

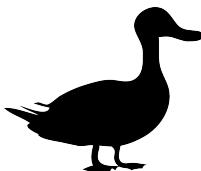
XXI CONFERENCE ON HUMAN ETHOLOGY - VIENNA - AUSTRIA



THE INTERNATIONAL SOCIETY FOR HUMAN ETHOLOGY

Embodiment, Cognition and Communication

**13. - 17. August 2012
Vienna**



follow the duck...

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Organizing Team

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Conference Venue and other useful informations

Vienna is the capital and largest city of Austria. The city is shaped by its long history as capital of the Habsburg Empire and home to world-famous attractions. This, combined with its geographical location in the heart of Europe makes Vienna a highly popular conference destination. Recently Vienna was ranked as the number one city worldwide with the world's best quality of life.

The University of Vienna was founded by Duke Rudolph IV in 1365. It is the oldest university in the German-speaking world and one of the largest in Central Europe. Currently, about 88,000 students are enrolled at the University of Vienna. The meeting will take place in the historic main University Building, located at the Ringstrasse, in the downtown area of Vienna.



**Emergency contacts: +43 699 19446487
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Getting around Vienna

Public transport in Vienna offers frequent and reliable service. Buying a week ticket is probably the most economic solution.

Conference Venue

The conference will be held at the main building of the University of Vienna in the city centre of Vienna. The venue is easily accessible by public transport.

The University of Vienna can be reached by:

- the purple metro line U2, exit Schottentor/Universität
- tram no. 1, 2, D, 37, 38, 40, 41, 42, 43, 44

Address

Universität Wien
Universitätsring 1
1010 Wien



Program

Monday 13th August

03:00 PM - 5:00 PM	
Registration	Courtyard
05:00 PM - 05:30 PM	
Welcome Address	Main Lecture Hall
Plenary Main Lecture Hall	
ROLF PFEIFER How the Body Shapes the Way we Think -- the "Four Messages" of Embodiment	05:30 PM - 06:30 PM
06:30 PM - 10:00 PM	
Reception	Courtyard

Tuesday 14th August

08:00 AM - 9:00 AM		
Registration		Courtyard
Plenary Main Lecture Hall		
ANDREW WHITEN The Human Socio-cognitive Niche and its Evolutionary Origins	09:00 AM - 10:00 AM	
10:00 AM - 10:30 AM		
Coffee break	Courtyard	
I. Basics of Human Behavior Main Lecture Hall		II. Kinship and Mothering Small Lecture Hall
Wulf Schiefenhoevel The Quest for Beauty and Powerful Expression: Examples from New Guinean Poetry	10:30	Laura Fortunato Matrilineal Kinship Organization: Paradigms and Conceptual Issues
Susanne Schmehl, Karl Grammer, Elisabeth Oberzaucher Embodiment - Understanding and Speaking by Doing	10:50	Laura Stobäus , Maria Seidl-de-Moura, Vera Bussab Effects of Maternal Postpartum Depression in Sharing Attention in Cooperation Tasks in Childhood
Michael Kimmel Dynamic Systems, Regulative Imagery, and the Phenomenology of Improvisation – Towards Bridge Building Between Third-, Second-, and First-person Data	11:10	Renata Defelipe, Vera Bussab Maternal Beliefs and Childcare Practices of Depressed and Nondepressed Low-income Brazilian Mothers

I. Basics of Human Behavior Main Lecture Hall		II. Kinship and Mothering Small Lecture Hall
Carole Tafforin Adaptive Behavior of an Isolated and Confined Crew over 520 Days Simulating a Mars Mission	11:30	Tiago Zortea, Rosana Tokumaru, Valeschka Guerra Modeling Maternal Investment in a Brazilian Sample
Greg Bryant Shared Laughter in Conversation as Coalition Signaling	11:50	Ana Karina Santos, Vera Bussab, Ilka Bichara Caretaking Behavior Among Children from a Brazilian Rural Village
Marc Mehу, Laurens van der Maaten, Klaus Scherer Multimodal Integration of Low-level Audio-visual Information in the Perception of Agreement and Disagreement in Political Discussions	12:10	Alexander Pashos, Gulnazira Kinjabaeva, Aksana Ismailbekova, Toetik Koesbardiati, Konstantinos Zafeiris, Nikolaos I. Xirotiris Preferential Child-Care in Germany, Greece, Indonesia, Kyrgyzstan and Bashkiria from an Evolutionary Perspective

12:30 AM - 01:50 PM

Lunch	Courtyard
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III. Emotional Expressions Main Lecture Hall		IV. Relationships - From Love to Jealousy Small Lecture Hall
Alexandra Muehlhauser, Elisabeth Oberzaucher, Karl Grammer The Dynamic Nature of Emotional Expressions (SFA, LMA)	01:50	Ana Fernandez The Adaptive Role of Jealousy as an Internal Regulatory Variable to Sustain Romantic Attachment and Reproduction

III. Emotional Expressions Main Lecture Hall		IV. Relationships - From Love to Jealousy Small Lecture Hall
Jitka Lindova, Marek Špinka Encoding and Decoding Emotion in Vocalization of Human Infants	02:10	Lisa Dillon, Glenn Weisfeld, Carol Weisfeld, Olcay Imamoglu, Marina Butovskaya, Jiliang Shen Using Actor-Partner Interdependence Models to examine the Influence of Attractiveness, Financial Status, and Children Variables on Marital Satisfaction (SFA, LMA)
Thomas Flamson, Greg Bryant, Clark Barrett Prosody in Spontaneous Humor: Evidence for Encryption on a Brazilian Collective Farm	02:30	Melanie MacEacheron, Lorne Campbell, Sarah Stanton, Svenja Strahle Similarities and Differences in how Men and Women respond to their Romantic Partners standing up for them in either an Aggressive, Assertive, or Passive Manner (SFA, LMA)
Gernot Sklenofsky, Karl Grammer, Elisabeth Oberzaucher Emotional Breathing: Respiratory Patterns as Emotional Expressions (SFA, LMA)	02:50	Jaroslava Valentová, Simona Kolářová, Jan Havlíček Parental Influence on their Offsprings' Relationship Quality
Juliana Fiquer, Clarice Gorenstein Why is Human Ethology relevant to Clinical Psychology and Psychiatry?	03:10	Kraig Shattuck, Lisa Dillon, Nicole Nowak, Glenn Weisfeld, Carol Weisfeld, Olcay Imamoglu, Marina Butovskaya, Jiliang Shen When the Cat's away, the Spouse will play: A cross-cultural Examination of Mate-guarding in Married Couples

03:30 PM - 07:00 PM

Poster and Wine

Courtyard

Wednesday 15th August

Plenary		
Main Lecture Hall		
LOUISE BARRETT	09:00 AM - 10:00 AM	
Reflecting Unfathomable Depths, or how to Make Non-magical Minds		
10:00 AM - 10:30 AM		
Coffee break	Courtyard	
V. Behavioral Economics		VI. Life History and Development
Main Lecture Hall		Small Lecture Hall
Johannes Jaeschke, Georg Primes, Martin Fieder, Elisabeth Oberzaucher, Bernard Wallner Peers Defect and Bosses Cooperate: Expectations unmet lead to Physiological Stress (SFA, LMA)	10:30	Kai Willführ, Mikko Myrskylä Epigenetically Pre-Adapted Offspring or Detrimental Epidemic Survivors? – Disease Load at Birth Predicts Survival Rate in Later Epidemics
Georg Primes, Johannes Jaeschke Facial Perception of Co-players Influences Outcomes in an Ultimatum Game Tournament (SFA)	10:50	Anna Howat-Rodrigues, Rosana Tokumaru, Patricia Izar Childhood Unpredictability and its Relationship to Sociodemographic Data and Future Expectations (SFA)
Sonja Windhager, Klaus Atzwanger, Katrin Schaefer Eye Catchers: Direct Behavioral Observation of Responses to Social and Natural Stimuli in a Real-life Situation (SFA, LMA)	11:10	Peter Jonason, Anna Czarna, Norman Li Location, Location, Location: The Dark Triad and Life History Indicators in American, Singaporean, and Polish Samples

V. Behavioral Economics Main Lecture Hall		VI. Life History and Development Small Lecture Hall
Daniel Re Facial Cues to Apparent Height Influence Leadership Choices in Simulated War and Peace Contexts (SFA)	11:30	Charlotte Störmer The Age-specific Impact of Within-family Mortality Experiences on the Speed of Female and Male Life Histories
Lenka Linke, Karel Kleisner Big Boss, Big Trust: Occupational Hierarchy Predicts Perceived Trustworthiness in Executive Managers (SFA)	11:50	Rachel Ripardo, Eulina Lordelo Stressful Events in Childhood and Adult Attachment
Had Fink, Alexander Fink, Wulf Schiefenhövel Corruption and Reciprocity: An Empirical Study of the Brazilian Health Care System	12:10	

12:30 AM - 01:50 PM

Lunch	Courtyard
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VII. Attractiveness and Body Composition Main Lecture Hall		VIII. Theorizing in Human Ethology Small Lecture Hall
Kok Wei Tan, Ian D Stephen Sensitivity Threshold and Cross Race Effect in Facial Colours Discrimination (SFA)	01:50	Ullica Segerstrale Anthropomorphism as a Research Tool

VII. Attractiveness and Body Body Composition Main Lecture Hall		VIII. Theorizing in Human Ethology Small Lecture Hall
Camille Ferenzi-Lemaitre, Sylvain Delplanque, Ines Mehur- Blantar, David Sander Human Attractiveness: Congruence between Multiple Sensory Signals	02:10	Niruban Balachandran PsychTable.org: A Proposed Taxonomy of Human Evolved Psychological Adaptations
Ian Stephen, A Treshi Perera Effects of Short-term Exposure to Media Images on Judgements of BMI of Women's Bodies as Healthy and Attractive	02:30	Karolina Safarzynska The Coevolution of Culture and Environment
Jan Havlíček, Jaroslava Valentová, Zdeněk Vilikus, Věra Pivoňková, Rudolf Hoffmann, S Craig Roberts, Jaroslav Flegr Is Physical Attractiveness Related to Health Status? Results from Cross-cultural Data Set	02:50	Luke McCrohon Some Clarifications Regarding the Replication of the Physical Form of Cultural Replicators
Vit Trebicky, Jan Havlicek, S. Craig Roberts, Anthony C. Little & Karel Kleisner Perceived aggressiveness predicts fighting performance in Mixed Martial Arts fighters (SFA, LMA)	03:10	Charlotte De Backer Media, Meals and Moral Socialization: Does the Fast Lane erase moral attitudes?

03:30 AM - 04:00 PM

Coffee break

Courtyard

IX. Physical Appearance and Psychological Attributes Main Lecture Hall		X. Social Interactions and Sexuality Small Lecture Hall
<p>Vera Pivonkova, Martina Malkova, Jitka Lindova, Jana Veleminska, Jan Havlicek The Accuracy of Big Five Personality Judgments Made on the Basis of 3D Composites</p>	04:00	<p>Mónica Terrazo Felipe, Javier Martín Babarro, Rosario Martínez Arias, Fernando Colmenares Conflict Management and Prosociality among Adolescents: Effects of Friendship and Gender (SFA, LMA)</p>
<p>Nancy Segal Personality Resemblance in Unrelated Look-Alike Individuals: Resolving a Twin Study Challenge</p>	04:20	<p>Rick O'Gorman Expectations for Interaction Type Affect Level of Oxytocin</p>
<p>Iris J Holzleitner, David I. Perrett, Bernard P. Tiddeman, Dengke Xiao, David Hunter Sex Typicality in 3-D Facial Shape</p>	04:40	<p>Meredith Martin, Patrick Davies, Dante Cicchetti The Social Defense System and Children's Response to Interpersonal Threat: Progress & Pitfalls (SFA)</p>
<p>Gert Stulp, Buunk Abraham, Thomas Pollet, Simon Verhulst Is Human Height Related to Intra-sexual Competition? (SFA, LMA)</p>	05:00	<p>Thomas Alley, Lauren Brubacker The Impact of Feeding versus Providing Food on Perceived Intimacy in Mixed-Sex Dyads</p>
<p>Marina Butovskaya, Valentina Burkova, Audax Mabulla Aggression, Digit Ratio and Reproduction in African Foragers: the Hadza Men</p>	05:20	<p>Lenka Novakova, Martina Hajkova, Katerina Klapilova, Jan Havlicek The Relation of Olfactory Abilities, Sexual Arousal and Orgasmicity (SFA, LMA)</p>
<p>Valentina Burkova, Julia Fedenok, Marina Butovskaya, Darya Dronova Aggression, 2D:4D Ratio and Body Size in Children and Adolescents from 5 Regions of Russia</p>	05:40	<p>Amanda Hahn, Carmen Lefevre, Dave Perrett What Does Sexual Arousal Look Like? Temperature and Color Changes in the Face (SFA)</p>

07:00 PM - 10:00 PM

Heuriger

Neustift am Walde

Thursday 16th August

Plenary Main Lecture Hall		
RANDY THORNHILL The Evolution of Women's Sexuality: Estrus, Extended Sexuality, Concealed Estrus, and Cognition		09:00 AM - 10:00 AM
10:00 AM - 10:30 AM		
Coffee break		Courtyard
 XI. Symposium on Social Computing Main Lecture Hall		
Elisabeth Oberzaucher, Jose-Luis Patino Vilchis, Remi Emonet, Karl Grammer Human Behavior as the Basis for Social Computing: The Influence of Environmental Factors	10:30	David Schmitt Why are Sex Differences Larger in Gender Egalitarian Nations? Ecological Stress, Conditional Adaptations, and the Curvilinear Hypothesis
Anna Frohnwieser, Elisabeth Oberzaucher, Karl Grammer, Richard Hopf Human Walking Behavior – The Effect of Density on Walking Speed and Direction (SFA, LMA)	10:40	
	10:50	Thomas Hirschmann Can Stress shed Light on the Embodiment of Creativity? Evidence & Interpretation of Stress as a Trigger of embodied Reward-Effects on creative Cognition. (SFA)

XI. Symposium on Social Computing Main Lecture Hall		XII. Sex Differences and Consciousness Small Lecture Hall
Kaja Smole, Urska Stepanek, Elisabeth Oberzaucher, Karl Grammer Scanning the World – Human Strategies of Social Information Gathering (SFA, LMA)	11:00	
	11:10	Lia Viegas, Juliana Fiquer, Emma Otto Are there differences between Brazilian men and women in orientation strategies and sense of direction?
Urska Stepanek, Kaja Smole, Elisabeth Oberzaucher, Karl Grammer Modeling the Cognitive Bases for Social Attention in Real Life Situations (SFA, LMA)	11:20	
	11:30	Gregory Carter In a Mirror, Darkly: the Dark Triad's Embodiment in Women, the Negation of Evolved Sex Differences, and their Parity with Men (SFA)
Sofia Zaidenberg, Francois Bremond Group Detection	11:40	
	11:50	Bjørn Grinde The Evolutionary Rationale for Consciousness

XI. Symposium on Social Computing Main Lecture Hall		XII. Sex Differences and Consciousness Small Lecture Hall
Remi Emonet, Jean-Marc Odobez, Elisabeth Oberzaucher Automatic Discovery of Recurrent Motion Activities	12:00	
Karl Grammer Social Computing and Behavior Analysis in Real Life Situations: a New Synthesis	12:20	
12:30 PM		
Social Program		

Friday 17th August

Plenary Main Lecture Hall		
TECUMSEH FITCH The Biology and Evolution of Language: Case Studies in Cognitive Biology		09:00 AM - 10:00 AM
10:00 AM - 10:30 AM		
Coffee break		Courtyard
XIII. Communication and Cognition Main Lecture Hall		XIV. Mating and Mate Choice Small Lecture Hall
Brigitte Krenn, Stephanie Schreitter, Marcin Skowron Sex Differences in the Evaluation of and Communication with Conversational Agents	10:30	Daniel Kruger The Health Impact of Male Scarcity in Modern Human Populations
Christina Larson, Kerri Johnson, Martie Haselton An Analysis of Women's Body Language across the Ovulation Cycle (SFA)	10:50	Sigal Tifferet, Orly Bar-Lev, Shani Zeler, Daniel Kruger Cad's best friend? Dog Ownership Increases Long-term Relationship Attractiveness and Attenuates Short-term Mating Perceptions
Michael Kimmel Affordances in Embodied Co-regulation: A Comparative Analysis of Four Expert Skills and their Affordance Profiles	11:10	Rosana Tokumaru, Leandro Gama Moraes Positional Bias: a Brazilian Study

XIII. Communication and Cognition Main Lecture Hall		XIV. Mating and Mate Choice Small Lecture Hall
Valentina Cuccio From a Bodily-based Format of Representation to Symbols. The Evolution of Human Language	11:30	Ari Freuman, Glenn Geher Masculine Facial Architecture Decreases Mating Intelligence in Ovulating Females
Wulf Schiefenhoevel Embodied Semantics: Terms for „Right“ and „Left“ in Indo-european and Non-Indo-european Languages	11:50	Marco Varella, Jaroslava Valentová Observed Sex Ratio of Street Artists: a Test of Miller's Cultural Display Model
Juliana Fiquer, Erwin Geerts, Emma Otta, Lia Viegas, Ricardo Moreno, Harry van de Wiel, Clarice Gorenstein Differences in Interpersonal Nonverbal Behavior among Brazilian and Dutch Depressed Patients	12:10	Katerina Klapilova, Monika Ubryova, Ales Kubena, Jan Havlicek The Association between Facial Similarity in Long-Term Couples and Overall and Sexual Satisfaction in the Relationship

12:30 AM - 01:50 PM

Lunch	Courtyard
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XV. Primate and Human Behavior Main Lecture Hall		XVI. Motion - The Basis of Embodiment Small Lecture Hall
Paco Bertolani Spatial Orientation in Wild Chimpanzees	01:50	David Eilam, Hila Keren, Joel Mort, Omri Weiss Motor Rituals: When, Why and How They Emerge from Normal Daily Behavior?

