life at younger age and tend to form relationships of short duration.

Our results demonstrate that women received significantly more sexting content than men. However, we have not found sexual differences in both sending and publishing of sexting content. We found that the people whose previous relationships were shorter, had sent, received and published significantly more sexting content. Moreover, people who had earlier sexual initiation have sent and received, but not published, more sexting content.

Together, our results demonstrate that sexting behavior may serve as an indirect indicator of human promiscuity.

Poster ★

**Vojtěch Fiala<sup>1</sup>, Farid Pazhoohi<sup>2</sup>, Vít Třebický<sup>1,3</sup>, Šimon Pokorný<sup>1</sup> and Karel Kleisner<sup>1</sup>**

<sup>1</sup>Department of Philosophy and History of Science, Faculty of Science, Charles University, Prague, Czech Republic

<sup>2</sup>Human Cognition lab, School of Psychology, University of Minho, Braga, Portugal

<sup>3</sup>National Institute of Mental Health, Klecany, Czech Republic

### *Facial sexual dimorphism as possible cue of facial attractiveness perception in Iran and Czech Republic samples*

Although previous research comes to an agreement in a perception of facial attractiveness across cultures, other studies presented some variation in preferences of sexual dimorphism. This may be either due to differences in variation of the given trait across cultures or due to adaptations to differing socio-environmental conditions. We investigated a relative importance of rated



masculinity of men, femininity of women and geometric sexual dimorphism of faces in the perception of attractiveness in Iran and Czech Republic. Facial photos were rated by opposite-sex participants from their own culture.

In both cultures, men saw more feminine women as more attractive. There was also a significant positive correlation between geometric sexual dimorphism of female faces and their rated attractiveness. In Iranian women, there was a positive correlation between perceived femininity and geometric sexual dimorphism. However, according to general linear models (GLMs) perceived femininity in both cultures explained more of the variability in the perceived attractiveness of women than did geometric sexual dimorphism.

Concerning males, there was no significant relationship between attractiveness and geometric sexual dimorphism of men in neither population. Perceived masculinity and geometric sexual dimorphism of men were significantly correlated only in Iranian population. On the contrary, the perceived masculinity was correlated with perceived attractiveness only in Czech men.

Our results support the notion that perceived femininity and geometric sexual dimorphism are important for women's attractiveness. There was a positive relationship between masculinity and attractiveness in Czech men only. There was no link between geometric sexual dimorphism and attractiveness of men.

Talk, 24.09 15:50

**Jitka Fialová<sup>1,2</sup>**, Vít Třebický<sup>1,2</sup>, Klára Coufalová<sup>3</sup>, David Stella<sup>1,2</sup> and Jan Havlíček<sup>1,2</sup>

<sup>1</sup> Faculty of Science, Charles University, Prague, Czech Republic

<sup>2</sup> National Institute of Mental Health, Klecany, Czech Republic

<sup>3</sup> Faculty of Physical Education and Sport, Prague, Czech Republic

### *Factors affecting perception of fighting ability in MMA fighters using 360° facial photographs*

Facial perception plays a key role in various social interactions, including formidability assessments. People make relatively accurate inferences about men's physical strength, aggressiveness and success in physical confrontations based on facial cues. However, current studies lack detailed data or use proxies to targets' physical fitness or fighting ability which limits understanding of factors that affect the perception of fighting ability.

Here, we aimed to investigate the relationship between perceived and actual fighting ability using high fidelity facial stimuli of Czech mixed martial arts (MMA) fighters and their detailed characteristics that may influence these judgments.

We created standardized 360° photographs of 45 MMA fighters which were assessed on perceived fighting ability by 94 (46 males) raters. Further, we obtained data regarding their physical (e.g., age, height, body composition) and performance (MMA score, muscle strength, Wingate test) characteristics.

In contrast to previous studies, our present results did not show a significant link between actual and perceived fighting ability. However, multiple regression analysis revealed that fighters with higher handgrip strength and higher maximal performance in Wingate test were judged as more successful.

Our results suggest that certain physical performance-related characteristics mirror in individuals' faces, nevertheless, the actual fighting performance was not perceived congruently based on the facial cues.

Poster

**Andrzej Galbarczyk**, Magdalena Klimek, Ilona Nenko, Grazyna Jasienska

Faculty of Health Sciences, Jagiellonian University Medical College, Krakow, Poland

The number of sons and maternal health at older age

**Objective:** High investment in reproductive processes at the expense of other physiological functions may result in poor maternal health. Health status at older age can be reliably assessed by self-rated health, which is a strong predictor of mortality.

**Methods:** Data were collected by structured questionnaires among 425 women aged 45-92 from Polish rural population. Self-rated health was assessed by the standard question "How would you rate your health in the last 12 months?". For the analyses, responses were dichotomised into two categories, "poor health" and "good health".

**Results:** The number of sons, but not the number of daughters or the total number of children, was significantly associated with self-rated health, adjusted to relevant socio-demographic characteristics, such as age, years of education, marital status, current smoking, BMI and long-term health problems. Each son increased the odds of poor health by 27%.

**Conclusions:** Sons are more energetically and immunologically demanding for the maternal organism which may explain why having sons has more negative influence on maternal health in older age than having daughters. In order to understand trade-offs between reproduction and maternal health not only the total number of children but also sex of the children should be taken into account

Poster★

**Alicja Hudzik**, Bogusław Pawłowski

Department of Human Biology, University of Wrocław, Poland

*Does face attractiveness compete with breasts?*

Female face and breasts are sexually dimorphic traits that may convey an information about different aspects of biological quality of a woman. They may carry, however, different biological signal. Although there are many studies on attractiveness on these traits, the question is which of them is more important for men and if there is some "competition" between face and breasts in attracting men's attention.

This study examines the preferences for female faces and breasts attractiveness, depending on a man's age when controlling the level of attractiveness of the two stimuli presented.

8 stimuli pairs were prepared based on the ratings of 18 independent judges using seven-point scale. These pairs of models included for instance attractive face with not attractive breasts versus not attractive face with attractive breasts. 428 men aged 18 to 68 were divided into four age groups and rated the attractiveness of the female models on a bipolar scale from 1 to 7 where the midpoint mean neutrality and 1 or 7 mean strong preference for the model (on the left or right side).

Face attractiveness appeared to be more important than breast for all age groups, however, decreasing face attractiveness and increasing breast size caused the most significant shift in young adult men (21-35 years old).

Although breast size may be a signal of a woman's fecundity, woman's face have higher priority in men choices. It is true mainly for men older than 35 who pay more attention to the signal of reproductive potentials (face attractiveness) than younger men. In general in the trade-off between face and breasts attractiveness, it is the former that wins this "competition".

Talk, 25.09 15:30

**Karel Kleisner<sup>1</sup>**, Šimon Pokorný<sup>1</sup>, Tomáš Kočnar<sup>1</sup>, Robert Mbe Akoko<sup>2</sup>

<sup>1</sup>Department of Philosophy and History of Sciences, Faculty of Sciences, Charles University, Czech Republic

<sup>2</sup>Department of Sociology and Anthropology, Faculty of Social and Management Sciences, University of Buea, Republic of Cameroon

### *Preference and size-dependent perception of sexual dimorphism in African and European faces*

Preferences regarding sexually dimorphic facial features vary across cultures. This study presents a comparison of two distant cultures: the Czech and the Cameroonian. We used a dataset of 100 Czech (50 women) and 99 Cameroonian (49 women) faces to investigate the relationship between the perception of femininity/masculinity (FM) and attractiveness, and the effect of individual level of both allometric and non-allometric sexual shape dimorphism (SShD) on the perception of FM. We investigated whether facial FM (1) is preferred across cultures; (2) reflects facial SShD; and (3) whether the FM evaluation is influenced by shape variation due to size (allometry).

Cameroonian women perceived as more feminine were rated as more attractive, while in Cameroonian men, there was no link between attractiveness and rated masculinity. In the Czech sample, rated FM positively correlated with attractiveness in both male and female faces.

Allometric component of SShD was statistically related to FM in both male and female Czech faces, while Cameroonians revealed no statistical association with FM. Non-allometric SShD showed no association with FM in neither Czech nor Cameroonian (male or female) faces.

Results indicate that (1) female facial femininity is universally preferred across cultures, while male facial masculinity is preferred only in Czech male faces; (2) Europeans seem to exploit sex-related allometric variation in human face shape for evaluating facial FM. Sexually dimorphic facial features influenced by variation in size seem to play a role in FM assessment in Europe, while in Africa, shape- and size-independent facial traits, such as skin color, may play a bigger role. Evolutionary and social consequences of this finding will be discussed.

## **Krzysztof Kościński**

Adam Mickiewicz University, Poznań, Poland

### *Breast firmness is of greater importance for woman's attractiveness than breast size*

Male preferences are believed to have played a role in evolution of permanently enlarged breasts in human females. Although previous research has established the preference for breast size, the preference for breast firmness has previously been investigated using experimental stimuli of poor quality, and the relative importance of breast size and firmness for attractiveness has not yet been addressed.

In the present study we prepared two sets of stimuli, each comprising 49 images of a topless woman varying in breast size (from 1 to 7) and firmness (from 1 to 7). Set A depicted the glandular ptosis (i.e., breast shape was manipulated but the nipple was always directed forward), while Set B depicted true ptosis (both breast shape and nipple position being manipulated).

Participants (aged 18-45) were assigned to Set A (62 women, 60 men) or Set B (76 women, 52 men). First, each participant indicated the most attractive woman in the set of images. Next, the participant viewed a series of image pairs and chose the more attractive woman from each pair. In each pair, one woman had breasts of the most attractive size (according to this participant) and a non-attractive firmness, and the second woman had breasts of the most attractive firmness and a non-attractive size. Our reasoning was as follows: if participants consider the woman with non-attractive breast size to be more attractive than the woman with non-attractive breast firmness, then breast firmness is more important for attractiveness than breast size.

Statistical analysis showed that men and women preferred breasts of average or slightly above-average size and high or extreme firmness. Glandular ptosis was as important for attractiveness as breast size, but true ptosis was of much greater importance.

Poster ★

**Karolina Milkowska, Andrzej Galbarczyk, Grazyna Jasienska**

Department of Environmental Health, Faculty of Health Sciences, Jagiellonian University Medical College, Cracow, Poland

### *Occupation and disgust sensitivity in phases of menstrual cycle*

**Objective:** The compensatory prophylaxis hypothesis (CPH) proposes that psychological mechanisms enhance avoidance of potential contaminants during periods of reproductive immunomodulation (e.g. caused by progesterone level change in the luteal phase of menstrual cycle). These mechanisms are suggested to evolve in order to decrease a chance of infection. Moreover, it has been suggested that people who work closely with disgust stimuli, such as impurities, body secretions, or animal or human tissues, have lower disgust sensitivity comparing to others. Therefore, our aim was to investigate if disgust sensitivity changes between phases of menstrual cycle in women who differed in their occupation status.

**Methods:** The level of disgust sensitivity was measured using photographs depicting sources of infection during an internet-based surveillance. Based on reported cycle length and the number of days since the onset of their most recent menstrual bleeding women were assigned to luteal phase group (from 19th day of cycle to its end, N=130) and follicular phase group (days 1st-10th, N=127).

Results: In the luteal phase women who had never worked with impurities, body secretions, animal or human tissues rated photographs as more disgusting ( $p=0.01$ ) than women in the follicular phase. Participants whose work was related to disgust did not differ in disgust sensitivity regardless of the cycle phase.