XV. Primate and Human Behavior Main Lecture Hall		XVI. Motion - The Basis of Embodiment Small Lecture Hall
Irene Godoy, Susan Perry Inbreeding Avoidance and Cues to Relatedness in a Wild Primate Population (SFA)	02:10	José Antonio Muñoz-Reyes, Carlos Gil-Burmann, Bernhard Fink, Enrique Turiegano Aggressiveness, Hand Grip Strength, Body Mass Index, and Fighting Ability in Spanish Adolescents
Jenny Collard Changes in Social Behaviour During the Formation of a New Group of Chimpanzees (<i>Pan troglodytes</i>) at Leipzig Zoo	02:30	Thomas V. Pollet, Vincent Neddermeijer, Ton Groothuis, Gert Stulp Evidence for Overrepresentation of Left-handedness in MMA Fighters and More Broadly in Direct Interactive Sports: a Test and a Meta-Analysis
William McGrew The 'Other Faunivory': Insectivory in Human and Non-human Primates	02:50	Brown William, Meishan Raal-Nunes, Lee Taylor Body Symmetry and Motor Behaviour: a Sensory-Motor Integration Perspective

03:10 PM - 03:40 PM

General Assembly GEORGE MEALEY A Genetic Basis for Religious Thought and Constructs	Courtyard
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07:00 PM - 11:59 PM

Dinner and Dance Awards LMAs will be awarded by George Mealey	Kahlenberg
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Abstracts

Monday 13th August

03:00 PM - 5:00 PM

Registration	Courtyard
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05:00 PM - 05:30 PM

Welcome Address	Main Lecture Hall
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05:30 PM - 06:30 PM

ROLF PFEIFER How the Body Shapes the Way We Think -- the "Four Messages" of Embodiment	Main Lecture Hall <i>Chair: Karl Grammer</i>
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06:30 PM - 10:00 PM

Reception	Courtyard
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How the Body Shapes the Way We Think -- the "Four Messages" of Embodiment

Rolf Pfeifer

Artificial Intelligence Laboratory, University of Zurich, National Competence Center Research in Robotics, CH

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Traditionally, in robotics, artificial intelligence, and neuroscience, there has been a focus on the study of the control or the neural system itself. Recently there has been an increasing interest into the notion of embodiment in all disciplines dealing with intelligent behavior, including psychology, philosophy, and linguistics. In this talk, I will explore the far-reaching and often surprising implications of this concept. While embodiment has often been used in its trivial meaning, i.e. „intelligence requires a body“, there are deeper and more important consequences, concerned with connecting brain, body, and environment, or more generally with the relation between physical and information (neural, control) processes. It can be shown that through the embodied interaction with the environment, in particular through sensory-motor coordination, information structure is induced in the sensory data, thus facilitating perception and learning. The patterns generated depend jointly on the morphology, the material characteristics, the action and the environment. Moreover, biological systems have compliant components which implies that part of the functionality can be incorporated into the morphological and material characteristics of the agent: the elasticity of the muscle-tendon system can cope with impact in walking or running.

Thus, there is no longer a clear separation between control and the to-be-controlled (which has been the basis of classical approaches), so that fundamental re-thinking is required. The ideas will all be illustrated with case studies from biology -- humans and animals -- and robotics and will be summarized as a set of four "messages" for embodied systems.

Tuesday 14th August

08:00 AM - 9:00 AM

Registration	Courtyard
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09:00 AM - 10:00 AM

ANDREW WHITEN The Human Socio-cognitive Niche and Its Evolutionary Origins	Main Lecture Hall <i>Chair: William C. McGrew</i>
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10:30 AM - 12:30 PM

Basics of Human Behavior	Main Lecture Hall
Kinship and Mothering	Small Lecture Hall

01:50 PM - 03:30 PM

Emotional Expressions	Main Lecture Hall
Relationships - From Love to Jealousy	Small Lecture Hall

03:30 PM - 07:00 PM

Poster and Wine	Courtyard
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The Human Socio-Cognitive Niche and Its Evolutionary Origins

Andrew Whiten

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Hominin evolution took a remarkable pathway, as the new foraging strategy became extended to large mammalian prey already hunted by a guild of specialist carnivores. How was this possible for a moderately sized ape lacking the formidable anatomical adaptations of these competing ‘professional hunters’? The long-standing answer that this was achieved through the elaboration of a new ‘cognitive niche’ reliant on intelligence and technology is compelling, yet insufficient. I bring together evidence from a diversity of sources supporting the hypothesis that a fuller answer lies in the evolution of a new socio-cognitive niche, the principal components of which include new forms of cooperation, egalitarianism, mindreading (aka ‘theory of mind’), language and cultural transmission, that go far beyond the most comparable phenomena in other primates. This cognitive and behavioural complex allows a human hunter-gatherer band to function as a unique and highly competitive predatory organism. Each of these core components of the socio-cognitive niche is distinctive to humans, as is their interplay. However, over the last decade or so primate research has increasingly identified related capacities that permit inferences about significant ancestral cognitive foundations to each of the principal pillars of the human social cognitive niche outlined above. In the second part of my talk, I review and integrate this range of recent comparative discoveries.

See Whiten, A. & Erdal, D. in *Philosophical Transactions of the Royal Society B*, 367, Theme Issue (No. 1599) “New Thinking: Advances in the Study of Human Cognitive Evolution”, 5 August 2012.

I. Basics of Human Behavior

Chair: John Richer

Main Lecture Hall

10:30	Wulf Schiefenhoevel The Quest for Beauty and Powerful Expression: Examples from New Guinean Poetry
10:50	Susanne Schmehl, Karl Grammer, Elisabeth Oberzaucher Embodiment - Understanding and Speaking by Doing
11:10	Michael Kimmel Dynamic Systems, Regulative Imagery, and the Phenomenology of Improvisation – Towards Bridge Building Between Third-, Second-, and First-person Data
11:30	Carole Tafforin Adaptive Behavior of an Isolated and Confined Crew over 520 Days Simulating a Mars Mission
11:50	Greg Bryant Shared Laughter in Conversation as Coalition Signaling
12:10	Marc Mehу, Laurens van der Maaten, Klaus Scherer Multimodal Integration of Low-level Audio-visual Information in the Perception of Agreement and Disagreement in Political Discussions

The Quest for Beauty and Powerful Expression: Examples from New Guinean Poetry

Wulf Schiefenhoevel

Human Ethology Group

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In 1974, the Eipo, an isolated Papuan ethnic group in the rugged Highlands of West-New Guinea, had a neolithic tool kit and a meritocratic society with horticulture, gathering and hunting as subsistence techniques. They can well be seen as “modern models of the past”. In the course of ethnographic and linguistic fieldwork among them it became apparent that they had a very rich repertoire of orally transmitted verbal art. Not only embodied in mythological accounts, stories and the like, but especially expressed in love poems and lamentations over the death of a close relative.

Why does *Homo sapiens* do this? Why not express the sorrow of grief and the lure of love in everyday prose? Which are the engines behind the production of texts which create mirrored emotions in the audience? The author of such poetry achieves a number of possible “goals”: she/he

- can elegantly inform (especially in love songs) the addressee about their own feelings;
- demonstrates, on the stage of the village square, his/her intellectual, creative, emotional, social, and artistic competence, thus advertising her/himself as an attractive mate (in the classic Darwinian paradigm of sexual selection);
- can regulate the volcanic nature of the underlying emotion by transforming it into poetry. This leads, in a positive feed-back, I believe, to a heightened sensation of the feeling - this seems to be important for the formation of a well-functioning brain (cp. Johnson-Laird & Oatley, 2008, who speak of “understanding” emotions better through art). Tooby and Cosmides (2008), on the other hand, speak of down-recalibration necessary to reintegrate the individual into society.
- makes the case, the occasion, or the experience “special” (E. Dissanayake 1992); i.e., meaningful also for the others in the group, thereby contributing to the inner condition of the community.

Embodiment - Understanding and Speaking by Doing

Susanne Schmehl, Karl Grammer, Elisabeth Oberzaucher

*University of Vienna, Faculty of Life Sciences, Department of Anthropology, AT
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Embodiment theory suggests a direct link between gesturing, gesticulation and language production. In growth-point theory the constant interaction between gesturing and language generates thought (McNeill, 1967). Gestures are thus not only signs but a direct expression of thought and cognition. Consequently, the communicative function of gesturing is not limited to being a signal or message carrier about the outside world, but gestures also convey information about cognitive processes in the sender. In our view this is paramount to the evolution of language (Oberzaucher et al, 2008). In this study we extend this approach to general body motion and theorize, that not only gesture is coupled to language, but language involves the whole body. This results in the theory that language per se is a motion process.

For the study, we analyzed 50 interactions in a video chat situation where one interactant retold the plot of a short comic movie to the other, so the other would be able to retell the story of the movie. We then analyzed the videotaped interactions with computer vision methods (optical flow) to detect motion primitives. Synchronization was analyzed with cross-correlation. Then we analyzed how speech and motion are related to communication success with a regression analysis.

The results suggest that the listener generates similar motion primitives as the sender, not only with gesturing alone, but with the whole body. The speaker's motion precedes speech, and the speaker's speech amplifies the listener's motion and speech. The analysis of motion primitives suggests that the receiver understands the sender's story the better the more he/she synchronizes.

The findings suggest that embodied communication is not restricted to gesturing but involves the whole body. The emphasis we found on motion – both in affecting the communicative behavior of the other and communication success – supports the importance of motor patterns for language evolution. This study has far reaching implications for theories focusing on gestures as precursors for language. In our view language is embodied in the very sense of the word.

Dynamic Systems, Regulative Imagery, and the Phenomenology of Improvisation – Towards Bridge Building Between Third-, Second-, and First-person Data

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Dynamic systems theory has been applied to motor skills (e.g., Thelen & Smith 1994, Handford et al. 1997), but not to highly structured dyadic body improvisation skills such as one finds in pair dance, martial arts, embodied healing, and related fields. The fully improvisational pair dance *tango argentino* is notable for creating a proverbial “four-legged beast”, a superindividual action unit that is so well calibrated and connected that two dancers smoothly interact with nearly zero time delay, while making action anticipation or elaborate planning (e.g. as scripts) superfluous. I use tango skills to exemplify the potential of method triangulation in social embodiment research. My objective is to examine subjective counterparts (i.e. generated through first- and second-person micro-analytic methods) to dynamic systems notions linked to a third-person methodology. Accordingly, one set of data comes from *motion tracking study with six expert tango couples*, while another stems from interviews done subsequently, complemented by other micro-phenomenological data (interviews, video think-alouds). My talk begins with meta-methodology; it traces the non-trivial process whereby counterparts between VICON data and subjective theories may be recognized in the first place (within an evolving dialog of sports scientists, tango teachers, and an expert-researcher). Then I move on to more substantive issues, the illustration of types of counterparts between dynamic systems notions, on the one hand, and teachable imagery skills in tango, on the other. The latter are typically expressed by dancers as multimodal imagery - a matrix of several dozens of images - and aid dynamic stabilization under conditions of improvisation. First, through an awareness of *order parameters* dancers strive to keep the tango system in the optimally enabling range. When dancers take care of their individual tango habitus (i.e. general “body grammar”) this enables proper contact to the partner at a basic level, notably by limiting degrees of freedom and calibrating sensory receptivity. Adding to this, dancers acquire “good tricks” conducive to contact and smooth improvisation, hence genuinely dyadic level skills: Super-individual regulators specify distance, angle, weight, and force vector configurations that one had best stick to or return to immediately when one has deviated from them (e.g. connecting the breastbones through a “torch”-like vector). Next, the dynamic systems notion of *attractor* has subjective counterparts in (1) proximal action goals a dancer closes the gap towards (cf. Lee 2006) and (2) pair configurations recognized and exploited “on-the-fly”.

Both reflect repertory knowledge of node-point configurations (cf. Schack 2004), which are flexibly deployed in improvisation (Kimmel 2012). Nodes furnish highly vivid re-routing points, homebases, proximal “safe havens”, and connectives around which the evolving movement trajectory emerges. Nodes also play a major role in visual parsing of tango elements and functional observation of others. In closing, I will present diachronic data from four years worth of apprenticeship diary to explain how, when, and why *phase shifts*, yet another dynamic systems notion, occur on the individual learning trajectory.

Adaptive Behavior of an Isolated and Confined Crew over 520 Days Simulating a Mars Mission

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One of the ethological challenges of planetary exploration is the adaptation of human behavior in isolated and confined environments at the individual and group level. The fundamental question is how the interplanetary crew members can optimize their relationship with the space environment by regulating physiological effects and coping with psychological factors. Social and environmental conditions become more extreme with increased duration of the mission, particularly when social deprivation and spatial confinement exceeds periods of beyond 500 days, as in the case of a Mars mission. For this reason, we conducted an ethological study during the Mars-500 experiment at the Institute of Biomedical Problems (IBMP) in Moscow-Russia from June 2010 to November 2011. This experiment was designed to simulate the living and working conditions of a space crew during a 250-day voyage to Mars, a 30-day stay and a 240-day return trip, totalling 520 days under extreme conditions. The multi-cultural crew was composed of three Russians, two Europeans and one Chinese (n=6 males). The facilities comprised four hermetically sealed interconnected modules (550 m³) and a Martian surface module (1200 m³). We focused the ethological analysis both on verbal and non-verbal behaviors using Observer XT® software. State (actions, interactions, communications) and point (facial expressions, collateral activities) events were scored from video recordings made every two weeks at breakfast time and every month during group discussions within the habitat module.

The results showed a lack of diversity in the behavioral expressions with limited motor patterns that imply personal actions and visual interactions, a decreasing behavioral flow, a high level of collateral activities, a periodic change of facial expressions, prevalent place preferences, a culture-dependant use of language, and individual verbal behavior profiles. The discussion will carry on scenarios of a long journey to Mars pointing up cyclic and periodic changes in the crew organizations. We will draw a conclusion about humans on Mars from an evolutionary perspective. A short video will be displayed on the mission facts illustrating the Mars-500 experiment.

This study was supported by the French Space Agency (CNES) and the European Space Agency (ESA).

Shared Laughter in Conversation as Coalition Signaling

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Laughter in humans is likely homologous to play vocalizations in a variety of primate species, but its function in humans is poorly understood. During conversational interaction, people often laugh together. This shared laughter happens more between friends than strangers, and studies suggest it happens most often in female groups. An acoustic analysis of laughter between familiar and unfamiliar dyads, in all sex combinations, revealed that shared laughter had many prosodic (i.e., pitch, loudness, and duration) differences from individual laughs by the same speakers. Moreover, shared laughter by familiar speakers was different in many acoustic dimensions from shared laughter by strangers. In this talk, I will describe these acoustic findings, and report the results of two perception experiments examining third party judgments of familiarity based on brief (< 2 sec.) recorded clips of shared spontaneous laughter. People can accurately judge familiarity of speakers by listening to shared laughter (Exp 1), and relatively faster laughs are associated with a higher judged likelihood that the conversationalists are friends (Exp 2). Taken together, these results provide preliminary evidence for an evolved coalition signaling function of shared laughter in group interaction.

Multimodal Integration of Low-level Audio-visual Information in the Perception of Agreement and Disagreement in Political Discussions

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Interpersonal relationships are governed by the social impressions people form in order to assess other group members and thereby calibrate their social decisions in an adaptive way. Social signals have evolved as a result of their capacity to influence that assessment process. Psychological research has shown that most social evaluations concern 1) the internal state of the signaller in terms of activation (arousal) and valence (positive vs. negative), and 2) the person's capacity to acquire and control resources (resource holding potential, or dominance). In the context of political discussions, these evaluations could lead to inferences about an interlocutor's stance on a particular opinion (i.e. whether he/she agrees or disagrees) and about a person's power in changing other people's opinions (i.e. how convincing that person is). The present study looks at the influence of low-level visual and auditory features on the judgments of agreement, disagreement, and convincing power. In particular, we tested the possibility that this influence is mediated by ratings of core socio-emotional dimensions like dominance, valence, and arousal. We took audio-video excerpts from political discussions and classified them according to whether the individuals explicitly expressed agreement, disagreement, or neutral statements. These excerpts were then rated on a number of dimensions: agreement/disagreement, dominance, valence, arousal, and convincing power. Optical flow analysis of video images allowed us to calculate the peak rate and mean amplitude of average and maximum velocity as well as the frequency and amplitude of movements in the vertical and horizontal dimensions. We also extracted vocal cues such as fundamental frequency (F0), vocal intensity, and articulation rate. Our results showed that raters were able to recognize agreement and disagreement on the basis of low-level nonverbal features, in particular amplitude of maximum velocity and upward movements, and F0 velocity. Although visual features appeared to be particularly important in judgments of disagreement, they were most influential when they interacted with auditory features, supporting the idea that multimodal integration is an important factor in social perception. The influence of low-level nonverbal cues on perceived agreement and disagreement is likely to be indirect, as it was completely mediated by ratings of arousal, valence, and dominance. The results will be discussed in connection to the recent debate in ethology about the role of information transfer and social influence in communication.