Conclusion: Results of our study partly support the prediction of CPH and suggest that working with objects that may cause disgust can affect disgust sensitivity. Previous studies that tested CPH have provided inconclusive results but they did not consider nature of the participants' occupation. Our study indicates the necessity of including information about the profession of women in the analyses.

Talk, 25.09 10:35 ★

**Michał Misiak, Piotr Sorokowski**

Institute of Psychology, University of Wrocław

### *The adaptive nature of moral concerns regarding wasting food*

People consider food wasting to be immoral. According to the Moral Foundations Theory (MFT), human moral concerns may serve as cultural adaptations to ecological and social challenges, such as childcare or identifying cheaters. While food gathering, production and distribution are considered as a social and environmental challenge, there is a lack of research exploring the assumption that the moral concerns about food wasting may serve as an adaptation.

We hypothesized that people who have strong moral concerns about wasting food tend to waste less food. We also assumed that moral concerns about wasting food would not be related to other categories of concerns implied by the MFT, namely: care, fairness, authority, loyalty and sanctity.

We conducted an online survey on 538 Poles. We evaluated their moral concerns through the Moral Foundation Questionnaire, which included an additional subscale that measures the moral concerns about wasting food. In addition, we asked each participant to estimate the amount of food they threw away in the week preceding the study. Each participant was asked to estimate the amount of food wasted in several categories (e.g. bread, meat, fruit).

We found that people who had stronger beliefs regarding immorality of wasting food were wasting significantly less. Contrarily to our assumption, we found that the category of care concerns predicted moral concerns for wasting food, yet the relationship was weak. It suggests that wasting food moral concerns are partly determined by concern for the well-being of other people.

We argue that moral concern about wasting food can serve as cultural adaptation to minimize the loss of food. We will also discuss to what extent wasting food could be considered a separate category of moral concerns.

*Simulation model of diffusion and differentiation of folk tunes*

The development of quantitative methods related to the field of cultural evolution provides the possibility of rigorous examination of patterns of diffusion, transmission and transformation of oral traditions. Still, there is a lack of generally accepted theories and models of the evolution of oral traditions, also regarding different types of these traditions (such as folktales, folk music). In this contribution, I would like to discuss and present the results of the simulation model of diffusion of folk tunes. Such a model allows capturing theoretical issues pertained to the spread of oral musical traditions as well as propounding specific hypotheses that could be confronted with empirical research.

The simulation I have developed, is the multi-agent model based on a cellular automaton (representing the geographical space), allowing us to study the relationship between the differentiation of melodic variants and spatial patterns of their dissemination. According to the preliminary results obtained, the effect of isolation-by-distance (positive relation between geographical distance and melodic dissimilarity) can be mainly explained by the predominant role of vertical (in-group) transmission. This factor appears to be more important than low accuracy of cultural transmission (conducive to the creation of more diverse melodic variants).

The presented results will be confronted with the empirical findings, in particular, with the study on the spatial distribution of melodic variants from the collection of Oskar Kolberg.

Poster

**Judyta Nowak**, Agnieszka Żelaźniewicz, Bogusław Pawłowski

Department of Human Biology, University of Wrocław, Poland

*Facial attractiveness and nasopharyngeal carriage of *Staphylococcus aureus* in women*

According to evolutionary hypotheses a woman's face attractiveness signals biological condition that also includes health status. Whereas some studies showed that more attractive faces are judged as healthier, only limited studies test the direct connection between attractiveness perception and physiological indicators of actual health. Persistent carriage of pathogenic bacteria *Staphylococcus aureus* might be associated with impaired immunity and results in a higher risk of autoinfection. The aim of this study is to test if *S. aureus* non-carriers are perceived as more attractive and healthier than carriers.

150 women aged 25-33 were recruited between the 2<sup>nd</sup> and 4<sup>th</sup> day of their menstrual cycle. Nasal and throat swabs were taken twice with a 4-weeks interval. *S. aureus* was identified using standard microbiological method. Participants were classified as persistent carriers, intermittent carriers (excluded from analyses) and non-carriers. Individuals with inflammation were excluded. Facial photographs of those women were evaluated by 100 young men in terms of attractiveness and health on a scale from 1 (unattractive/unhealthy) to 9 (very attractive/healthy). Women's age, sex hormones and total adiposity were controlled.

There was no difference in attractiveness ( $\beta=-0.07$ ,  $p=.53$ ) and health ( $\beta=-0.03$ ,  $p=.76$ ) assessment as a function of carriage state, but when controlling for estradiol and adiposity, non-carriers were assessed as more attractive than carriers ( $\beta=-0.21$ ,  $p=.048$ ) whereas no difference in perceived health was observed ( $\beta=-0.14$ ,  $p=.23$ ).

The results indicate that facial attractiveness might be associated with an individual's susceptibility to persistent colonization by community pathogens and confirm the role of physical attractiveness as a signal of biological condition in women.

The study was funded by National Science Centre, Poland; Contract grant no 2015/19/B/NZ8/02061

Poster\*

**Adrianna Nowicka** and Bogusław Pawłowski

Department of Human Biology, University of Wrocław, Poland

*Are long and narrow women's necks perceived as the most attractive?*

Physical attractiveness of a woman is supposed to signal reproductive potentials, fertility or in general biological quality. There are many studies on facial and body shape attractiveness in women but very limited research on neck size attractiveness. Neck size in human is sexual dimorphic (on average a woman's neck is smaller) and therefore it might be under sexual selection. The aim of this study is to test if the length and width of neck affect woman's physical attractiveness. To create the stimuli, 164 pictures of women were analysed and mean values of neck length and width for this population calculated. Two sets of three visual stimuli in each set were prepared. In one set there was 3 pictures with different neck length (with the mean length, the elongated and the shortened neck by 1 SD). The stimuli for neck width were prepared in similar way.