II. Kinship and Mothering

Chair: Astrid Jütte

Small Lecture Hall

10:30	Laura Fortunato Matrilineal Kinship Organization: Paradigms and Conceptual Issues
10:50	Laura Stobäus, Maria Seidl-de-Moura, Vera Bussab Effects of Maternal Postpartum Depression in Sharing Attention in Cooperation Tasks in Childhood
11:10	Renata Defelipe, Vera Bussab Maternal Beliefs and Childcare Practices of Depressed and Nondepressed Low-income Brazilian Mothers
11:30	Tiago Zortea, Rosana Tokumaru, Valeschka Guerra Modeling Maternal Investment in a Brazilian Sample
11:50	Ana Karina Santos, Vera Bussab, Ilka Bichara Caretaking Behavior Among Children from a Brazilian Rural Village
12:10	Alexander Pashos, Gulnazira Kinjabaeva, Aksana Ismailbekova, Toetik Koesbardiati, Konstantinos Zafeiris, Nikolaos I. Xirotiris Preferential Child-Care in Germany, Greece, Indonesia, Kyrgyzstan and Bashkiria from an Evolutionary Perspective

Matrilineal Kinship Organization: Paradigms and Conceptual Issues

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Matrilineal kinship organization refers to an emphasis on kin related through females only. This typically involves conflict between a man's role as brother/uncle versus husband/father. The notion of the "matrilineal puzzle" captures the tension inherent in this mode of kinship organization. This issue has been the focus of extensive anthropological research since the late 19th century, yet the puzzle is still unsolved.

I start by reviewing two major paradigms in the study of matrilineal kinship organization: one focuses on the association of this mode of kinship organization with paternity uncertainty, the other on its association with the economics of subsistence. Next, I articulate how they can be reconciled within an evolutionary framework, in which different modes of social organization can be viewed as biases in investment towards a particular set of kin. The question then becomes whether these biases can be understood as the outcome of the strategic behaviour of individuals in the allocation of resources to their kin.

In the process, I address several conceptual issues that beset current discussion of matrilineal kinship organization. These include issues of definition (e.g. the difference between matrilineal vs. matrilateral kin), and issues of focus (e.g. the distinction between matrilineal descent and other aspects of matrilineal kinship, such as matrilineal inheritance and succession).

I illustrate these arguments with the results of a game-theoretic model investigating a particular form of matrilineal inheritance, consisting in the transfer of property from a maternal uncle to a sororal nephew, or "mother's brother-sister's son" inheritance; this is a rare but recurrent practice across human societies. The theoretical analysis examines under which conditions this pathway for the transfer of property represents a stable evolutionary outcome in the allocation of resources to future generations. Results provide insight into key factors underlying the evolutionary stability of matrilineal inheritance, and into how these relate to existing paradigms in the study of matrilineal kinship organization. More broadly, understanding what structures the patterns of interaction among kin within human groups seems crucial to a comprehensive evolutionary account of our species' social behaviour.

Effects of Maternal Postpartum Depression in Sharing Attention in Cooperation Tasks in Childhood

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This research is part of the Thematic Project Fapesp (nº 06/59192) "Postpartum Depression as a risk factor for the child development: an interdisciplinary study of factors involved in its genesis and its consequences". It is a longitudinal research based on the evolutionary perspective, concerning postpartum depression (PPD) effects on mother-infant interaction of a high-risk low income Brazilian sample. One analysis from a functional perspective suggests that PPD may be considered a strategy to obtain greater parental investment on child, in which the mother reduces her investment on the child and then other caregivers can compensate it. This potential adaptive value of PPD contrasts with possible negative ontogenetic effects: studies suggest impairment on mother-infant interaction and in child development. Our goal is to investigate whether there are differences in shared attention of three years-old children whose mothers presented or not PPD, evaluated by cooperation tasks. In order to a child cooperate with another person, he/she must understand the intentions of the other, share the focus of attention and have a motivation to help. In the third year, the child becomes more sensitive in relation to desires and actions of peers, so they could predict the behavior of others and understand when the goal is not achieved. Our sample was composed by 55 three years-old children, 17 boys (31%) and 38 girls (69%); eight mothers had depression after four months postpartum (evaluated by the Edinburgh Postnatal Depression Scale - Brazilian version). The children performed the "out-of-reach" cooperation task. It involves helping the experimenter to pick a paper that she let fall down on the floor. Helping behavior consists in picking up the paper and handing to the experimenter. The child could do it when the experimenter: 1) is waiting; 2) tries to reach the object; 3) tries to reach the object and looks to the child interchangeably. Twelve of the children did not present helping behavior. In the group of 38 children who have helped spontaneously, 30 had mothers who did not present PPD. Fifteen of those answered in the first moment, 12 in the second moment and three in the third moment. Children from PPD group, three answered in the first moment and five in the second. Difference in the average time to reach the object for each group was significant. Children from PPD group react faster ($M=6,62\text{sec} \pm 2,77$) than children from no-PPD group($M=8,26\text{sec}, \pm 6,36$). Most of the no-PPD group answered in the first moment (50%) but some of them (10%) needed more clues (reach and look). It

shows that the children from PPD group are faster and they were sharing more the focus of attention with the experimenter. These results may indicate that if the child from PPD group has had less mother attention in the beginning of his/her life, he/she tried to find other ways to develop by herself/himself, finding the clues to survive and to be social from other caregivers. Further studies with larger samples need to be done to corroborate those results and test the hypothesis proposed.

Maternal Beliefs and Childcare Practices of Depressed and Nondepressed Low-income Brazilian Mothers

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Parental predisposition to care is patterned by culturally shared values and behaviors. Parental beliefs and childcare practices are directly linked with their sociocultural environment. Distal/Autonomous parental beliefs and practices (face-to-face and object stimulation) are prevalent in urban educated middle-class families of Western cultures. Proximal/Interdependent parental beliefs and practices (body contact and body stimulation) are prevalent in rural, low-educated farmer or tribal families. Parents from urban families of cultures with a more interdependent history use both strategies. Besides these cultural variations, little is known about the relations among these parental beliefs, practices and some psychiatric variables that can influence them, such as postpartum depression (PPD). PPD is a mood disorder that evokes feelings of hopelessness, helplessness and incompetence in mothers, being able to discourage them to care (parental beliefs) and to perform adequate parental practices. In this study, 107 mothers divided into two groups (PPD = 53; Non-PPD = 54) by EPDS's Brazilian version (Edinburgh Postnatal Depression Scale) were interviewed after three years of delivery. Two main instruments were applied: 1) Brazilian Scale of Importance Assigned to Accomplished Parental Practices (IAP); and 2) Brazilian Scale of Accomplished Parental Practices (AP). These scales are composed by 25 affirmatives subdivided into five factors related to the following parental systems: primary care, body contact, body stimulation, object stimulation, and face-to-face. The IAP Scale investigates parental beliefs, more specifically, the importance that each parental practice has to the respondent (e.g. Is it important to carry the child on mother/father's lap?), according to a five-point scale ranging from 1 (unimportant) to 5 (very important). The AP Scale assesses the frequency that each parental practice is declared by the respondent (e.g. Did the mother/father carry the child on her/his lap?), according to a five-point scale ranging from 1 (never) to 5 (always). PPD mothers valued significantly less parental beliefs (IAP Scale) related to primary care ($F(1,109) = 4,314, p = 0,040$), interdependent ($F(1,109) = 3,950, p = 0,049$) and autonomous parental practices ($F(1,109) = 3,870, p = 0,05$). Despite the fact that PPD mothers have valued less all kinds of parental beliefs (IAP Scale), they performed less (AP Scale) only autonomous parental practices ($F(1,109) = 6,550, p = 0,012$). Our work suggests that besides culture, PPD, as an important psychosocial variable, can affect the prevalence of parental beliefs as well as parental practices. PPD low-income Brazilian mothers were less concerned about all kinds of parental practices (primary care, interdependence and autonomy) and used to stimulate their

children less distally (face-a-face and object stimulation). While non PPD counterparts were much more concerned about all these parental practices and used to stimulate their children more distally. Besides, regardless of PPD diagnosis, these mothers performed primary care and interdependent parental practices equally. In summary, as parental universal repertoire is context-sensitive and context-specific we found that this repertoire can be patterned both by macro culture and by more specific and punctual features such as PPD.

Modeling Maternal Investment in a Brazilian Sample

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Maternal Parental Investment (MPI) vary according to several factors as offspring characteristics, ecological variables, and characteristics of the mother. From this assumption, widely demonstrated in the literature, this study raises the hypothesis that these effects are mediated by the expectations of the mothers about the future. Voluntarily participated in this study 98 mothers of children aged 0-9 years, with family income ranging from R\$ 102,00 to R\$ 21800,00, living in the metropolitan area of Vitória, capital of Espírito Santo, Brazil. The instrument consisted of a questionnaire assessing (a) variables of the child, (b) variables of the mother, (c) ecological variables (d) maternal investment (frequency participation in various types of care), (e) mothers' future orientation including future discounting, life expectancy and feelings about the future. Although some expected correlations occurred, the latent constructs 'ecological conditions', 'mothers' history' and 'child history' did not emerge. The latent constructs 'mother's future expectations' and 'maternal investment' did emerge. The structural equation model obtained indicated that the future expectations of the mother was affected by the child's sex and the quality of family life and had a mild effect on maternal investment. Mother-child closeness had a direct and strong effect over maternal investment. The quality of family life was negatively correlated with the mothers' future orientation and females' mothers were more future oriented than males' mothers. Both the mothers' future orientation and mother-child closeness were positively correlated to maternal investment. Socioeconomic variables were negatively correlated to future discounting as predicted by the literature. We concluded that although the expectations of the mother about the future can partly explain maternal investment other variables related to mothers-child relationship, will have a direct, stronger, effect over it. We suggest that the set of variables that will impact the mothers' future expectations varies according to socioeconomic characteristics of the sample.

Caretaking Behavior Among Children from a Brazilian Rural Village

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Children's universal tendency to provide care confirms the intrinsic motivation to perform caretaking behavior among them, even with non-related individuals. This work focused on spontaneous caretaking occurring without adult supervising and guidance. Based on an ethological model, this study aimed to investigate the caretaking behavior among children in a rural village located in the northeast of Brazil. The participants were 17 children, 9 boys and 8 girls, from 4 to 6 years old. Children's relationship status was considered: 6 participants (3 pairs) were siblings. Children's behaviors during free activities were daily videotaped during 9 months at a day care center. The focal sample method was applied with 5-minutes sessions. The number of sessions for each child was 10. Interviews were conducted with their mothers concerning child care arrangements and sociodemographic background. The caretaking behaviors were classified as caressing, supervising, helping, comforting and protecting. It was assumed that children caretaking reflects the characteristic child rearing model of the respective cultural community, thus focusing on interpersonal close proximity and warmth, parenting practices prevalent in traditional rural families with low levels of formal education in subsistence-based economies. In this case, children were expected to express more caressing, a type of care characterized by the expression of positive emotions, and body contact. Results indicated that caretaking was more frequently performed by older children toward younger ones. No significant difference in the frequency of care was found between related and non-related children. The most frequent category of care was caressing, followed by supervision and help. Boys and girls had no significant difference in the frequency of affectionate contact expression through touching, kissing and hugging, but significant differences were found related to the target child: caressing was directed towards same sex child. Positive correlations were found between the amount of care episodes and: the number of siblings of the children who performed the care behavior; the number of adults who take care of them and the number of people who live in their house. The occurrence of supervising and the number of siblings of the child who performed the caretaking correlated positively as well. We conclude that children's engagement in caretaking can be explained by the social structure of their community in which alloparental care is a common practice. Data were consistent with the evolutionary assumption of human predisposition to care, associated with the influence of the social, familiar and affective context in the arrangements on the variations of child care behavior, indicating their dependence on the child rearing model and the contextual factors of the environment.

Preferential Child-Care in Germany, Greece, Indonesia, Kyrgyzstan and Bashkirie from an Evolutionary Perspective

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The caregiving of close relatives, such as grandparents, aunts and uncles is asymmetric. On average, matrilateral and female relatives care more for grandchildren and nieces and nephews than male and patrilateral. Several evolutionary theories explain this preferential child-care, in particular the paternity certainty hypothesis. However, also deviations from the universal caregiving pattern prevailing in modern urban societies have been found which cannot be explained by this theory. In rural Greece paternal grandparents care more for grandchildren than maternal.

In a cross-cultural study of several matrilateral and patrilateral societies, we compared the kin caregiving of various blood- and non-blood related kin, using a questionnaire method. Whereas among Germans and East-Javanese people matrilateral caregiving prevailed as universally expected, Greek Vlachs from Olymp Mountain and especially Kyrgyz showed a patrilateral bias in grandparent care. Bashkirs displayed no bias, neither matri- nor patrilateral. This may reflect an intermediate stage in the development from a traditional Turk steppe population to a modern society within the Russian state. In Germans matrilaterality was very high, as was also found in earlier studies. This resulted in a higher caregiving by the maternal grandfather compared with the paternal grandmother. Furthermore, in Germans maternal aunts and uncles clearly cared more than paternal, whereas in the other samples the caregiving was not that differentiated. Among Javanese the maternal aunts were preferred, among Greeks and Bashkirs the results were more mixed.

Kin caregiving in traditional societies appears to be much more variable than expected. From the theoretical point of view, paternity certainty seems not to be the decisive factor for the preferential kin caregiving.

III. Emotional Expressions

Chair: Rolf Pfeifer

Main Lecture Hall	
01:50	Alexandra Muehlhauser, Elisabeth Oberzaucher, Karl Grammer The Dynamic Nature of Emotional Expressions (SFA, LMA)
02:10	Jitka Lindova, Marek Špinka Encoding and Decoding Emotion in Vocalization of Human Infants
02:30	Thomas Flamson, Greg Bryant, Clark Barrett Prosody in Spontaneous Humor: Evidence for Encryption on a Brazilian Collective Farm
02:50	Gernot Sklenofsky, Karl Grammer, Elisabeth Oberzaucher Emotional Breathing: Respiratory Patterns as Emotional Expressions (SFA, LMA)
03:10	Juliana Fiquer, Clarice Gorenstein Why is Human Ethology Relevant to Clinical Psychology and Psychiatry?

The Dynamic Nature of Emotional Expressions (SFA, LMA)

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In his book "The expression of the Emotions in Man and Animal" (1872, p. 366) Charles Darwin wrote that: "the movements of expression given vividness and energy to our spoken words." What are movements of expressions or emotions? Darwin stated that facial expressions are innate and not learned. Children, who were born blind, show the same emotions like ones who can see. Deaf and blind born children laugh when they are playing or smile when their mother touches them. Furthermore emotional expressions are universally expressed in different cultures.

According to Ekman (1992), the primary function of emotions is to activate the organism to quickly deal with relevant events. But what is the function of emotional expressions?

The main body of research on facial expressions is based on static images. In social interactions, facial expressions are characterised by an onset, apex and offset, thus making the dynamics an integral part of expressive behaviour. It lies at hand to assume that evolutionary selection pressures favoured the integration of the dynamics in the interpretation of emotional expressions. Previous studies indicate that facial dynamics change the perceived meaning of smiles. The aim of the present study was to test whether the perception of basic emotions in general depends on facial dynamics.

We analysed the six basic emotions as well as contempt expressed by one male and one female avatar, who were equipped with all AUs as morph targets. A major advantage using this approach is that facial dynamics can be varied in onset as well as apex length without changing the expression itself. We created all possible combinations of an onset of 5 or 25 frames and an apex of 10 or 70 frames and an offset of 17 frames, resulting in 56 movies per stimulus sex. 113 participants rated the stimuli on emotional valence and honesty. The participants rated either the male or the female stimuli. In total, 22 male and 31 female participants rated the male avatar and 20 male and 40 female participants rated the female avatar. There were no sex differences in the assessment of stimuli. We found that the dynamics significantly affect the attribution of emotions. In general a long onset is perceived as happier; while a short onset was rated as angrier. This effect held true throughout the different emotions. It seems that the duration of the onset affects the perception of emotional expression more than the duration of the apex.

The findings of this study suggest that the dynamics strongly affect the meaning of facial expressions. While static images might give some clue about the emotion

expressed, the understanding of expressions can be substantially enhanced when including timing.

Darwin, C. (1872). *The expression of the emotions in man and animals*. University of Chicago Press.