In an online survey, 305 subjects (223 women) in age range 18-35, were asked to indicate the most attractive neck in each set. The most frequently indicated as the attractive by both women and men was the average length of neck. Men and women, however, differed, in the assessment of the neck width attractiveness. Narrower neck (by 1 SD) was considered the most attractive by men, while women equally often chose narrowed and averaged neck width.

This is the first study on neck attractiveness with standardised (for the studied population) stimuli of women's neck size. Contrary to earlier predictions and research it was not the long neck (in our study elongated by only 1 SD) that was assessed as the most attractive by majority of subjects. Since the men were more discriminate than women when choosing attractive neck width it is likely that sexual selection acted more strongly on a female neck width than on neck length.

*Facial attractiveness, perceived health and age, and visceral fat tissue amount in women*

Women's facial appearance related to attractiveness, perceived health or age, is supposed to signal biological condition. An individual's biological condition might be also measured, for instance, by the amount of visceral fat tissue (VAT) that is known to be related to fertility and health. VAT is metabolically more active than subcutaneous fat tissue and is related with reproductive hormone profiles, immune and metabolic functions. According to the hypothesis on the signaling role of physical attractiveness, greater VAT amount should be then also reflected in lower facial attractiveness, indicating lower quality of a potential partner. Furthermore, women with greater VAT amount should be also perceived as less healthy and older. The aim of this study was to test if VAT amount in women is related to facial appearance. Face photographs of 171 women, aged 25-34, were assessed by men in terms of attractiveness and perceived health on a scale from 1 (not attractive/unhealthy) to 9 (very attractive/healthy) and also perceived age (open question). Each photo was assessed by 100 men, aged 20-35, and one man assessed max. of 15 photos. Women's VAT was measured by Body Composition Analyzer. Women's serum estradiol (E2), testosterone (T), cortisol (C) and general health were controlled. VAT amount was negatively related to perceived facial attractiveness and perceived health, but positively to perceived age (all  $p < .01$ ). The results were similar when controlled for E2, T and C levels or biochemical markers of general health. The results confirm that face appearance is a cue of a woman's biological condition as it reflects the amount of body visceral fat tissue, which, as shown in previous research, strongly impacts a woman's actual health and fertility.

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*Voice pitch modulation in human mate choice*

Inter-individual differences in human fundamental frequency (F0, perceived as voice pitch) predict mate quality, reproductive success, and affect listeners' social attributions. Although humans can readily and volitionally manipulate their vocal apparatus and resultant voice pitch, for instance in the production of speech sounds and singing, little is known about whether humans exploit this capacity to adjust the nonverbal dimensions of their voices during social (including sexual) interactions. In this study, we recorded full-length conversations of thirty adult men and women taking part in real speed dating events, and tested whether their voice pitch (mean, range, and variability) changed with personal mate choice preferences and the overall desirability of each



dating partner. We found that men lowered the minimum pitch of their voices when interacting with women who were overall highly desired by other men, and lowered their mean pitch on dates with women they selected as potential mates, particularly those who indicated a mutual preference. Women spoke with a higher and more variable pitch toward men they personally preferred, however this effect was driven largely by men of lower desirability, with women lowering both pitch parameters toward the most highly desired men. Women's minimum voice pitch explained up to 55% of the variance in men's mate preferences. These results, derived in the first ecologically valid setting, show that individual and group-level mate preferences can interact to affect vocal behaviour, and support the hypothesis that human voice modulation functions in nonverbal communication to elicit favourable judgments and behaviours from others, including potential mates.

Talk, 26.09 10:15

**Piotr Podlipniak**

Institute of Musicology, Adam Mickiewicz University in Poznań

*Phonotactics and pitch syntax as two evolutionarily different communicative systems of Homo sapiens*

According to the contemporary view both language and musical syntaxes are based on the same ability to create generative expressions. For example, Fitch (2014) has proposed to call this human capacity "dendrophilia" since the sequences generated by this capacity are hierarchical i.e. they can be described as "tree structures". However, not all syntactical structures of human communication systems seem to be hierarchical. A good example of such a system is phonotactics. The sequential organization of phonemes is generative but without any hierarchy. Nonetheless, these sequences are strictly connected with semantics. In contrast, pitch sequences in tonal music are generative and hierarchical but without any relation with meaning. The main aim of this presentation is to propose that these two phenomena evolved as different communicative systems fulfilling different functions. In order to compare the processing of these two phenomena the preliminary study were conducted in which the skin conductance reactions to the violated pitch syntax and phonotactics were measured. In this study 9 subjects (5 men and 4 women) listened to three types of short melodies prepared in MIDI files – with correct and violated pitch syntax, and with correct pitch syntax but with one note played in a different timbre. Apart from that they listened to two short sentences – phonotactically correct and phonotactically violated. The skin conductance levels were positively correlated with 76% of pitch syntax violations, 65% of timbral change and only 53% of phonotactic violations. Additionally, the reactions to the violations in musical stimuli were 26% stronger than in speech stimuli. The result of this study suggests that there is a difference in the processing of phonotactics and pitch syntax.

Talk, 26.09 10:35★

**Paulina Pruszkowska-Przybylska**, Justyna Karkus and Joanna Mietlińska

Department of Anthropology Faculty of Biology and Environmental Protection, University of Lodz, Poland

*Agensis of the third molars in the Polish population from the Neolith to modern times.*

Introduction: The third molars (M3) are the most distal teeth in the dental arch developing as the last ones. In human populations for centuries their reduction has been observed, manifested by changes in their morphological structure (e.g. size reduction, shape change), eruption disorders, or even complete agensis. The degree of reduction of third molars is also variable depending on the population and its ethnic origin.

The aim of the study was to examine the phenomenon of the reduction of the M3 tooth in the Polish population over the centuries from the Neolithic to the present day.

Material and methods: The research material includes skeletons of 253 individuals and information about the condition of teeth of modern individuals (n = 108). In past populations, the presence of third molars was directly assessed, while in the case of modern materials, information on the state of dentition was obtained through a questionnaire. The analyses were carried out using the Statistica 13.0 software.