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Encoding and Decoding Emotion in Vocalization of Human Infants

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Encoding of emotion in animal vocalization is successfully studied in many animals. For instance, it has been shown that humans are able to distinguish among several situations in which a piglet finds itself, on the basis of its vocalization. In human infants surprisingly, this research topic is strongly dominated by studies on cry and other kinds of vocalization remain understudied. We focused our attention on the variability of human infants' vocal sounds and the potential of such sounds to encode emotions. Finally, we were interested in adult human's capability to match the provoking situation with the right vocal signal. Thirteen infants aged 5-10 months were recorded in six situations – 1) prick, 2) play with mother, 3) isolation, 4) reunion with mother, 5) demand for food, 6) after food. From each situation and child, one 20s interval was chosen for analysis according to selection criteria including purity of signal and intensity of vocalization. All infants' sounds were marked and analyzed using the sound analysis software Raven. The same 20s intervals were judged by 16 adults (2 men, 14 women), who assigned the vocalizations to one of the six eliciting situation. We found that the vocalization in six situations differed in both the pitch (peak frequency: $F=6.6$, $p=0.001$), and length of sound ($F=8.3$, $p<0.001$). Post Hoc tests further revealed that the following pairs of situations did not differ in pitch: prick and demand for food, play and isolation, and reunion and after food. The first and last pair could neither be distinguished according to the length of signal, which seems to speak for the universality of cry as a signal of discomfort, and indicate the existence of a common vocalization pattern used in positive situations. Play and isolation were, in contrast, clearly different in time characteristics. This means that both of these latter two situations are vocally distinguishable from all others according to two basic sound parameters. Judgers were able to distinguish all situations but reunion with mother. For prick and play with mother, over a half of judges was right on average when judging a vocalization record. Vocal behavior of human infants has the potential to convey emotions to caregivers and is relatively well matched to provoking situations by unknown people. It is a question of further research if this ability is based on a mammalian universal system of encoding emotions into vocalizations.

Prosody in Spontaneous Humor: Evidence for Encryption on a Brazilian Collective Farm

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The study of conversational humor has received relatively little empirical attention with almost no examinations of the role of vocal signals in spontaneous humor production. This talk will explore the prosody (rhythm, stress, and intonation) of humor in a real-world sample of spontaneous conversation. Examples of naturalistic humor were collected during ethnographic fieldwork on a collective farm in rural northeastern Brazil, and is drawn specifically from the monthly communal business meetings conducted in Portuguese. Our analyses focused on bouts of spontaneous humor, identified by the subsequent presence of laughter, comparing and contrasting the prosodic features of these bouts with non-humorous utterances by the same speakers of similar length. This corpus provided a unique opportunity for examining the way people mark their humorous productions in a non-humorous environment. Contrary to the notion that speakers must mark their production of humor in order to facilitate audience understanding, no significant marking of a joking “frame” was detected across a range of acoustic dimensions. The only consistent difference — that the set-up and punch line segments were louder than baseline speech before it — does not well support a marking hypothesis and more likely reflects speaker adjustments to the acoustic conditions of the meeting hall. These findings are consistent, however, with the encryption hypothesis of humor. Rather than paralinguistically marking humorous utterances, we propose, speakers will often rely on situational context and common knowledge in being understood, as a likely function of humor is not merely to entertain an audience, but to signal underlying similarity in the context of recognizing and acknowledging social alliances. In this capacity, explicit marking should often be avoided, and in our sample, this is precisely what we found.

Emotional Breathing: Respiratory Patterns as Emotional Expressions (SFA, LMA)

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The regulation of respiration is a complex neural mechanism of voluntary and automatic control. Changes in breathing can occur due to a broad variety of reasons – one of them being emotional state. Affects are expressed in facial expressions, body postures, motion patterns and respiration. Breathing patterns as part of emotional expressions have been largely neglected in past research. However it is possible to identify specific respiratory patterns that correspond to a certain emotional state. In the present study we tested whether emotions can be reliably recognized in respiratory movements, i.e. whether respiration is an essential part of the expression of emotions.

One male and one female virtual agent with neutral facial expression and neutral body posture were animated with the software Poser to perform specific respiratory patterns of six emotional states (tenderness, erotic love, anger, fear, joy-laughter, sadness-crying) described by Bloch et al. (1991). 60 female and 56 male subjects viewed all animations and rated these stimuli in two subsequent rating studies: In part one subjects assessed the stimuli along the 18 items reflecting Russell's circumplex model of affect (pleasure, arousal and dominance), and in part two we used the emotional states as stated above. Subjects could watch the stimuli repeatedly and ratings were given on sliders from 0 to 100.

A principal component analysis applied on the 18 items of study one results in the three factors arousal, valence and dominance. For all stimuli excepting erotic love the scores on these dimensions are congruent with previous studies on emotions: Anger, fear and sadness show ratings of high arousal and low valence in contrast to tenderness and joy, which are characterized by low arousal and high valence. Our results also indicate that all stimulus emotions except joy are recognized above chance. Furthermore inter-item correlations reveal interrelations between tenderness, erotic love and joy as well as a positive correlation between anger, fear and sadness, i.e. positive and negative emotions cluster in the assessments. Interestingly stimuli of anger showed the highest ratings on erotic love which draws attention to reported hyperventilation and rapid breathing during sexual arousal (Zuckerman 1971).

Bloch, S., Lemeignan, M., Aguilera, N., (1991). Specific respiratory patterns distinguish among human basic emotions. *International Journal of Psychophysiology*, 11: 141-154.

Zuckerman, M., (1971). Physiological measures of sexual arousal in the human. *Psychological Bulletin*, Vol. 75, No. 5: 297-329.

Why is Human Ethology Relevant to Clinical Psychology and Psychiatry?

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We propose a discussion on the role of Human Ethology in studies focused on diagnosis, understanding, and treatment of mental disorders in psychological and psychiatric settings. For many years, both Psychology and Psychiatry have focused on verbal reports of patients for the development of diagnostic evaluations and treatments. Somewhat paradoxically, unconscious emotional processes, which are difficult for the patient to realize and name, are the ones that are central to the onset and maintenance of psychopathologies. Nonverbal interpersonal behaviors (e.g. gaze, gestures, and head movements) act as transmission channels of spontaneous emotional information. Ethology offers a deep investigation of human nonverbal behaviors, considering four perspectives: the 1) mechanistic (e.g. the external stimuli causes the behavior under study); 2) ontogenetic (e.g. the processes and factor involved in the development of the behavior); 3) functional (e.g. the beneficial effects of behavior in relation to fitness); and 4) phylogenetic (e.g. evolutionary processes effects on the development of the behavior). In this context, Ethology developed objective techniques of nonverbal behavioral assessment and offered a functional perspective to the definition and clinical assessment of mental diseases. In order to illustrate these methodological and theoretical contributions of Ethology in clinical settings, we report recent ethological observation of a sample of depressed outpatients ($n=40$) treated with different types of Transcranial Direct Current Stimulation (tDCS). Patients were evaluated before (T0) and after (T1) treatment through clinical scales for the assessment of depressive symptoms and analysis of videotaped interviews. The analysis of interviews is based on an ethogram developed by our research group, wherein the frequencies of nonverbal behaviors of patients are registered. We found association between patient's nonverbal behavior and 1) severity of depression; 2) clinical improvement; 3) prognosis. Generally, behaviors of social interest were associated with lower levels of depression (Pearson Correlation, $p < 0.05$), clinical improvement (ANOVA \bar{r} ; $p < 0.05$) and short-term outcome of depression (ANOVA; $p < 0.05$). The findings suggest that dysfunctional social behavior may be involved in depression and that ethological techniques are useful to assess important behavioral elements in research on psychopathologies.

IV. Relationships - From Love to Jealousy

Chair: Glenn Weisfeld

Small Lecture Hall

01:50	Ana Fernandez The Adaptive Role of Jealousy as an Internal Regulatory Variable to Sustain Romantic Attachment and Reproduction
02:10	Lisa Dillon, Glenn Weisfeld, Carol Weisfeld, Olcay Imamoglu, Marina Butovskaya, Jiliang Shen Using Actor-Partner Interdependence Models to Examine the Influence of Attractiveness, Financial Status, and Children Variables on Marital Satisfaction (SFA, LMA)
01:30	Melanie MacEacheron, Lorne Campbell, Sarah Stanton, Svenja Strahle Similarities and Differences in how Men and Women Respond to Their Romantic Partners Standing up for Them in Either an Aggressive, Assertive, or Passive Manner (SFA, LMA)
02:50	Jaroslava Valentová, Simona Kolářová, Jan Havlíček Parental Influence on Their Offsprings' Relationship Quality
03:10	Kraig Shattuck, Lisa Dillon, Nicole Nowak, Glenn Weisfeld, Carol Weisfeld, Olcay Imamoğlu, Marina Butovskaya, Jiliang Shen When the Cat's Away, the Spouse Will Play: A cross-cultural Examination of Mate-guarding in Married Couples

The Adaptive Role of Jealousy as an Internal Regulatory Variable to Sustain Romantic Attachment and Reproduction

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Romantic attachment is a motivating condition for human reproduction, lots of energy and physiological resources converge in most mammals and other species to sustain pair-bonding and parental investment. Jealousy has been documented as the core adaptive mechanism mobilizing emotional resources to prevent the loss of a romantic partner, in ways that only a few other survival emotions motivate behaviors. Similarly, sex differences in the type of infidelity that is more distressing for men and women have been recognized and inferred as a strong indication of the adaptive problems underlying the psychology of mating. The present research aimed at (1) differentiating men and women's physiological reactions to a previously experienced infidelity, and (2) identifying sex-differences in the physiology of participants observing explicit unfaithfulness in movie extracts. A total of 24 and 36 participants, respectively, were assessed in a laboratory setting (50% men and women). EKG, respiratory rate, and other emotional measures were assessed during the evoking of an infidelity or the observation of sexual and emotional infidelity films. The results indicate that anger and aggression characterize men's reports and physiology evoking a real infidelity, while women report more reactive pain in this condition. In response to infidelity movies, a pattern of anger mobilizing active aggression is more predominant in men's physiology of jealousy, and women's emotional reaction towards films of infidelity is characterized by pain and withdrawal. The interpretation of these results in light of new findings beyond sex-differences in jealousy is discussed, suggesting that the emotional endowment of women's jealousy may sustain close social support in light of a possible loss of a partner's parental investment, and that men's jealousy may have evolved to eliminate potential rivals through active aggression. Accordingly, appraisal theories of emotions allow for interpreting that jealousy may be an adaptive regulatory variable that motivates behavioral reactions and emotional responses to threats to potentially and actual reproductive attachments. And finally, research on social exchange within the context of romantic bonding offers promissory alternatives to understand the role of jealousy in the sustainment of reproduction and the evolved emotional reactions designed to protect this process.

Using Actor-Partner Interdependence Models to Examine the Influence of Attractiveness, Financial Status, and Children Variables on Marital Satisfaction (SFA, LMA)

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This study investigated how parental investment, closeness to children, spousal attractiveness, financial status, and children's happiness contribute to marital satisfaction in husbands and wives from China, Russia, the United Kingdom, and the United States. Our biological fitness hinges upon our production of quality offspring who live to reproductive maturity, which makes mate selection and the commonly resulting marital environment important, as both will affect any children produced in the relationship as well as impact the couple's future reproductive prospects. It stands to reason that reproduction should have some measurable benefits and drawbacks for each sex; children can be viewed as a product and a way of evaluating the couple's joint and individual efforts. However, many analyses in evolutionary psychology pertaining to relationships are collected from one member of the couple, which ignores the rich perspective of the other spouse. There are also few investigations of couples with children and how they impact the relationship. The current investigation addresses these deficits in the evolutionary psychology literature by using Actor-Partner Interdependence Models (Kashy & Kenny, 1999), which account for the interdependence in dyadic data by allowing the unexplained variances in the outcome variable to correlate, to examine partner effects for the selected variables. The basic model conveys the impact of the causal variable on the outcome variable for each member of the couple, which are actor effects, as well as the impact of the causal variable on the partner, or partner effects. Partner effects provide the spouse's influence while controlling for the impact of one's own behavior, or actor effects. All of the couples in the present analysis are heterosexual couples and were distinguished on the basis of gender. Results showed that marital satisfaction is higher for each sex in three of the four cultures when the spouse believes the other to be a good parent. Closeness to children was a significant predictor of lower satisfaction for each reporting spouse, but American and British wives were happier with their marriage if their husband felt close to the children. For American, British, and Russian wives, the happier husbands rate their children, the higher their wife's marital satisfaction score. However, for American husbands, the happier the wife rates the children, the lower marital satisfaction is for husbands. With respect to attractiveness, there were significant actor effects in all four samples, but significant

partner effects were only found for the British and Russian samples. The more attractive a British or Russian husband found his wife to be to others, the higher her marital satisfaction was likely to be. The higher a British or Russian wife rated her husband to be to others, the higher her husband's marital satisfaction was likely to be. Being more well off raised marital satisfaction for individual spouses. For British and Russian husbands, wives who reported being more well off had husbands with higher marital satisfaction. The findings elucidate how aspects of mate selection and parental investment affect marital satisfaction by using an analysis that accounts for the interdependence in couples' data.

Similarities and Differences in How Men and Women Respond to Their Romantic Partners Standing up for Them in Either an Aggressive, Assertive, or Passive Manner (SFA, LMA)

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This research investigated how participants interpret their partner's aggressive, assertive or partner-focused (passive) reaction toward someone that has rudely spilled a drink on the participant in a social setting. Heterosexual participants were asked to imagine being in a social setting with their partner and that someone of their partner's sex rudely spilled a drink on the participant. They were then asked to imagine their partner responding toward this person in one of three ways: (i) respond aggressively to the spiller, (ii) respond assertively to the spiller, or (iii) respond passively. They then rated the degree to which their partner's response reflected how much their partner values and cares for them. Data were collected from Amazon's MTurk (n=242), as well as from undergraduates at a large Canadian University (n=156: total N=398). Results suggested that whereas male participants, on average, showed little or no variation in their appreciation for their partners' behavior across the three conditions, women significantly preferred, on average, an assertive response to an aggressive one, which was, in turn, preferred to a passive response. Implications to evolutionary psychology research, for example, with regard to Partner-Specific Investment (Ellis, 1998) and costly signaling (Zahavi, 1975), will be discussed.

Ellis, B.J. (1998). The Partner-Specific Investment Inventory: An Evolutionary Approach to Individual Differences in Investment. *Journal of Personality*, 66(3), 383-442.

Zahavi, A. (1975). Mate Selection - A Selection for a Handicap. *J. theor. Biol.*, 53, 205-214.

Parental Influence on Their Offsprings' Relationship Quality

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Recent research shows evolutionary implications of partner preferences and actual mate choice. Choosing a suitable, high quality mate is supposed to be directly connected to individual reproductive success. Given the demanding parental investment into offspring, dyadic stability as represented by relationship duration and satisfaction is supposed to create a necessary environment for giving birth and successful raising of offspring. Nevertheless, mate choices are influenced by the whole array of social circumstances, in particular primary family. From the evolutionary point of view, parents might value different traits in their offspring partners than their offspring, and they can strongly influence their offspring mate choice of, as has been shown in hunter-gatherer and pre-industrial societies.

We tested the role of parents in relationships of their offspring. Since females invest more into reproduction, we hypothesized that daughters would be less supported by parents in their relationships than sons. Further, we suggested that parental support of their offspring relationships will be associated with the relationship satisfaction and duration, especially in daughters.

Sixty one men (mean age 24.4 years) and 143 women (mean age 23.6 years) who have had at least one long-term relationship with an opposite-sex individual during their lifetime filled in an online set of questionnaires. These contained length of relationship, Perceived Relationship Quality Components Inventory testing emotional and sexual satisfaction with relationship of the respondent (Fletcher, 2010), questionnaire testing reported parental support of their offspring relationship (Sprecher, Felmlee, 1992), and a questionnaire measuring reported relationship of parents to respondents partner which was created for the purposes of this study. We asked participants to report these information about their last three partnerships. In total, we analyzed 186 relationships.

One-way ANOVA revealed significant differences in parental support of the relationships between sons and daughters (all p's < .05). In men, stepwise regression analysis showed a significant positive link between the score of emotional satisfaction with relationship and quality of fathers' relationship to their female partners ($B = .510, p = .001$). In females, emotional satisfaction with the relationship was predicted by maternal support of the relationship ($B = .323, p = .003$), and sexual satisfaction with the relationship was predicted by mothers' relationship to their male partners

($B=.375$, $p = .013$). There was no effect of parental relationship support on duration of the relationships, although in women emotional satisfaction grew with duration of relationships ($B=3.470$, $p = .025$).

Our results show that daughters are less supported in their relationships by their parents than men. Further, mothers influence both emotional and sexual satisfaction of their daughters' relationships, and fathers influence emotional satisfaction of their sons' relationships. Thus, parental influence on relationship satisfaction might be of a high importance even in sociocultural settings where relatively unrestricted mate choice is promoted. Externally mediated mate choice thus should be taken into account when studying evolutionary relevant mate choice strategies even within western cultural settings, and more research is needed to shed light on influence of other individuals such as siblings or close friends on relationship formation, satisfaction or duration.