Results: There were statistically significant differences in the number of M3 between the studied populations for each M3 ( $p < 0.05$ ). It has been proven that the population with the highest degree of M3 agensis is a population from the late Middle Ages. It has also been shown that a higher degree of reduction of third molars is in the mandible. In the case of skeletal material it was 25.0% M3 agensis at the mandible and 20.6% at the maxilla and in the case of modern material 38% agensis of M3 at the mandible and 31% at the maxilla.

Conclusions: Mandibular M3 are more often reduced than maxillary M3. Individuals showing the highest degree of tooth agensis belong to the following populations: the late Middle Ages and modern times.

Talk, 25.09 15:10★

**Victoria V. Rostovtseva**<sup>1</sup>, Marina L. Butovskaya<sup>1,2</sup>

<sup>1</sup>Institute of Ethnology and Anthropology, RAS, Leninskiy av., 32A, Moscow, Russia, 119334

<sup>2</sup>Russian State University for Humanities, Miusskaya sq., 6, Moscow, Russia, 125993

*Ethnic parochialism in cooperative behavior: evidence from the "face-to-face" experiment*

We test the effect of ethnical in-group favoritism on cooperation in conditions close to natural. We don't intend to explore the parochial effect alone (it has already been a subject of numerous studies), but rather aim to estimate its contribution to emergence of cooperation in presence of other influential factors, which are essential in face-to-face interactions. Our study restricts for age and sex. Subjects of our study are 102 young men (25 +/- 3 y.), representatives of two contrasting populations of different origin: (a) Russians (Caucasian, N = 51), (b) Buryats (Mongoloid, N = 51). We estimate the magnitude of parochial effect in group (Public Goods Game) and dyadic (Prisoner's Dilemma) face-to-face interactions, for the same subjects participating in both group and dyadic set-up.

Our results suggest that there is an interplay between population homogeneity and size of the group, which lead to complicated dynamics of parochial cooperation. Group size is negatively associated with individual cooperativeness, whereas parochial effect increases in larger groups. Interaction of these effects ends up in a noticeable decrease of parochialism at the level of dyadic interactions (where individual partner qualities are of greater importance) and at the level of larger groups (where high ethnical homogeneity begets in-group competition, which outweighs parochial effects). Parochialism in group interactions was equally significant both for Russians and Buryats, with no specific population effects, whereas at the level of dyadic interactions there was weak trend to parochial cooperation in Buryats, but not in Russians.

Results are to be discussed in evolutionary perspective.

The study was financially supported by Russian Science Foundation (project № 18-18-00075).

Poster ★

**Dagmar Schwambergová<sup>1,2</sup>, Žaneta Slámová<sup>2,3</sup>, Jitka Fialová<sup>1,2</sup>, Jan Havlíček<sup>1,2</sup>**

<sup>1</sup>Department of Zoology, Faculty of Science, Charles University, Prague - Czech Republic

<sup>2</sup>National Institute of Mental Health, Klecany - Czech Republic

<sup>3</sup>Department of Anthropology, Faculty of Humanities, Charles University, Prague - Czech Republic

### *Is reactivity of immune system related to body odour quality?*

It was proposed that secondary sexual characteristics may provide cues to immunocompetence. Previous studies have shown that people perceive faces of individuals with more reactive immune system as more attractive. There is an evidence in various mammalian species that body odour may also provide cues to resistance to infections. The main aim of the present study was to test the relationship between body odour quality and reactivity of immune system, assuming that body odour of individuals with a more reactive immune system will be perceived as more attractive and healthy.

We collected body odour samples from 21 men aged between 18–40 years who received hepatitis A and B (Twinrix) and meningococcal vaccine (Menveo) before and two weeks after the vaccination. The participant's blood samples were obtained three times to determine levels of IgG and IgM antibodies (markers of reactivity of immune system), testosterone, cortisol and CRP. Subsequently, a panel of 88 female raters aged 18–40 assessed body odour samples for their intensity, attractiveness, and healthiness on a 7-point scale.

In contrast to our expectations, we found no significant association between levels of antibodies induced by vaccination and perceived body odour attractiveness and health. We also didn't find any significant difference between the hedonic ratings of body odour before and after vaccination. The lack of significant findings could be due to a relatively small (but comparable to previous studies) sample size or vaccination may not serve as sufficient stimulation of immune system to affect body odour quality.

Poster★

**Pavel Šebesta**, Vít Třebický, Jitka Fialová, Klára Coufalová, & Jan Havlíček

Charles University in Prague, Czech Republic

*Acoustic correlates of formidability perceptions of shouts and utterances and actual fighting success in amateur MMA fighters*

Antagonistic interactions are principal determinant of access to various fitness affecting resources. Information about relative formidability or threat potential is supposed to prevent potentially costly physical confrontations and can be conveyed, among other cues, by vocalization. Here we tested whether F0, vocal tract resonance (3rd formant), HNR (measure of vocalization aperiodicity), and vocalization intensity and duration predicts formidability perceptions of intimidating vocalization (shouts) and short utterance produced by amateur Mixed Martial Arts (MMA) fighters. Also, we tested whether vocalization perceptions predicts actual fighting success in MMA sport. 41 amateur MMA contestants (mean age = 24.04) attending a 2016 Amateur European MMA Championships took part in our study. We used ratio of past wins to overall matches as a marker of their fighting success. Vocalizations (intimidating shout and non-intimidating utterance – counting to ten) were analyzed in Praat for mean F0 (frequency of first harmonic spectral peak in shouts), HNR, intensity, duration, and F3 (in utterances). Shouts' F3 was analyzed as spectral peak between 2-3 kHz in Audacity. 37 Czech women and 31 men provided ratings of shouts' and utterances' formidability.