When the Cat's Away, the Spouse Will Play: A cross-cultural Examination of Mate-guarding in Married Couples

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Once a couple have married, they have solved the problem of securing a pair bond for the time being, and have entered into a period of time where mate retention becomes more of a concern. It is in the best interest of both spouses if the other remains emotionally and sexually faithful. Attractiveness is one means by which we determine mate value in ourselves and others, regardless of marital status. If a spouse is attractive to others outside of the marriage, for example, it is expected that his or her spouse would worry about the prospect of infidelity and engage in behaviors to thwart sexual infidelity. In these analyses, we sought to examine the role of attractiveness and other variables in emotions and behaviors related to mate retention. Over 2000 married couples from China, Russia, Turkey, the U.K., and the U.S. completed the Marriage and Relationship Questionnaire (MARQ). Husbands and wives ranged in age from 18-91 years and at the time of the study had been married to their current partner for 1-60 years. We used the Actor-Partner Interdependence Model (APIM) to test the relationships between feelings of possessiveness; worry about spousal infidelity; and variables related to mating such as the attractiveness of self, partner, and others; and reported infidelity. The APIM accounts for the interdependence of responses that naturally occurs in married couples. It models the relationship between one's own independent and dependent scores (actor effect), as well as the relationship between one spouse's independent variable score and the other spouse's dependent variable score (partner effect). Most of the significant findings were actor effects. For example, 8 of the 10 groups (i.e., husband or wife by each of 5 cultures) worried more about their spouse being unfaithful when they were married to someone who socialized without them, and someone who was attractive. Also in 8 of the 10 groups, those who felt their spouse did not find them attractive worried more about their spouse being unfaithful. Likewise, it was largely the case that individuals with "wandering eyes" had spouses who worried more about infidelity. In terms of behavior, feelings of possessiveness correlated with desires to touch and cuddle one's spouse. Husbands in all five cultures

wanted to touch their wives more often than wives wanted to touch them. Consistent with the greater infidelity of husbands, wives worried more about spousal infidelity than did husbands. Husbands reported seeking sexual fulfillment outside the marriage more often than wives in all five groups. Wives in four of the five samples were more likely to report their husband finds them attractive, but wives also reported their husbands find other women attractive more frequently than husbands noted the same in their wives. In three of the five cultures, wives report their husbands go out without them less frequently. Overall, the data suggest that sexual attractiveness and attraction shape mate retention emotions and behaviors in similar ways across cultures.

POSTERS

1. Does Fundamental Frequency Confound Voice-based Assessments of Body Size? (SFA, PA)

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Vocal cues play an important role in intersexual competition and intrasexual mate preferences among numerous species, including humans. The fundamental frequency and formant frequencies constitute two salient features of the human voice used to assess potential rivals and mates. According to the source-filter theory of voice production, the fundamental and formant frequencies are anatomically and acoustically independent of one another. Although listeners associate both voice features with body size, only formant frequencies correlate reliably with the length of the supralaryngeal vocal-tract, and thus with body size, within adults of either sex. Therefore, while formant frequencies are thought to reliably cue adult body size, pitch (the perception of fundamental frequency) has been hypothesized to lower or confound the veracity of voice-based size assessments. In a series of experiments, we examined the role of fundamental and formant frequencies in predicting both the perceived and actual size of male and female adults. Three types of voice stimuli were utilized. In addition to modal (regular) speech that contains both pitch and formant cues, we used whispered speech and three-formant sine-wave (synthesized) speech in which the pitch cues are absent but formant cues are present. In Experiment 1, we manipulated the formant frequencies of either modal or whispered speech. Male and female listeners were asked to choose which of two manipulated voices (lowered versus raised formant frequencies) belonged to a larger individual. On average, listeners selected the voice with lowered formant frequencies as larger 70% of the time, regardless of speech type. Thus, the mere presence of pitch cues did not affect voice-based perceptions of size. In Experiment 2, female listeners were asked to choose which of two unmanipulated male or female voices belonged to a larger individual. Voice stimuli were paired randomly such that the difference in stature between two vocalizers ranged between 0 and 27 cm. In general, formant frequencies but not fundamental frequency predicted actual stature among vocalizers and accuracy of size assessments correlated positively with the difference in stature between pairs, especially among female vocalizers. Female listeners performed significantly better in assessments of body size from male modal speech than from male whispered or sine-wave speech, and significantly better in assessments of male (above chance) than female (below chance) body size. Additional experiments are currently underway to examine whether male listeners are more accurate than female

listeners in voice-based size assessments, as previous research suggests, and whether the relative perceived loudness of modal compared to whispered speech can account for the lowered accuracy of size assessments from whispered speech. Our data provide further support for the prediction that formant frequencies, but not fundamental frequency, can reliably predict and cue adult stature; however, we find no support for the hypothesis that fundamental frequency acts to confound voice-based assessments of body size.

2. Male Vocal Attractiveness for Women from Different Subcultures: A Comparison of Emo and Hip-Hop

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Recent studies have shown that human voice is an important predictor of partner preferences. It has been suggested that in particularly in men vocal display may indicate health, sexual maturity and mate quality. On average, compared to higher pitched voices male voices with lower fundamental frequency (F0) are rated as more attractive , and are associated with higher levels of testosterone. Nevertheless, female ratings of male attractiveness are affected by many modulating factors, such as menstrual cycle phase or age. We suggest that also cultural factors may influence female mate preferences.Previous studies have focused on biological factors influencing the rating. Innovative aspect of our study is focus on cultural factors.

The aim of study was to test possible influence of sympathizing with a subculture on female preferences of male voices. We hypothesized that women from subculture emphasizing male femininity (Emo) will prefer higher pitched male voices than women from subcultures emphasizing male masculinity (Hip-Hop). For our study, we used 20 standardized recordings of male voices. We shifted the fundamental frequency of each voice recording one semitone down and one semitone up. Thus, in total 60 male voice recordings were used for the rating phase. Fifteen girls from Emo subculture (mean age 16ys) and fifteen girls from Hip-Hop subculture (mean age 17.5ys) subsequently rated attractiveness of these recordings on a 7-point scales.Generalized linear models (GLM) analysis did not show any significant effect of the raters subculture on male vocal attractiveness ratings. Nevertheless, all women rated original and higher pitched vocal recordings as more attractive than lower pitched voice recordings ($p < .001$).

In our study higher pitched male voices were rated as more attractive than lower pitched voices, which is in contradiction to most previous studies. We suggest that the reason for these results is low age of our raters. It has been shown that women who are at the beginning or the end of the reproductive period rate deep male voices as less attractive than women who are at the peak reproductive period. Thus our findings are consistent with previous work showing a similar pattern in a group of pubertal girls. Age of our raters apparently influenced the results enough to

overshadow the influence of subcultures. Finally, more studies on this topic are needed, possibly with subcultures with older sympathizers, to shed some light upon cultural influences on mate choice.

3. Voice Color as a Personality Cue

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It has been shown recently, that proximal cues (percepts) derived from human speech carry personality information. Still little is known about the role of distal cues (acoustical characteristics). This study examined correlations between results of self-assessed personality questionnaires and numerous acoustical characteristics of speech. 30 czech women self-assessed their personality variables by Leary's Interpersonal Check List (ICL) and five factor model based NEO-FF-I. Samples of their reading speech were recorded and processed by PRAAT software to assess acoustical characteristics of the spectral envelope (formant dispersion, formant variability, acoustical energy distribution) which are hypothesized to be the determinative distal cues for voice quality (timbre) perception. Several moderate but significant correlations were found indicating existence of three personality trait dimensions: ICL derived dominance/power, affiliation/warmth and NEO-FF-I derived neuroticism. No significant correlations of conscientiousness, openness and extraversion were found, suggesting the need for more elaborate acoustical analysis or that those traits are reflected in prosody and cannot be assessed from voice quality alone.

4. It's in Boys' Faces: Morphological Correlates of Prenatal Testosterone Exposure (SFA, PA)

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In adult men, higher prenatal androgen action (as estimated by 2D:4D, i.e., the relative length of the index finger to the ring finger) is associated with more robust faces that are perceived as dominant and masculine. The organizational and activational effects of testosterone during male ontogeny led researchers to surmise that there is an activational step for this relationship during puberty. In order to test if shape aspects covarying with 2D:4D were present after the onset of puberty only, we focused our research on children.

Our final data set comprised 17 right-handed boys from Upper Austria (aged 4–11 years). Data acquisition included standardized frontal facial photographs, finger lengths measured directly with a vernier caliper, as well as measurements of body height and body weight. Seventy predefined landmarks and semilandmarks were then digitized on each photograph and subjected to a generalized Procrustes analysis with symmetrically slid semi-landmarks. The resulting shape coordinates were symmetrized and then regressed upon right-hand 2D:4D. The corresponding shape pattern was visualized by means of thin-plate spline deformations grids, as well as image unwarping and image averaging. Statistical significance was assessed based on a randomization test.

The shape regression onto 2D:4D was significant ($p = 0.014$ after 10,000 permutations, $n = 17$) and explained 14.5% of the shape variation. Facial shapes corresponding to lower 2D:4D (higher prenatal testosterone) were characterized by a relatively smaller and shorter forehead, thicker eyebrows, smaller eyes, a wider and shorter nose, and a more prominent lower jaw compared to boys with higher 2D:4D (lower prenatal testosterone). Thus, we found the same shape pattern—associated with 2D:4D in boys before the onset of puberty already—as has been depicted in previous studies on adult faces.

This suggests an expression of the organizational effect of intrauterine testosterone from early childhood on. The question now is whether there are also similarities concerning social inferences: Are boys showing phenotypic correlates of high prenatal testosterone perceived as more dominant and masculine by children and adults? Are they treated differently by their teachers and others analogously to a “beautiful is good”-stereotype? Are they considered more mature? We currently also have work in progress on how adolescents fit into this picture given the increased influence of androgens on the male organism during puberty.

5. Body Fat Proportion in Facial Shape: Evidence from Female Adolescents (SFA, PA)

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Not only sex and age can be detected from the face but also hormonal and nutritional status. These judgments influence social perceptions and behavior. Recently, Coetzee et al. (2009) showed that even relative body weight can be reliably assessed from adult faces alone. Yet, the facial correlates remained largely unidentified. Therefore, we set out to determine the corresponding facial features first in adults and compared them to the adolescent pattern, a stage in life highly sensitive to peer acceptance. For this we took standardized frontal photographs of the faces of 22 female adolescents (Mean age 15.8 ± 2.7 y.). Additionally, anthropometric data such as body weight and body fat proportion were measured with a body fat scale (Tanita TBF 105) and body height was recorded. Seventy-two somatometric measurement points were digitized on each face in tpsDig2 and the resulting coordinates analyzed using the geometric morphometric toolkit. After Procrustes superimposition and symmetrization, shape regressions (regressions of the shape coordinates upon body fat proportion) were performed to determine the association between body fat proportion and facial shape, and thin-plate spline deformation grids were used for visualization.

Body fat proportion was found to explain 8.7% of facial shape variation, an association significant after 10,000 permutations ($P = 0.047$). Girls with more body fat had a relatively rounder lower face due to a broader chin and cheek area. The eyes were relatively smaller with lower, flatter eyebrows. The lips were fuller and their corners downturned but the mouth was generally smaller. A lower body fat proportion on the other hand was associated with a more angular lower face, a more pointed chin, and relatively larger eyes with higher, more curved eyebrows. The lips were wider but thinner and the corners upturned. Severe underweight as well as adiposity are evolutionary relevant signals for health and reproductive condition, and thus influence social interactions. The facial shape pattern associated with body fat proportion in female adolescents matches the one depicted for adult men. The relatively rounder lower face with increasing body fat proportion resembles Kindchenschema on the one hand, but facial masculinity and dominance on the other. The smaller eyes, the lower eyebrows and the downturned corners of the mouth may add to the latter. Thus, future research will have to scrutinize how body fat proportion interacts with social stereotyping in general, and in teenage social and sexual behavior in particular.

Coetzee, V., Perrett, D. I., & Stephen, I. D. (2009). Facial adiposity: a cue to health? *Perception*, 38, 1700-1711.

6. The Role of Processing Orientation on Face Perception in Malaysian Chinese (SFA, PA)

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The ability to recognise and remember faces is important for normal social functioning, with individuals who are unable to recognise faces being at risk of social faux pas, as well as falling prey to freeloaders and social defectors (Farrelly & Turnbull, 2004).

Previous research has found cultural differences in eye movement strategy for facial recognition tasks, with East Asians using a global processing strategy, focusing on the nose, while Caucasians use a more local strategy, focusing on the eyes and mouth (Blais et al, 2008). Malaysian Chinese have been shown to use an intermediate strategy, focusing on the eyes and nose more than the mouth, possibly because individuals learn the optimal recognition strategy for the faces in their environment (Tan et al, 2012). A Navon task can be used to induce a local or global processing orientation in participants.

The aim of this study was to examine whether 1) shifting processing orientation changes looking strategies when looking at and identifying faces; 2) there are changes in looking strategy when looking at faces of different races.

The study consisted of 37 Malaysian Chinese participants in two conditions (19 local, 18 global). A 1-min video of one Malaysian Chinese male and one Caucasian male playing pool with onlookers was presented on a Tobii T60 eye tracker. This was followed by a Navon letter identification task (local and global conditions). Lastly, participants looked at a series of 20 faces (10 Asian and 10 Caucasian, including the pool players') presented randomly on the screen, and then identified the pool players' faces out of a line-up of the same faces.

A 2 (Race of Face: East Asian or Western Caucasian) x 3 (Feature of Face: Mouth, Nose or Eyes) x 2 (Condition: Local or Global) was conducted on the fixation duration on the Mouth, Nose and Eyes for all participants. No

effect of the Navon task on processing orientation was found. A main effect of feature ($F_{2,76}=60.495$; $p<0.001$) showed that participants looked for longer at the nose and eyes than at the mouth. An interaction between Race and Feature ($F_{2,76} = 4.754$, $p=.011$) showed that participants spent a longer time fixating on the eyes and nose of Asian faces than Caucasian faces.

The results suggest that the Malaysian Chinese participants modify their looking strategy according to the race of the face at which they were looking. This ability may be important in the detection of freeloaders and social defectors in a multicultural context.

7. The Scent of a Face – Introducing a New Methodological Approach in Odor Rating Studies

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The role of human body odor in mate choice and interpersonal perception has gained scientific interest in the recent decades.

Several studies confirmed links between body odor and fluctuating asymmetry, heterozygosity, facial attractiveness, vocal attractiveness, and 2D-4D ratio. Furthermore body odor is an important stimulus when it comes to measuring the shifts in perception due to female cycle.

In most studies axillary cotton patches or T-shirts capturing body odor are being used as stimuli for subsequent rating studies. The aim of this study was to investigate an alternative method for collecting odor stimuli, focusing on the scent of face and scalp, and to examine how ratings of face samples differ or correlate with ratings of axillary samples.

We recruited 39 men, 41 women, aged between 18 and 35 years, half of them on hormonal contraception, the other half in their fertile phase of the cycle, who had to follow strict guidelines and to wear a cotton T-shirt for 6 consecutive nights. Additionally they had to rub their face and their scalp for 6 consecutive mornings with a cotton garment and store both in two separate zip-lock bags. Collected samples were then wrapped in aluminum foil and frozen at minus 28 degrees until the rating studies.

For the rating studies 38 male and 55 female raters aged between 18 and 35 years and reported to be heterosexual had to evaluate the axillary and facial stimuli that were defrosted, left 2 hours at room temperature, and presented in aluminum wrapped 250 ml glass jars in gender-separate rating sessions.

Each participant rated 40 cross-sex samples for pleasantness, short/long-term attractiveness, masculinity/femininity and trustworthiness on visual analogue scales. First 20 face stimuli, then 20 axilla stimuli were rated in a randomized order.

First analyses show significant positive correlations between face and axilla samples for female odor samples. Additionally, fertile female raters seem to provide higher

attractiveness ratings than non-fertile females (independently from the sample type). Interestingly, axilla samples were rated as more attractive and more pleasant than the face samples. This might be due to the fact that the concentration of sebaceous glands is higher in the face/scalp area and the lipids contained in the sebum are better “carriers” for body odor. A follow-up study is currently being conducted and will provide additional information on samples’ intensity and on qualitative properties of the different odor sources (descriptive approach).

8. Testosterone as a Moderator of Facial Masculinity and Symmetry? (SFA)

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The literature provides a multitude of studies dealing with attractiveness and symmetry of human faces discussing different influential factors. Our study focuses on the organizational effects of testosterone on the symmetry and masculinity of human male faces.

For the present study we collect data from 40 male undergraduate and graduate students (age 18-35 years). We assess 30 anthropometrical measurements directly from the participants face (three-dimensional measurement) and from standardized photographs. Furthermore we determine individual daily profiles of salivary testosterone and the D2/D4-ratio as an indicator for prenatal androgenization. Additionally we test personality characteristics in relation to impulsive traits and behavioral dominance

We expect to find significant connections between the individual hormonal levels (current salivary concentration and D2/D4- ratio), different anthropometrical indices of male facial masculinity, overall facial symmetry and personality characteristics. For example, men with masculine faces are expected to be more dominant and should have a lower D2/D4-ratio. Further, with our data we would like to determine whether different methods to evaluate facial masculinity (i.e., measurement from real faces versus two-dimensional photographs) affect the above reported correlations and thus may lead to discrepant results. This latter point is especially important for future studies that assess other aspects (e.g., female mate choice) using the present photographs.

9. Linger on ... Your Pale Blue Eyes: Measuring Facial Attractiveness Objectively (SFA, PA)

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A recent study reported that blue-eyed men rate blue-eyed women as more attractive than brown-eyed women, whereas neither brown-eyed men nor women of either eye colour show comparable preferences [1]. This was interpreted as an adaptive strategy of blue-eyed men preferring blue-eyed female partners in order to assure male paternity based on the offsprings' eye colour phenotype. The aim of the present study was to test this hypothesis with an objective measure of preference. Research on human visual attention showed that attractive faces involuntarily capture attention which leads to longer search times for targets at places away from attractive faces (compared to less attractive faces [2,3]).

We tested 40 participants in an eye tracking study. Groups of ten resulted from crossing the factors eye colour (blue vs. brown) and gender (male vs. female) of the participants. In each experimental trial participants carried out a fast saccadic eye movement towards a colour-defined target rectangle to the left or to the right of the screen centre. (A differently coloured distractor frame was presented at the alternative position concomitantly with the target.) Shortly before the onsets of target and distractor male or female faces with blue or brown eyes were presented at target and distractor positions. We analysed the saccadic reaction time as a function of eye colour and gender of the face that was presented at the target position as well as eye colour and gender of the participant. Our stimuli consisted of morphed male and female faces (aged 20 to 30) with neutral expression. Each face was presented with standardized blue and brown eye colours so that any intra-individual differences in saccadic reaction time should reflect preferences for a specific eye colour or gender. Using this approach a selective preference of blue-eyed men for blue-eyed female faces could not be corroborated. Men, irrespective of their own eye colour, showed an attentional bias towards (both blue- and brown-eyed) female faces, as reflected by shorter saccadic reaction times to target rectangles preceded by female faces. No preference for faces of either gender was present in women. Additionally, we collected subjective attractiveness judgements for all presented faces. Blue-eyed faces

and female faces received the highest attractiveness judgments (irrespective of the eye colour and gender of the participants). Based on the current results it seems unlikely that an evaluative preference of blue-eyed men for blue-eyed women reflects an adaptive strategy. Further investigations will target potential explanations for the gender-based difference in facial preference by showing only one face per trial and incorporating endocrinological data.

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10. Brand Logo or Face? On the Interaction of Signals

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Objectives. This study brings together two areas of research. First, there has been a lot of research within evolutionary psychology and evolutionary anthropology on facial attractiveness and facial symmetry. People with symmetric faces are usually perceived as attractive, healthy etc. Second, there is research on conspicuous consumption and status signalling with products and brands. According to Zahavi/Zahavi (1997) one can assume, that premium brands may serve as costly and honest signals which communicate wearers status, wealth etc. Recently Nelissen/Meijers (2011) found that photos of a male with a premium logo are rated higher regarding status and wealth than when there was no logo or a low-budget brand logo. In the current study, the interaction of face and brand logo was tested.

Methods. The face of a young woman was used as stimulus (1) in its original shape, (2) slightly distorted, and (3) in a symmetric shape. Of all three faces there was one picture with no logo and one picture with a Lacoste brand logo (digitally inserted) on the woman's t-shirt. Over 300 participants (>50 per face/logo combination) took part in the study. Each participant completed one questionnaire with just one photo on it (so participants do not know that there were other photos) and answered 10 questions (see Nelissen/Meijers 2011) concerning status, wealth, attractiveness, kindness, and trustworthiness of that person on the photo. Data were analysed with analyses of variance.

Results. Results were according to existing theory to some extent: Symmetric faces (with and without Lacoste logo) were rated higher on attractiveness than original and distorted faces. But there were some interesting gender differences. While there were no differences within female participant ratings, male participants rated the photos with brand logos more negative than those without brand logos, regarding attractiveness. Similar results were found analysing ratings of the other four dimensions. For example male participants rated the symmetric face without brand logo highest on status but rated the symmetric face with brand logo lowest on status.

Conclusions. This last mentioned case could fit to the “too good to be true” hypothesis. Males may tend to disrate those photos with symmetric faces and a premium brand logo (Lacoste in this case). It has to be tested if those gender differences are stable if photos of males are tested. The same design as described was used in testing the face of a young male on the questionnaire. The same number of participants as above was polled.

11. Is Robusticity of Male Adolescent Faces Predicted by Second-to-Fourth Digit Ratio (2D:4D)? (SFA, PA)

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Previous research identified a negative correlation of testosterone-to-estrogen ratio in the amniotic fluid with the ratio of the lengths of the index finger and the ring finger (2D:4D) at an age of two years. Although 2D:4D generally increases with age, its rank order within a sample is relatively stable throughout life. Therefore, 2D:4D can be used as an indicator for prenatal testosterone exposure with a lower digit ratio corresponding to a higher prenatal testosterone level in the amniotic fluid. A strong link of prenatal testosterone exposure to child and adult facial shape has been identified for the male sex, as well as a weaker and non-significant one for adult women. Lower 2D:4D was associated with increased facial robusticity, which is perceived as more masculine and dominant in both sexes. Along this line, we predicted that this relationship between 2D:4D and facial shape should also be present in adolescents. Alternatively, the impact of puberty might temporarily disrupt this pattern.

In a first attempt, we collected data of 77 Austrian adolescents aged 10 to 20 years (of which 32 qualified for the analysis: right-handed, standardized frontal photograph, both parents of Austrian descent, consent form signed by parents, no report of broken fingers, facial injuries or dental braces). Finger lengths were measured directly with a Vernier caliper by two authors from the most proximal crease to the tip of the gently stretched finger. Facial shape was assessed through the geometric morphometric toolkit. Seventy-two landmarks and semi-landmarks were digitized on each face and subjected to a Generalized Procrustes Analysis before symmetrization. The resulting shape coordinates were then regressed onto right-hand 2D:4D (averaged over both observers), separately for each sex. Thin-plate spline deformation grids were used for the visualization of the results.

For male adolescents, we found lower 2D:4D ratios (higher prenatal testosterone) to be associated with a relatively shorter front, thicker eyebrows, smaller eyes, and a larger lower face compared to the faces corresponding to higher 2D:4D values ($n = 10$, $p = 0.11$ after 10,000 permutations). The shape regression explained 18.1% of male facial shape variation. In female adolescents, however, 2D:4D was not related to facial shape (4.5% of female variance explained, $p = 0.48$ after 10,000 permutations, $n = 22$).

While the preliminary nature of this study in terms of sample size obviously limits the conclusions that can be drawn, there are yet several noteworthy points for discussion. Despite some local differences, the shape pattern depicted for male adolescents parallels previous findings for young boys and adult men. Also the much weaker relationship between facial shape and 2D:4D in females replicates former results. For adults, an increasing number of studies have identified smaller eyes and a broad, robust lower face as key determinants for facial dominance and facial masculinity. Thus, it further remains to be investigated whether these trait attributions are also inferred from adolescent faces and how they, in turn, interact with social and life-history strategies such as risk taking, group leadership, sexual intercourse and ultimately reproductive success from sexual maturity on.

12. Facial Fluctuating Asymmetry and Sexual Dimorphism in Hadza, East African Hunter-gatherers (Based on Photo)

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Fluctuating asymmetry has been considered a biomarker of developmental instability and reflects the genetic quality, which is specially informative in harsh environment and poor health and social security. The Hadza are hunter-gatherers from Northern Tanzania, currently living in extreme environmental conditions, with expressed climatic seasonality and abundance of various infectious and parasites diseases. Under these conditions, infant mortality (approximately 20% of infants die before the five- years old age) and adolescent mortality rates (about 20% of teenagers do not survive to adulthood) are extremely high. The aim of our study was to determine whether the mean fluctuating asymmetry rate increase in maturity. The coefficient of fluctuating asymmetry and the rate of sexual dimorphism were measured on photos of adults ranged from 18 to 75 years (60 male, 48 female). The material was collected during expeditions in Tanzania, by M.L. Butovskaya. Fluctuating asymmetry traits were calculated by taking left and right deviation from the midline, calculated from inter-pupillary distance, for six facial bilateral points and then summing the absolute values of individual scores. Sexual dimorphism was measured by measuring distance between specific points and calculating four ratios based on distances between the following points: Cheekbone Prominence, Jaw Height/Lower Face Height, Lower Face Height/Face Height , and Face Width/Lower Face Height. All images were normalized on inter-pupillary distance. It was found that the asymmetry remained stable between 20 to 50 years, and decreases after 50 years. No sexual differences in the rate of fluctuating asymmetry was found. Facial sexual dimorphism in adults was not clearly expressed and significant sexual differences were registered only for two parameters: Cheekbone Prominence (significantly higher in male) and Face Width/Lower Face Height (significantly higher in female). Our data confirm the hypothesis, according to which, carriers of “good genes”, both males and females, might have survived better in environment of evolutionary adaptedness.

13. Facial asymmetry and aggressiveness in Spanish adolescents

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Intrasexual competition is often characterized by the struggle for sexual partners. Men's competitive behaviour typically includes physically aggressive acts or anger, whereas women tend to disgrace their rivals via derogation, being more effective in influencing men's evaluation of other women when it is employed by attractive women. Fluctuating asymmetry (FA) has been proposed as a cue of health and fitness and is, therefore, thought to reflect an organism's ability to maintain a stable morphology by resisting developmental perturbations. Low FA correlates with attractiveness perception in a wide range of species, including humans. Moreover, FA has been proposed to reflect intrinsic resource holding power (RHP) as it correlates negatively with fighting ability, and fighting ability enhances success in intrasexual competition, primarily among males. In this study, we investigated the relationship between facial FA and different forms of aggression in a sample of 296 Spanish male and female adolescents aged 14 to 19 years. Geometric morphometrics was used to assess facial FA, and the Buss and Perry Aggression Questionnaire (BPAQ) was administered to collect self-reports of physical aggression, verbal aggression, anger, and hostility. Our results showed a negative association between facial FA and anger in men, and an association between FA and hostility only in older adolescent women (17 to 19 years). No significant association was detected between physical aggression and FA in either sex. We discuss our results with reference to the recalibrational theory of anger (in men) and in terms of competitor derogation (in women). As conclusion, during late adolescence men use FA as a RHP signal linked to anger, and women use FA as an attractive trait linked to derogation mechanism through hostility.

14. Facial Race Characteristics Affects Decisions about Perceived Trustworthiness

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A robust finding in the cross-cultural literature is that people are able to recognize faces from their own race easier than faces from other races. This is known as the own-race effect. The goal of the present experiment was twofold 1) how race characteristics affect trustworthiness decisions about the face; and 2) how the prejudice could change the perceived trustworthiness.

78 Caucasian (55 female; 23 male) subjects participated. The mean age was 28.7 years ($sd= 8.1$ yrs.) To create target stimulus, we used 3 Caucasian face-identities, which differed on the level of trustworthiness. We collected these pictures from Oosterhof and Todorov's (2008) FaceGen database. The faces were derived from the same face identity. This means, all 3 faces have the same identity, they only differ in the degree of trustworthiness. Using a FaceGen modeller, we transformed the original faces into African, Indian and Asian faces. Participants were asked to evaluate the level of trustworthiness of each face on a 6 point Likert-scale. Afterwards, they completed the Bogardus social distance scale attached to each stimulus picture.

Participants rated own-race faces as more trustworthy compared to faces from other races. On the other hand, within the same race characteristics, judgments were consistent with the level of trustworthiness of the original (Caucasian) faces. Participant's prejudice correlated negatively with trustworthiness ratings.

According to our data, the own-race effect has a significant role in the evaluation of face trustworthiness. People found same race faces to be more trustworthy than other race faces. On the other hand, subjects are able to detect differences in the level of trustworthiness between faces with same race characteristics. Our findings about social distance suggest that people tend to evaluate faces as not trustworthy to the same extent as they reject other races.

15. Attachment Style and Preference for Parent-resembling Faces in Preschool and Young School Children

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Previous studies yielded evidence that adults prefer long-term partners who are similar to their opposite-sex parents (sexual imprinting). We intended to get a deeper insight into the development of this mate choice mechanism. The aim of our research was to determine the age, when the preference for parents face develop in childhood, and to determine the temporal course of this process.

Photos were taken of parents of children between 3 and 11 years of age. Composites constructed of children's faces were transformed in shape so as to 50% resemble these relatives. The children were asked to take a sympathy choice in different experimental arrangements (i.e., same/opposite sex parent's face vs. unknown control face).

Girls did not show any significant preference for parental stimuli. In contrast, boys preference for father-resembling faces increased with age. Further analysis revealed that this might be mediated by the attachment style: a projective test (Düss-tale test) showed that boys with weaker attachment to their parents tend to choose control face more frequently instead of parental stimuli.

Although the lack of significant results on the girls' side is unclear, it could be inferred that boys, at least, between 6-10 years have the appropriate cognitive capacity to perceive subtle differences in facial appearance. Their facial preferences were influenced by emotional factors, such as attachment to their parents. Decisions based on facial familiarity are extremely important later in adulthood during social interactions. Our results indicate that the precursor of the phenomenon observed by adults, namely the bias for faces resembling to individuals who are emotionally closer to the subject, might be present already in childhood.

16. Correlation Between Eye Color, Face Shape, and Perceived Trustworthiness

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Variation in human eye color is unique among primates. Our eyes are highly conspicuous features that offer information about the bearer's temperament, behavior, and inner attitude. Here, we tested whether eye color influences perception of trustworthiness, attractiveness, and dominance. Facial photographs of 40 females: 20 blue-eyed/20brown-eyed (mean age = 21.2, range: 19-26), and 40 males: 20 blue-eyed/20brown-eyed (mean age = 20.8, range: 19-26) were rated for perceived trustworthiness, attractiveness, and dominance. Two hundred and thirty eight raters (142 females and 98 males), aged 23.1 years on average (females: mean age = 22.7, range: 19-48; males: mean age = 23.5, range: 18-48), took part in judging the photographs.

Eye color did not affect perception of attractiveness or dominance, but it did significantly affect perceived trustworthiness, the brown-eyed individuals being perceived as more trustworthy than the blue-eyed individuals. To test whether perception of trustworthiness was being influenced primarily by eye color or by face shape, we altered the iris color of the same male photographs and repeated the test procedure. Eye color now had no effect on perceived trustworthiness. Geometric morphometrics, however, revealed significant correlations between eye color and face shape. There were thus significant correlations between face shape and perceived trustworthiness but only for males, the correlations for females not being significant. We concluded that although brown-eyed subjects were perceived as more trustworthy than their blue-eyed peers, it was not brown eye color *per se* that caused the stronger perception of trustworthiness but rather the more masculine face shape associated with brown eyes. We suggest that a combination of sex linkage and sexual selection is the most probable explanation for the reported covariance between brown iris color and trustworthy-looking faces.

17. The Association of Facial and Hand Attractiveness in Men (SFA, PA)

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Physical attractiveness is composed of several constituents. The redundant signaling hypothesis states that these components are most likely linked, as they are important and reliable signals in context of mate choice (1, 2). Although the attractiveness of the face, of certain body parts, and corresponding correlations have been extensively studied, few studies have investigated the attractiveness of hands (e.g. 3). However, one can assume that all visible body parts are used to assess a person's physical attractiveness. Hand gestures play an important role in communication as they enhance the spoken word and thus hands are in the visual focus in most human interactions.

The aim of the current study was to determine whether attractiveness of hands is associated with the perceived facial attractiveness in men and to identify measurable traits related to perceived hand attractiveness.

We took standardized frontal facial photographs and photographs of hands in a normalized finger position of 49 male students. Additionally, subjects' height and weight were measured; sociodemographic information and personality factors were collected by questionnaires. 57 female students rated the facial pictures regarding attractiveness and several other attributes. Another 57 women assessed the pictures of the ventral and dorsal side of the subjects' right hand along the same criteria. Furthermore, we performed shape analyses by using Geometric Morphometrics Methodology. 2D:4D-ratios and finger length were measured on the basis of ventral hand photographs to analyze potential influences on the perceived hand attractiveness.

We found hands of men whose faces were perceived as more attractive to be rated higher in terms of attractiveness ($N=49$, $r_p=0.305$, $p<0.05$). Also for other attributes (e.g. dominance) ratings of hands and faces were positively associated. Moreover, averageness of hands and finger length were identified as determinants of hand attractiveness, whereas 2D:4D was not linked to perceived hand attractiveness.

The study provides evidence that the attractiveness of face and hands are associated in men. As a consequence we can assume that not only the face but also hands

constitute reliable signals of individual physical attractiveness and thus biological quality. Our results are in line with the findings of recent studies showing that attractiveness of hands is influenced by finger length and averageness (e.g. 4), which is noted for being an important factor for perceived facial attractiveness. Overall, our findings indicate that criteria for hand preferences possess an evolutionary background. They correspond to preferences for facial traits, which are linked to mate value, and thus might be adaptive.

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18. Effect of Rater's Height on Perception of Aggressiveness from Face of Mixed Martial Arts Fighters. (SFA)

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Former studies indicates that people are sensitive to sexually dimorphic traits as body size or masculine facial traits which correlates with male dominance rank, physical strength, fighting ability, power of striking and proneness to anger. Intrasexual competition in the sense of physical confrontation between males can be very costly (high risk of injuries or death when undergoing fight). It is possible that costs associated with erroneously perceived behavioural characteristic linked to fighting ability of rival have shaped our perceptions of male faces in terms of potential physical confrontation. This potentially leads to adaptations that reduce the costs of aggressive conflict. Less powerful men are expected to be particularly sensitive to cues of aggressiveness in other men. It would reduce likelihood of incorrect judging of potential rival and reduce costs of potential confrontation. Height is one of male bodily traits positively correlating with physical strength, physical aggression, fighting ability and power of strike. These findings suggest height could be reliable clue to fighting quality of male. Thus shorter men may be more likely to attribute higher rating of aggressiveness.

In this study, we investigated the relationship between men's height and sensitivity to aggressiveness when judging the aggressiveness of faces of mixed martial arts (MMA) fighter from UFC division with known fighting ability from former study, which significantly correlates with perceived aggressiveness ($F_{1,143} = 4.91, p = 0.028, R^2 = 0.024$). Sample of 73 men from Czech Republic (mean age 25.7, SD=5.5; mean height 181.9 cm, SD=7.6; mean weight 75.9, SD=12.6) took part in online survey and rated set of 52 MMA fighters faces of middle-, lightheavy- and heavy-weight. Each participant firstly entered his height in centimetres, weight in kilograms, age and secondly rated set of 50 randomly chosen faces in random order on verbally anchored scale for aggressive (not aggressive at all – 1; very aggressive – 7).