Perceived formidability was predicted mainly by shouts' and utterances' intensity. Lower HNR and longer duration predicted ratings only in shouts. Interestingly, both utterances' and shouts' perceived formidability was predicted by F0, but in opposite direction in each modality. In contrast, formidability ratings were predicted by lower F0 in utterances and by higher F0 in shouts. Neither perceived formidability nor shouts' and utterances' acoustic properties predicted MMA fighting success.

Poster★

**Žaneta Slámová**<sup>1,2</sup>, Dagmar Schwambergová<sup>2,3</sup>, Jitka Fialová<sup>2,3</sup>, Vít Třebický<sup>2,3</sup>, Jan Havlíček<sup>2,3</sup>

<sup>1</sup>Faculty of Humanities, Charles University, Prague, Czech Republic

<sup>2</sup>National Institute of Mental Health, Klecany, Czech Republic

<sup>3</sup>Faculty of Science, Charles University, Prague, Czech Republic

*Association between reactivity of immune system and facial attractiveness*

Previous studies have suggested possible association between immune function and facial attractiveness in humans. Mating with individuals with more reactive immune system could lead to higher reproductive success and thus it is possible that visual cues facilitating detection of such individuals may have evolved.

The main aim of the present study was to test a possible association between the reactivity of the immune system response to foreign antigens and facial attractiveness.

We collected standardized facial photographs from 21 men aged 18-40 years before and two weeks after they received hepatitis (A and B) and meningococcal vaccine. Analogously, we

obtained participants' blood samples to determine levels of IgG and IgM antibodies (markers of reactivity of immune system) and CRP (marker of inflammation) at the same time intervals plus one month after the vaccination. Further, we measured skin colour before and after vaccination from the facial photographs. Women raters (N=88) aged 18-40 years assessed the obtained photographs regarding attractiveness.

Our results showed no association between measures of reactivity of the immune system and perceived facial attractiveness. However, participants with activated immune system (two weeks after vaccination) were rated as significantly less attractive and were significantly paler. Moreover, we found significant negative relationship between CRP levels and attractiveness.

Presented results suggest that people are sensitive to visual cues to current health status and perceive individuals with activated immune system (indicator of possible illness) as less attractive. In contrast to previous studies, we did not find association between immune system reactivity and facial attractiveness. This could be due to relatively small sample size and or activation of different components of the immune system.

Poster ★

**Zuzana Štěrbová**, Jan Havlíček, Klára Bártová, Jaroslava Varella Valentova

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

**Positive relationship with father predicts father-partner similarity and enhances romantic relationship adjustment of the daughters**

Women were found to prefer and choose partners with father-similar traits, especially when they perceive the relationship with their father positively. Here we investigated whether women couple with long-term partners who resemble their fathers (imprinting-like effect) in physical (facial) and psychological (dominance) masculinity. Further, the quality of relationship with father during childhood (s-EMBU) was examined as a predictor of father-partner similarity, and its effect on relationship adjustment was assessed by R-DAS. Altogether 1,536 women (between 18 and 62 years) indicated facial masculinity and dominance of their long-term partner and father. Results showed that partners were significantly similar to women's father in facial masculinity, but not in dominance. However, the father-partner similarity was significantly predicted by s-EMBU in dominance, but not in facial masculinity. Interestingly, only similarity in dominance but not facial masculinity positively affected dyadic adjustment. Altogether, we found the father-partner similarity in dominance (but not in facial masculinity) was modulated by quality of relationship with father and had a positive effect on dyadic adjustment. Our results suggest that imprinting-like effect might affect relationship quality only when father-partner similarity is predicted by quality of relationship with father.

*Listen to what others say – Mind reading is easier when stimuli mimic conversations*

According to evolutionary theory, mind reading (or theory of mind / mentalizing ability) evolved mainly because humans live complex social lives. Therefore, an understanding of others' mental states was assumingly necessary for our ancestors to communicate and cooperate with each other in order to reach a common goal. Previous methodologies assessing theory of mind tried to capture our understanding of others by using narrative stories as stimulus materials. This approach, however, raises several problems. Most importantly, such narrative stories provide mentalization terms, e.g. cues for subjects as to what to think about the relationships among story characters. This way, mentalization terms prevent subjects from exclusively relying on themselves in performing the task of mind reading. For these reasons, we created a new methodology that contained dialogue-based stories and applied it in the present research to assess theory of mind ability in two different university samples. Results indicated that regardless of language and culture (Hungarian vs. USA), mentalization performance increased in dialogue-based stories compared to narrative stories. Further, newly applied situation-based mind reading tasks predicted higher performance overall than more typical recursive tasks. We argue that mind reading performance can be assessed more accurately when situations are presented to subjects in a form similar to everyday social contexts, in particular, by applying conversations that provide a shared stream of thoughts. In order to understand dialogues – conversations between story characters – subjects only rely on the observed communication and actions of characters without having to consider the narrators' privileged perspectives.

Poster ★

Aleksandra Poniewierska, **Aleksandra Szczepańska** and Mateusz Kościcki

Nicolaus Copernicus University in Toruń, CLES

*A synthetic view of the origins of language*

The attempts to explain the origins of language have occupied a central position in the evolutionary theory. Over the years several scenarios of language origins have been proposed. This contribution aims at providing an overview of the most influential notions in this train of thought.

Our work progresses from the earliest theoretical views on the origins of language, through the main works of the 19th century, to the most contemporary ones. First, we will discuss the list formulated by Max Mueller in 1861, including the so-called bow-wow theory, pooh-pooh theory, ding-dong theory, yo-he-ho theory, as well as the ta-ta theory proposed by Sir Richard Paget in 1930. Then, we move to Darwin's theory of the musical language origin and we show how it was used by Steven Mithen in the Singing Neanderthals (2007). Next, we will move onto the problem of cooperation, altruism and competition. Here, we will summarise the ideas put forth by Robin Dunbar, Terrence Deacon, Tecumseh Fitch, Noam Chomsky and Michael Arbib. Eventually, we will

describe the most recent hypotheses of language origin, being the gestural and manual/gestural-vocal ones.

Talk, 25.09 10:15

**Konrad Talmont-Kaminski**

University of Białystok

*Does wearing odd socks help to make more babies? The evolutionary function of ritual and anxiety, and the feeling of loss of control*

Within the literature on individual rituals, it is generally accepted that they have the function of reducing anxiety. This view appears to take for granted that anxiety is undesirable and fails to take into account that emotions, including anxiety, play a fundamental role in motivating adaptive behaviour. So, to evaluate the function of rituals, it is necessary to consider the interaction with the function of anxiety.

The powerfully dysphoric state of anxiety, which arises when we feel that we are in danger, serves to focus the mind upon potential threats and to motivate us to undertake action to avoid or overcome those threats. Wanting to avoid future anxiety, we plan our actions appropriately. This comes at a cost, anxiety negatively affects a number of physical and cognitive skills.

Ritual might potentially help to 'fine-tune' the impact of anxiety if it helps to decrease the undesirable side-effect without interfering with the function. It appears likely that it does this by decreasing levels of anxiety when we feel that we have done all that we can, as ritual is also connected to feelings of loss of control. Allowing for this complex situation requires experimental design that is more careful than existing studies.

Even then, however, such research can only be a stepping-stone to work that seeks to understand the underlying mechanism. Such work would help to understand the relationship between ritual and superstitious behaviour as well as how the function of individual rituals relates to the apparently pro-social function of group rituals.

Talk, 24.09 13:10

**Vít Třebický<sup>1,2</sup>**, Jitka Fialová<sup>1,2</sup>, David Stella<sup>1,2</sup>, Karel Kleisner<sup>1,2</sup> and Jan Havlíček<sup>1,2</sup>

<sup>1</sup>National Institute of Mental Health, Klecany, Czech Republic

<sup>2</sup>Faculty of Science, Charles University, Czech Republic

*Congruence in facial perception of portrait, profile and 360° rotation photographs*

Studies in social perception traditionally use frontal portrait photographs as stimuli. Nevertheless, the 2D frontal depiction may not fully capture full morphological diversity of facial features. Recently, 3D images are becoming increasingly popular; however, whether their perception differs from 2D was not yet systematically investigated.

Here we investigated congruency in perception of portrait, left profile and 360° rotation photographs. The stimuli were obtained from 45 male athletes under standard conditions. Each set of images was rated for formidability on 7-point scale (portraits by 62, profiles by 60, and 360° rotations by 94 raters).

We found no differences in mean ratings between all three types of stimuli. Furthermore, the ratings of the stimuli types were highly inter-correlated (all  $r_s > 0.8$ ).

Overall, our results clearly suggest that different facial views appear to convey highly overlapping information about an individual, and single-angle view seems sufficient.

Talk, 24.09 11:50★

**Petr Tureček<sup>1</sup>**, Alice Velková<sup>1</sup>, Jan Havlíček<sup>1,2</sup>

<sup>1</sup> Faculty of Science, Charles University, Prague, Czech Republic

<sup>2</sup> National Institute of Mental Health, Klecany, Czech Republic

### *The effect of grandmothers on their offspring reproductive outcome depends on socio-economic status*

It was previously shown that grandmothers contribute to the number of their children's offspring. We evaluated the impact of grandmothers on the actual survival of children using church records from 4 villages in West Bohemia between 1709-1834. We included socio-economic status (SES) of parents in our models as a confounding variable. We controlled for the relatedness between the individuals because of possible genetically transmitted benefits.

Parental social status, grandmother presence and survival until the age of 5 was unambiguously identified in 6712 individuals (2692 high SES farm holders, 2269 intermediate SES cottagers and 1751 low SES houseless lodgers). The relatedness was based on the extension of this dataset that contained 15902 individuals. The association between the grandmother presence (at least one grandmother alive and living in the same or nearby village) or absence (both grandmothers dead or not present in the data) and survival was evaluated for the period from 0 to 5 years of age and for each year within this period separately.

Cox proportional hazards model showed that absence of both grandmothers lowered the probability of survival only in children from families with the lowest SES. Child of a houseless lodger without an access to any grandmother was 1.37 (95% CI = 1.25-1.49,  $z=3.36$ ,  $p<0.01$ ) times more likely to die before the age of 5 than a child who could benefit from a presence of at least one grandmother. This difference was most pronounced between the first and second year of life (HR=1.93, 95% CI = 1.57-2.39,  $z=3.11$ ,  $p<0.01$ ). Children with grandmothers were, nevertheless, more likely to survive in every year of early childhood. Grandmothers did not have significant impact on grandchildren survival in families with higher social status.



*The evolutionary stability of linguistic politeness in requests*

Linguistic Politeness theorists (e.g. Lakoff, 1975; Leech, 1983; Watts, 2003; Eelen, 2001, Culpepper, 2011) insist that linguistic politeness (LP) is an essentially linguistic phenomenon and possibly a linguistic universal; however, its theoretical appeal, and of its models, lies in the fact that LP interfaces both language use and more generally human social behavior (Wacewicz et al., 2015). Indeed, a "new direction [in LP studies] is the emerging emphasis on the cooperative basis of human sociality and on the interactional underpinnings to language, its evolution, and its ethological base" (Brown 2015), but the stability of the behavioral strategy of using LP still lacks more general-level explanations, such that are provided from the evolutionary-linguistic perspective. Currently, the most promising approach to the formalization of both social behavior and to modelling communication between non-human animals is Game Theory: behavioral game theory for interactions and signalling theory for communication.

In this talk, we present a general game-theoretic approach to LP, whereby game theory, as a higher order theory of behavior, provides tools for understanding and modeling Linguistic Politeness (LP) phenomena. More specifically, we illustrate this with a model for LP in the speech act type REQUEST, construed along the lines of Brown & Levinson (1987). In our model, the disalignment of interests (cf. Searcy and Nowicki 2005) between interactants must be offset by the equivalent amount of LP: the greater the disalignment of interests, the more LP is needed. The degree of disalignment of interests is reflected in the magnitude of a request, which is a major (though nonexclusive) determinant the Rate of Imposition (Brown & Levinson, 1987).