A regression analysis with sensitivity to aggressiveness (calculated as correlation of aggressiveness rating by rater and count of MMA fighters wins) as the dependent variable and participant's height, participant's weight and participant's BMI as

predictors shows that none of monitored predictors significant correlation with sensitivity to cues of aggressiveness.

Even though our former results shows significant relationship between ratings of aggressiveness and fighting ability perceived from MMA fighters faces this results indicate sensitivity for aggressiveness perceived from MMA fighters face is not affected by rater's own height. Perhaps due to restricted amount of information obtainable from facial traits, our raters were not able to asses' possible degree of danger from MMA fighters face on scale of aggressiveness.

19. Self-perceived and Anthropometric Measured Masculinity Predicts Sociosexuality in Brazilian Men and Women (SFA)

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There is some evidence that more masculine individuals (both, men and women) are more prone to casual sex, although results have been rather ambiguous. We suggest employing more detailed control of different types of masculinity-femininity (e.g. self-rated and actually measured masculinity-femininity). In this study we tested for possible relationships between sociosexual orientation of men and women and anthropometrical indicators of masculinity-femininity, and self-perceived masculinity-femininity in various modalities. The sample composed of 46 male (mean age 23.21, SD 3.89) and 51 female (mean age 23.67, SD 4.83) heterosexual students was recruited at the University of São Paulo in Brazil. Each participant answered a set of anonymous questionnaires and tests, including Revised Sociosexuality Inventory (SOI-R). Further, on 7 point scales participants rated their facial, vocal, bodily, and behavioral femininity-masculinity. Besides that, we took basic anthropometric measures, including hand grip strength, 2D:4D, height and weight (to compute BMI), waist-to-hip ratio (WHR) in women, and waist-to-shoulder ratio (WSR) in men. Linear regression showed that in males the stronger the left hand grip, and the more masculine 2D:4D and WSR the higher score on R-SOI, with 49.8% of the total SOI variance explained. Further, significant positive correlations were found between male left hand grip and SOI desire ($r= 0.372 p=0.015$); left and right hand grip and SOI behavior ($r= 0.448 p=0.003$; $r= 0.331 p=0.032$, respectively); SOI attitude ($r= 0.392 p=0.010$; $r= 0.320 p=0.039$, respectively); and SOI total ($r= 0.389 p=0.011$; $r= 0.389 p=0.011$, respectively). Significant correlations were found between 2D:4D in right hand and SOI behavior ($r=-0.316 p=0.042$); SOI desire ($r=-0.369 p=0.016$); and SOI total ($r=-0.400 p=0.009$). SOI attitude was correlated with self-rated body masculinity ($r=0.298 p=0.044$). In women, higher score of R-SOI was predicted by self-reported vocal masculinity. The predictor explained only 14.5% of the variance in total SOI. Significant correlations were found between female self-perceived vocal masculinity and SOI behavior ($r= 0.316 p=0.024$); and SOI total ($r= 0.317 p=0.023$). Finally, left hand 2D:4D was positively correlated with SOI behavior

($r=0.327$ $p=0.026$). While half of the intrasexual variability in male sociosexual orientation was explained by three physical anthropometric traits, female intrasexual variation in SOI was explained only by self-perceived vocal masculinity-femininity. Given the greater importance of masculine traits accounting for male individual variation in SOI, female individual variation in SOI might be more related to other variables, such as self-esteem or body image. More cross-cultural comparisons are needed to test how general are reported predictors.

20. Fluctuating Asymmetry of Metacarpal Bones in the Context of Social Stratification: a Bronze Age Population (SFA, PA)

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The relationship between socio-economic situation and health parameters such as growth rate is known to be a strong one: A lower socio-economic position is usually accompanied by higher stress load through less nutritional income and higher work load, which is then reflected in the body (Özener & Ertuğrul, 2010; Teschler-Nicola, 1989). Like reduced body height, the appearance of a certain kind of between-sides variability, fluctuating asymmetry, is based on stress-affected growth. Stressors lead to developmental imprecision through impaired growth and remodeling, sometimes reducing both to a functional minimum. Indicating an exhausted buffering capacity of an organism towards environmental perturbations, fluctuating asymmetry is a strong bioindicator reflecting differences between living conditions in a population. (DeLeon, 2007; Leung, Forbes, & Houle, 2000; Palmer & Strobeck, 1986)

In the present study microCT scans of 145 metacarpal pairs are being evaluated for length, width and overall 3D asymmetry. The specimens belong to the Hainburg/Teichtal necropolis of the Early Bronze Age (Krenn-Leeb, 2011). Mortuary deposits, including pieces of livery as well as other grave goods, can be differentiated by deposit composition, some items being more prestigious by their material e.g. metals, amber, and quantification. They indicate the social position of the individual in society. Connecting this classification with fluctuating asymmetry, this study will elucidate whether fluctuating asymmetry levels are homogeneous in this population through low general stress pressure, or, if they are heterogeneous, whether they are in line with social rank scores or point to significant social rank change after growth has stopped. We will also investigate whether trait-specific patterns of fluctuating asymmetry emerge in certain metacarpals more than in others.

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21. How Attractiveness and Sexuality are Related to Artistic Talent? Testing for the Role of Sexual Selection in Arts Evolution

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Many animals show most elaborated displays, such as songs, movements and colors during mating season. For humans, this comparative model would predict that artistic, sport, and other analytic/creative propensities would be positively related to mating domain. Literature has shown that professional artists had more sexual partners than control group, and that more successful male plastic artists had more sexual partners than unsuccessful ones. Since arts capacities are universal across cultures and individuals, similar relationship should also be observed in non-professionals. We tested whether self-rated attractiveness and sexual behavior and tendencies are linked to a variety of artistic talents, abilities and experience. Participants were 46 males (mean age 23.21, SD 3.89) and 51 females (mean age 23.67, SD 4.83) heterosexuals recruited at University of São Paulo in Brazil. Participants answered anonymous questionnaires, including Revised SOI, and on 7 point scales they rated their dominantXsubmissive role during intercourse and their facial, vocal, bodily, and behavioral attractiveness. Further, on scales from 0 to 10 they self-rated their talents, abilities and experience in drawing and painting, singing, playing instrument, dance, individual sports, group sports, architecture projects, business, creative writing, humor, inventions, scientific research, theatre and film, culinary arts, sculpture, poetry, juggling, acrobatics, whistling, handcraft, mathematics. Stepwise linear regressions were run separately for each sex, while each factor from the talents/expertise questionnaire entered as dependent variable and data from mating domain as predictors. For males, propensity towards singing and playing instrument was predicted by higher self-perceived vocal attractiveness, higher sexual dominance and lower facial attractiveness (79% of variance explained). Propensity towards plastic arts was predicted by lower sexual dominance, lower masturbation frequency and more extra-pair sex (56.6% explained). Talent for creative writing and poetry (32.5% explained), as for acrobatics and juggling (22,1% explained) were predicted by higher number of sex partners during lifetime. Culinary

art propensity was predicted by vocal attractiveness (23.5% explained). Propensity on whistling, mathematics, invention and humor was predicted by sexual submission (22.6% explained). Talent for sports was predicted by being more in love and higher vocal attractiveness (44% explained). And propensity towards business, scientific research and architecture was predicted by lower frequency of masturbation and more extra-pair copulations (50.5% explained). For females, predispositions for dancing were predicted by self-rated body attractiveness and higher SOI desire (49.9% explained). Talents for acrobatics, juggling, playing instrument, mathematics and inventions were explained by less importance of sex and more sexual dominance (35% explained). Propensity towards plastic arts and poetry were predicted by lower frequency of masturbation and higher behavioral attractiveness (34.4% explained). Talent for sports and less talent for culinary arts were predicted by higher sexual submission and higher body attractiveness (49.1% explained). Propensity towards theatre, cinema, humor and creative writing were predicted by higher sexual submission (16.4% explained). And talent for whistling was predicted by less body attractiveness (25.8% explained). Positive relationships between mating and artistic, sports, and other analytic/creative propensities were found and more frequently for males, which is in agreement with sexual selection for artistic displays and the literature.

22. 'Look Who's Watching Now': Prosociality in Males is Enhanced by Cues of Being Watched by Another Male.

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Reputational concerns have been argued to be a key driving force for prosocial behavior in humans. Evidence from experimental economics suggests that people are susceptible to reputational concerns to whereby that even minimal reputation cues, such as an image of watching eyes, are sufficient to motivate generosity. Most studies have used monetary forms for prosocial behavior, we explored the impact of implicit observation cues on *non-monetary* forms of prosocial behavior, namely completing a dull, cognitive task for the benefit of a stranger.

Two laboratory experiments, with 103 ($M= 20.17$ years) and 86 ($M= 21.47$ years) undergraduate participants, respectively, tested whether "being watched" by same- or opposite-gender others enhances prosociality in the following purpose-made task. On each trial of the task, a string of 20 random letters was displayed at the centre of the screen and the participant was asked to copy these characters in correct order. The participant was free to decide how many trials (out of a total of 15) to complete. Participants were told that any remaining trials would be completed by another (unknown) participant. So, the larger the number of trials the participant performed, the higher the cognitive effort that he/she was willing to undergo for another. Observation cues were manipulated by presenting a different pair of watching eyes appeared above the letter string on each trial. Control participants were exposed to pairs of lips. In Experiment 1, we used male (eye/non-eye) stimuli. In Experiment 2, we used female (eye/non eye) stimuli. The two experiments were otherwise identical. Generalized Linear Models (GzLM, normal error distribution/identity link) were used for analysis.

Experiment 1: Male eye stimuli ($B= -.72$, Wald $\chi^2(1)= 2.64$, $p= .104$) and participant gender ($B= -1.342$, Wald $\chi^2(1)= .432$, $p= .511$) were not significantly associated with task performance. However, their interaction was highly significant ($B= 3.528$, Wald $\chi^2(1)= 7.531$, $p= .008$): Under exposure to male eyes, men tended to complete significantly more task trials ($B= .231$, Wald $\chi^2(1)= 7.985$, $p= .005$), whereas women's task performance remained unaffected ($B= -.081$, Wald $\chi^2(1)= .614$, $p= .433$). In Experiment 2: Female eye stimuli ($B= -.025$, Wald $\chi^2(1)= .032$, $p= .858$),

participant gender ($B = .899$, Wald $\chi^2(1) = .878$, $p = .349$) and their interaction ($B = -.246$, Wald $\chi^2(1) = .022$, $p = .882$) did not affect task performance.

Our studies revealed that the effect of watching cues in this lab based setting were *gender-dependent*. The presence of male watching eyes led men (but not women) to increase the cognitive effort expended on the letter task to benefit their partner. On the other hand, exposure to female watching eyes did not affect participant's prosocial inclination. Hence, being watched by a same-sex other was strong enough to stimulate reputation concerns for men, which in turn promoted altruistic behavior. This suggests that men are particularly susceptible to opportunities for forming or preserving a positive status among other men. Results will be discussed with reference to the literature on reputational concern in men.

23. Human Pheromones: Do “Copulins” Have an Effect on Men’s Testosterone Levels and Social Behavior? (SFA)

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Across a number of species, the odors emitted by an animal can have a substantial impact on the behaviors of its conspecifics. Recent research suggests that subtle scents may play a role in modulating human behavior as well. Studies focusing on putative olfactory cues to female ovulation showed that some substances produced by women at the monthly peak of their reproductive fertility can have an effect on men’s cognition, mating behavior and hormonal levels. One group of substances thought to be behaviorally active is a mixture of five volatile fatty acids- the so-called “copulins”. They were first found in the vaginal secretions from rhesus monkeys (*Macaca mulatta*) that produce them at mid-cycle. Several studies showed that copulins affect mating behavior and induce copulation in male rhesus monkeys. The same substances occur in human vaginal secretions and even though their function in humans is rarely investigated yet, some studies suggest that they affect men’s levels of testosterone- a hormone known to mediate human social behavior. For instance, testosterone promotes aggressive, competitive and dominant behavior - a behavior preferred by females in their fertile phase.

The current study addresses the question, whether copulins do affect the testosterone levels of male subjects and, as a consequence, whether they influence the social behavior of the subjects, especially their cooperative behavior.

100 men participated in the study. 50 men were exposed to copulins, 50 served as a control. Subjects were asked to play a game against a partner via the internet. The partner was simulated by the computer program. The game was based on the tragedy of the commons paradigm: each player could take as many objects as he wanted and the remaining ones were doubled for the next round. The computer algorithm pursued a generous tit for tat strategy.

We tested whether exposure to copulins leads to changes in testosterone level by collecting 3 saliva samples during the course of the experiment. To examine the possible behavioral changes in cooperative behavior, we analyzed the degree of cooperation shown in the game. We could confirm that exposure to copulins leads to increased testosterone levels. Moreover, subjects showed significantly less cooperative behavior under the influence of copulins than subjects of the control group.

This study indicates that copulins affect males both in physiology and behavioral response.

24. The Effects of Attractiveness and Machiavellianism on the Social Norm Enforcement in a New Experimental Game: The Third-party Punishment and Reward Game (TPRG)

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Both laboratory and field data suggest that people maintain a high level of cooperation even when relatedness falls to zero. Humans are sensitive to the violation of social norms and are willing to inflict a punishment on those who try to defect. At the same time people tend to reward co-operators at personal costs, despite of the low chance that these costs will ever be repaid (*strong reciprocity*). It is also well known that beautiful people enjoy a privileged treatment in social interactions. Studies show that more attractive people get better jobs and higher salaries and if brought to justice they usually receive less severe punishments.

In our study we intend to analyse how attractiveness and Machiavellianism affects the social norm enforcement in a third-party punishing and rewarding context. All of our 81 participants (50 females and 31 males) were volunteer undergraduate university students, aged between 18 and 31 years ($mean = 21,28$; $SD = 2,726$). The Third-party Punishment and Reward Game (TPRG) consisted out of two steps. First the participants had to observe a short “Public Goods Game” between two fictitious individuals, and then they had the opportunity to punish and/or to reward either just one or both players. The photographs attached to the players were manipulated on attractiveness and also the contributions were determined in advance. Hence, we were able to contrast the interventions adopted towards attractive and unattractive co-operators and free-riders. We used the Hungarian version of the Mach-IV test in order to assess the participants’ level of Machiavellianism. In sum 67 participants completed this questionnaire. We applied a common practice by splitting our group at 100 points. Those who collected less than 100 points were labelled as *low machs* ($n = 40$) and those who’s scores exceeded that limit were then regarded as *high machs* ($n = 27$).

Interestingly we didn’t find any significant differences between the punishment and reward scores of the attractive and unattractive players. This may be (1) due to the intrasexual rivalry among women and (2) due to the higher expectations towards attractive female players among male participants. We also found that high mach individuals meted out significantly less rewards than low mach persons. We believe this result can be explained with the unique ideology of Machiavellians. Since they do

not associate cooperation with positive intentions it is plausible to think that they do not feel a need to reward such behaviour.

In line with foreign findings [1] our study has shown that attractive people do not always have an advantage in social interactions. We also hope that our results have fostered a deeper understanding about the functioning of the Machiavellian intelligence.

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25. Body Orientation, Eye Contact, and Tactile Contact in Three Ethnic Groups: A Cross-cultural Study

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Spatial behavior have universal features and cultural specificity. Children learn these cultural norms in the process of socialization. The aim of this study was to examine cross-cultural differences of some parameters of spatial behavior (body orientation, eye contact, tactile contact) in adolescents from three different ethnic group: Ossetian (North Caucasus, Russia), the Bulgarian (Republic of Ukraine), Russian (Central Russia).

Data on 251 pairs of schoolchildren (15-17 years old) were collected. The study groups were composed of 62 ossetian, 54 bulgarian and 135 russian pairs. In this study we used direct ethological observations between adolescents in naturalistic settings of school communication. We fixed body orientation, eye contact, and tactile contact in special blank. Also, we asked information about age, ethnicity and type of relationships in personal interview.

Our results showed significant ethnic and gender differences. Ossetians are significantly more often to use indirect positions of body orientation, than Bulgarians and Russians. Also, it depends on sex of partners of communications – same sex pair or different sex pair. Tactile contact are significantly more common for Ossetians, than Russians and Bulgarians, especially among boys. In addition, Ossetians and the Bulgarians have a culture taboos of touch and body orientation. Russians are significantly often used eye contact in comparing with the Ossetians and the Bulgarians. In spatial behavior of adolescents in three contrasting ethnic group observed universal features. In all cases girls touching each other more often and using more areas of body for touching than boys.

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26. Defining “Function” in Adolescent Friendship Narratives: Applying an Ethological Behavioral Systems Approach (SFA, PA)

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Close friendships (i.e., intimate, cooperative partnerships) influence social and psychological adjustment across an array of indices (Bagwell et al., 2001; LaGreca & Harrison, 2005). However, empirically-driven psychological conceptualizations of friendship have traditionally relied on popular notions of what makes friendships “good” or “quality”. There is a resulting paucity of theoretically-guided operationalization that move beyond broad-band quality assessments to: (1) organize an understanding of the underlying processes that guide individuals’ cognitions, behaviors, and emotions within the friendship relationship; and (2) increase precision in hypothesizing specific mechanisms by which friendships influence psychological adjustment across development (Bukowski & Sippola, 2005). One promising advance applied behavioral systems theory to friendships (Furman, 2001; Furman et al., 2002), but their reliance on prevailing attachment-derived typologies (i.e., secure, preoccupied, dismissing) fails to exploit the innovation of an ethological behavioral systems approach.