Poster ★

**Klaudia Zbyrowska, Agnieszka Żelaźniewicz, Judyta Nowak and Bogusław Pawłowski**

Department of Human Biology, University of Wrocław, Poland

*Potential trade-off between attractiveness and length of reproductive life in women?*

Women's facial attractiveness is thought to be a cue to their current fertility. However, women's reproductive performance is not only limited by immediate fertility level but also by the length of reproductive lifespan. Thus, men may not only prefer women of high current fertility but also of a greater residual reproductive value, i.e. the expected future reproductive output, linked to age at menopause. This seems to be confirmed by widely observed men's preference toward signals of young age in women, the first cue of a long reproductive window. The aim of this study was to test if a woman's facial attractiveness at reproductive age reflects anti-Müllerian hormone (AMH) level, which is a hormonal predictor of age at menopause. Face photographs of 160 women, aged 25-34, were assessed by men in terms of attractiveness on a scale from 1 (not attractive) to 9 (very attractive). Each photo was assessed by 100 men, aged 20-35, and one man assessed maximum of 15 photos. Women's serum AMH was measured, and estradiol (E2), testosterone (T), cortisol (C)

levels as well as general health and age were controlled. We found that women's face attractiveness correlated negatively with AMH level ( $r=-0.25$ ,  $p<0.01$ ) and positively with estradiol level ( $r=0.20$ ,  $p=0.01$ ). The results were similar when controlled for T, C or clinical measures of general health. The results showed that face attractiveness is negatively correlated with expected age at menopause and also confirmed that face attractiveness is positively related with hormonal correlates of high current fertility. This indicates that higher fertility at the peak fertility age of more attractive women, may be traded-off against shorter reproductive lifespan (earlier age at menopause).

Talk, 26.09 12:05

**Agnieszka Żelaźniewicz**, Judyta Nowak and Bogusław Pawłowski

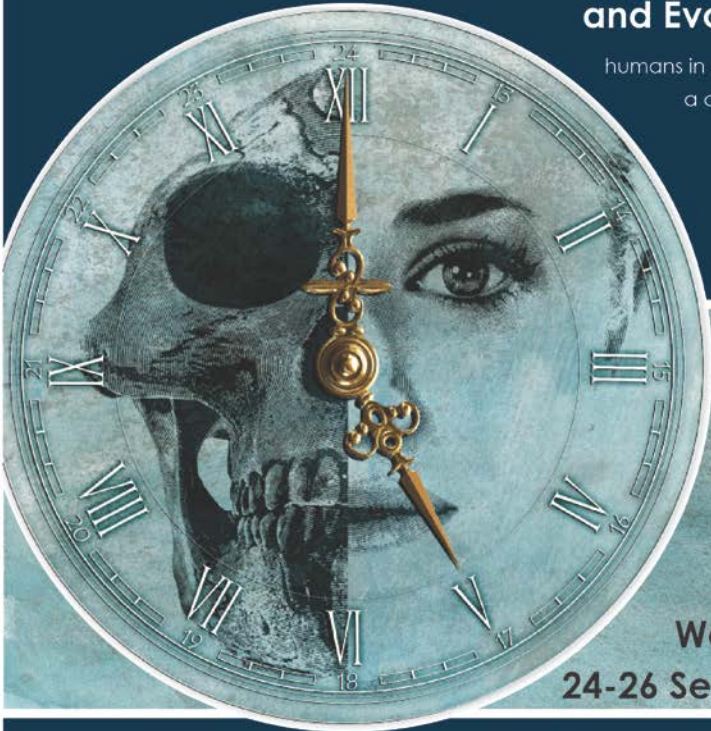
Department of Human Biology, University of Wrocław

### *Hand-grip strength and disgust sensitivity in women*

It is hypothesized that disgust is composed of three functionally specialized domains, serving as behavioural solutions to different adaptive problems, i.e. pathogen, sexual and moral disgust. As behavioural prophylaxis entails energy and opportunity costs, disgust sensitivity should be adjusted as a function of individuals' traits, related to the potential cost of too high or too low disgust sensitivity. This adjustment should be domain specific and may explain inter-individual variation in disgust sensitivity. Hand-grip strength (HGS), although physically dimorphic, is a predictor of positive health and physical outcomes in men and women, and as an indicator of an individual's condition may be related with disgust sensitivity. In this study we tested if hand-grip strength (HGS), and also muscle mass and testosterone level (T) are related with disgust in women. 189 women (Mean age=28.52, SD=2.38) completed Three Domain Disgust Scale. Muscle mass was measured by bioimpedance analysis. HGS was measured by dynamometer. Serum T was measured and general health were controlled. Pathogen (P) and sexual (S) disgust sensitivity correlated negatively with muscle mass (P:  $r=-0.16$ ;  $p=0.04$ ; S:  $r=-0.17$ ,  $p=0.02$ ) and HGS (P:  $-0.17$ ,  $p=0.02$ ; S:  $r=-0.19$ ,  $p=0.01$ ). There was no relationship with testosterone level and no similar effect for moral disgust was observed. The results of our study confirm that disgust domains have distinct profiles on correlations with physiological variables and suggest that healthier and physically stronger women exhibit lower pathogen sexual disgust sensitivity. This confirms that individuals in better condition exhibit lower disgust sensitivity. Also, the result is in line with rape avoidance hypothesis, predicting that high sexual disgust serve as an additional barrier in mate choice, reducing the likelihood of exposing oneself to or consorting with dangerous men or men who are likely to force themselves on women.

# 5<sup>th</sup> International Conference of the Polish Society for Human and Evolution Studies

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