Behavioral systems evolved by conferring adaptive advantages within the context of recurring problems posed by natural selection pressures across the human EEA. Thus, each system should be sensitive to stimuli with relevance for survival and reproduction, organizing specific patterns of stereotyped cognitions, emotions, and behaviors that serve to negotiate the relationship between organism and environment relative to an ultimate function. We propose that adolescents’ working models of friendship vary in the relative saliency and organization of distinct behavioral systems (Solomon & George, 1996; Stevenson-Hinde, 1994). Using an ethological approach as a lens, we examined teens’ narratives about their best friendships in relation to: (1) Attachment - increasing safety through proximity to and care from friend in contexts of distress, and (2) Affiliation - increasing access to resources through facilitating repeated cooperative interactions.

227 early adolescents (μ age = 12.5; 46% male) provided narrative descriptions of their best friendship. Independent observers rated the degree to which teens’ narratives were coherently organized around provisions serving each function from 0 (*no support*) to 4 (*strong support*) (α 's = .741-.889). Using multiple reporters of teens’

internalizing symptoms ($\alpha = .720 - .860$), externalizing behaviors ($\alpha = .764 - .915$), and social competence ($\alpha = .857 - .859$), we created a path model to simultaneously examine whether each function uniquely predicted adjustment outcomes (Means and Standard Deviations in Table 1; Path model in Figure 1). An affiliative-salient narrative organization was uniquely associated with fewer externalizing problems and more cooperative behavior, as predicted. Surprisingly, attachment-salient narratives were concurrently associated with *greater* internalizing problems. At this developmental stage, attachment-salient narratives may reflect precocious and potentially “preoccupied” friendship attachment (e.g., Furman, 2001).

As a first step, this study provides evidence for the potential value of distinguishing between attachment and affiliation in friendship and the need for increased specificity in identifying mechanisms through which friendships influence development. We will run additional, longitudinal analyses, including an examination of the stability of these relationships across two additional years. Results will be discussed in terms of the strengths and limitations of a multi-systems approach.

27. Tall Claims? The Importance of Height of US Presidents (SFA, PA)

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According to common wisdom, to win the US presidential elections, one has to be taller than one's opponent. Indeed, the role of height in US elections is a popular topic among essayists and popular science writers. Yet such claims are often based on an arbitrary selection of elections and adequate statistical tests are rarely provided. In this paper, using data on all presidential elections, we examine whether and to what extent height is a determinant of election outcomes and electoral success.

Contrary to popular belief, we show that the taller candidate is not more likely to win the elections. Height, however, was related to measures other than election outcomes. First of all, candidates that were taller than their opponents receive more popular votes. More specifically, the difference in height between the presidential candidates explained 16% of the variation in the difference in popular votes received by the candidates. Second, height was also related to the chance of reelection, as presidents who were reelected were taller than those who were not reelected for a second term. Lastly, US presidents were on average much taller than men from the same birth cohort.

The advantage of taller presidential candidates and taller presidents may be explained by perceptions associated with height. Combining results from five polls of 'presidential greatness', we find that taller presidents consistently are rated by experts as 'greater', having more leadership qualities, and having better communication skills than shorter presidents. We conclude that height is an important characteristic in choosing and evaluating our political leaders.

28. Can Machiavellianism Be Considered as a Short-term Life-history Strategy?

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Machiavellianism – the behavioural tendency to manipulate others – is often postulated as the subclinical form of psychopathy, especially of the type known as secondary psychopathy. Psychopathy bears several characteristics of a short-term life-history strategy; in the case of secondary psychopathy, a heightened sensitivity to reward along with a normal sensitivity to punishment. The goal of this pilot study was to examine whether this pattern is also characteristic of highly Machiavellian people; a connection that would indicate that Machiavellianism may also to an extent be considered as a short-term life-history strategy.

182 university students (m: 58, fm: 124) between the ages of 18 and 27 (*mean* = 22.0; *SD* = 2.44) completed the MACH IV - Questionnaire of Christie and Geis and the Sensitivity of Punishment and to Reward Questionnaire (SPSRQ) of Torrubia et al.

We found a strongly significant positive correlation between the level of Machiavellianism and that of sensitivity to reward ($r = 0.333$; $p < 0.001$). There were no significant correlation between the level of Machiavellianism and that of sensitivity to punishment ($r = 0.035$; $p > 0.05$).

The pattern of sensitivity to punishment and to reward found in highly Machiavellian people shows a similarity with the pattern characteristic of secondary psychopaths. This finding is in concordance with the observation that highly Machiavellian people tend to focus on short term gain and goals, regardless of the long-term consequences of their actions. The strongly heightened sensitivity to reward and the normal level of sensitivity to punishment further underlines the postulated connections between secondary psychopathy and Machiavellianism, and indicates that Machiavellianism may also to an extent be regarded as a short-term life-history strategy.

29. Visual Attention, Decision Making and Scene Description Revealed by Bee Swarm Analysis (SFA, PA)

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Attention stands as a fundamental capacity of our cognitive systems, for it enables us to effectively use its limited resources in a flexible and dynamical way. Therefore, it is not surprising that a considerable amount of research has focused on that topic. However, most of this research has been mainly carried out on visual attention by using static stimuli in highly controlled experimental settings. Although this provided valuable insights concerning the basic mechanisms underlying visual attention, very little is known about visual attention in dynamic and social situations with less simplified stimuli. Thus, conducting research using closer to real-life situations as stimuli, would significantly contribute to a more complete understanding of visual attention, while it would allow looking into social attention more reliably. This, in turn, could provide a better understanding of phenomena based on social attention such as, social cognition, social learning and the like.

In the present study, we hypothesized that visual and social cues capture visual attention, and also lead to an increase in reported interest. The stimuli consist of a set of surveillance video recordings from a European metropolitan subway. 200 subjects (middle European university students) watched 4 screens, each displaying 1 video simultaneously, and indicated when triggered their interest using a Joystick. Additionally, we recorded the subject's eye-movements and gaze direction. Bee swarm analysis allows localizing the visual attention locus on the selected frames, in order to identify both visual and social attention triggers.

Preliminary analysis suggest a number of visual cues as being relevant for dynamic, more close to real-life like, stimuli. Consistent with previous studies, attention is not randomly distributed. Visual attention and cognitive attention are correlated.

We could identify a number of visual and social triggers of attention, and thus extend our knowledge about the mechanisms of attention in complex dynamic social situations. We could shed light on some cognitive phenomena, such as social cognition and social learning. Moreover, our results demonstrate the importance and benefits of studying social attention by using more complex dynamic and closer to real-life stimuli.

30. Men in Groups: Behavior in Public Space (SFA, PA)

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Due to differential selection pressures on our male and female ancestors, humans have evolved sex-specific social behavior. Previous studies found that men in groups including women show more display behavior and playful aggression compared to groups consisting of men only. (Aldis, 1975; Tiger, 2005; Renninger, Wade & Grammer, 2004).

The aim of this study was to determine whether the behavior of men in groups changes depending on the group-composition. To test this hypothesis we made use of surveillance videos from an European underground system. We developed an exhaustive behavior catalogue and annotated the behavior of users of the underground system.

In total, we annotated (continuous recording of all persons visible on the screen) 970 individuals, 307 of which were in groups. Durations of behaviors were divided by the observation time. The thus calculated relative duration of behaviors was used for further analyses. We tested for differences between male, female and mixed groups in the occurrence of display and aggressive behavior.

In general males in mixed groups show fewer closed arm postures, gaze less at objects and manipulate the underground equipment more than members of male-only groups. Likewise males gesticulate significantly more when they are in female company.

The underground station is a very specific behavior setting, limiting the behavior repertoire of users to a very small range. Thus, the setting itself might be such a strong constraint that social variables lose importance. Currently we are annotating an additional setting, which might lead to a different outcome.

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31. Sharing Is Caring: Results of a Study in 9 Daycare Groups

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Most of the developmental psychology and evolutionary studies regarding sharing emphasize the children's possessive behavior, which supposedly makes sharing a big developmental achievement and challenge (e.g. Brownell et al., 2009). These studies argue that infants are not sharing voluntarily (Piaget, 1976; Kohlberg, 1974; Axelrod, 2005; Hamilton, 1963). Because of the frequency of giving and taking in early infancy which serves to establish contacts, we assume (compared to the studies above) that sharing is an important and intrinsic element of infant and child behaviour. For this reason, we conducted this study with young children to measure their altruistic sharing behaviour.

For this study, we recruited 65 children (1-6 years old) of 8 daycare groups and 1 group for disabled children from playschools in Austria and Germany. We received permission from the teachers and parents. The study consisted of three parts: (1) observational study during play time, (2) sharing experiment and (3) questionnaire.

(1) The observation of the children's behavior during their playtime should serve to identify authentic issues of sharing in everyday situations.

(2) In the context of the sharing experiment, the children participated in a treasure hunt and allocated the sweets and toys that they found. There was no instruction. The children were allowed to decide on their own if they want to share or not. The treasure hunt was based on the story of a bear and his friends going to a rainbow to find a treasure (Camm, 1988).

For the parts (1) and (2) the children were videotaped with two cameras for about five hours. Before the experiment we ensured that the children fully understood the instructions.

(3) Additionally a questionnaire (derived from Fehr et al., 2008) was filled out by the caretakers for sociodemographic data and information on social characteristics (e.g. if the child can easily imagine how other children feel à empathy) of each child.

The two main results were that a) toddlers shared significantly more spontaneously, voluntarily and based on initiative on their own ($\tau=0,319^{**}$) than older children, despite the missing ability of perspective-taking and that b) with growing age of the children, sharing got more differentiated by the increasing knowledge of possession

and justice ($\tau=0,239^*$) (e. g. abandonment of objects to reduce costs (Blurton-Jones, 1984). According to these results, toddlers share mainly spontaneously whereas the sharing of older children is based on social strategies. Secondary results concern the sharing behavior relating to the development of language, the understanding of possession, sibling effects, reciprocity, emotions, disability and different correlations with items of the questionnaire.

Considering both the proximate determinants of sharing and the ultimate causes of this behavior, we demonstrate that sharing is a typical behavior of infants even in the early age of up to 2 years. Sharing behavior is further developed, due to social learning in complex groups (Schiefenhövel, 2003), with growing age. The social value of objects – deriving from sharing them – stimulates and strengthens interpersonal relationships from infancy onwards (Gurven, 2004; Isaac, 1978; Mauss, 1990; Mehu et al., 2007; Schropp, 1987; Trivers, 1971). This aspect offers an evolutionary explanation (Fink & Grammer, 2002) of the phylogenetic rise of sharing as social exchange whereas sharing as truly altruistic behavior is more difficult to explain.

32. Sex Differences in Experimenter Effects: How the Experimenter's Sex Influences the Outcome of a Usability Evaluation

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Usability studies have gained wide acceptance as a strategy for improving product quality during development. Different guidelines on methodological aspects exist, and various aspects of the study setting and their potential impact on study outcomes have been analyzed systematically. An aspect that received little attention until now is the role and influence of the participants' and facilitators' sex on the dynamics of the evaluation and potential outcomes. Considering Error Management Theory (EMT) and various psychological research on sex differences in computer-related attribution styles, we think that sex aspects are important features of study setups and need to be better understood to be able to consider potential influences in the decision of the study setting and the interpretation of the results.

In a controlled experiment we addressed two especially relevant aspects. We first studied whether men refer to deficiencies in using a system to their own ability to handle the system, or to the faulty constitution of the system. Second, we analyzed whether resulting effects are related to the experimenters sex. In order to investigate these questions, experimenters of different sex (3 men, 3 women; mean age=26.66 ± 1.03) conducted the usability study with 37 male (mean age=26.45 ± 0.93 years) participants in dyads in a standard usability study setting. Participants had to conduct several tasks including registering to a fake online job portal (i.e. the system) and completing their profile information on the website. During the whole procedure they were asked to think out loud as they are performing the tasks, i.e. to say whatever they are looking at, thinking, doing, and feeling at each moment. Additionally, they were asked to suggest improvement for the detected usability problems. The number of reported usability problems and suggestions for improvement were recorded. The attribution style of each test participant was identified using a standardized questionnaire. Finally, data was analyzed using comparative statistical methods.

Against previous assumptions, no tendency was found for men to attribute failures to a faulty system-constitution rather than to their minor abilities. Nevertheless, we

could show that men tend to relate success to themselves in a successful interaction with a system when they interact with a female, in comparison to a male experimenter. Moreover, an effect on the willingness to suggest improvement was found. Men give more suggestions to a female experimenter. Since evolutionary adaptations are universal, men might name more suggestions for improvement for reasons of self-presentation or self-manifestation. This goes along with the EMT, and attribution theories. Therefore, we could support our hypotheses regarding the effect of the experimenter's sex on the evaluation of a system, implicating its relevance in usability study setups: Not only should the participants follow a balanced sex ratio, but also the experimenters. However, the experimenters' sex does not have an effect on the number of usability problems. We conclude that the experimenter's sex needs to be taken into account when designing a usability study as well as when interpreting results.

33. Thin Slices of Interaction: Enough to Judge Whether a Companion Dog Has an Affect on Group Interaction? (SFA)

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People are surprisingly accurate when judging people's moods, behavior, and personality from very brief moments of observation. The purpose of this study was to examine whether people would notice mood and interaction differences between people in a group with or without a companion dog—based on observing “thin slices” of group members’ behavior. Raters were shown video clips that were 40 seconds long. The videos were without sound and cropped so that only the individuals (and not the animal) were visible. Raters rated each group member in the video on criteria such as: cooperative, intimate, accepting, enthusiastic, attentive, warm, and non-anxious. The predicted results are that the individuals in the dog-present group will be rated significantly more willing to engage in group interaction and evidence a more positive mood than individuals in the control group. These results should be in line with previous research indicating that the presence of the dog had a positive effect on the social interaction within the group.

34. Female Intrasexual Competition as Portrayed in Popular Culture

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Recently, there has been much interest in how popular culture can be understood using evolutionary psychological theory and findings. For example, in June, there is a special issue devoted exclusively to this topic for the journal *Review of General Psychology*. The foundational work on the analysis of literary texts (i.e., Darwinian literary studies) provided the stepping stones to much of this work. That is, one can use the methods and framework of Darwinian literary studies to examine other human artifacts, such as art and music.

Kurzbahn (in press) discusses country music songs and how they reflect human experience from the standpoint of evolutionary psychology. Hobbs and Gallup (2011) analysed song lyrics of *Billboard* charts for R&B, Pop, and Country for reproductive messages. Although their analysis was informative, it was not finely enough tuned to specifically examine particular themes, such as how women might sing about the love they have for their mates, or how they are worried about losing their mate to a potential rival.

Therefore, the focus of our study is to examine songs and movies that deal with female intrasexual competition for mates, and see how they map onto evolutionary psychological theory and findings. We are presenting analyzing movies (so far almost 30 titles), and to date, we collected 17 English-language songs (all sung by female musicians) and qualitatively analysed their lyrics for themes. Our analysis shows a diversity of topics. For example, some songs were about directly confronting a rival and asking her to leave the mate alone. Other songs asked the mate not to choose another woman. Some dealt with differences in mate value between rivals and oneself. A few songs discussed how rival women were unattractive. And although a rare topic, how women dealt with betrayal was also apparent in some of the songs.

We will elaborate on these themes, and discuss how they reflect women's evolved solutions to problems they face within mating, particularly obtaining and retaining a quality mate.

35. Female Facial Colouration Affects Male Attentional Preferences in Japanese Macaques (SFA, PA)

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Old world monkeys and humans possess highly comparable colour vision which could serve similar functions, e.g. the interpretation of socio-sexual signals in hairless skin colouration. We investigated the significance of facial reddishness as a cue to sexual attractiveness and attentional preferences in semi free-ranging Japanese macaques during their mating season. 22 adult male monkeys differing in social status were lured individually into an experimental hut. The hut contained two colour calibrated monitors presenting two different versions of one unknown female face. The presented stimuli were carefully manipulated in a natural range of reddish skin colours. The behavior (gaze duration/frequency, and number of approaches towards one versus the other monitor) of the male monkeys was videotaped and analyzed as a function of the presented stimuli. Male attentional preferences differed between individuals but in a subset of the sample increased gaze duration and approach frequencies towards faces with higher shades of facial red were clearly observable. We further incorporated the social dominance ranks as well as endocrinological data into our analyses to clarify the degree to which cortisol and status moderate attention towards the socio-sexual stimuli. Our results add to the knowledge about the adaptive functions of colour vision and are of relevance for research on colour perception in humans and non-human primates.

36. Postpartum Depression in High and Low Income Mothers: an Evolutionary Approach.

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Some authors sustain that postpartum depression (PPD) can be an adaptive strategy for obtaining support from other people, in order to take care of the baby. If that is true, we can expect higher frequencies of PPD on a population with fewer resources to take care of their children. As a part of a bigger study, this work compares the incidence of PPD on high and low-income mothers. A sample of 235 mothers from a public hospital was compared to 271 mothers from a private hospital in São Paulo, Brazil. We assume that the kind of hospital can state the socioeconomic status of the mothers. The Brazilian version of Edinburgh Postnatal Depression Scale (EPDS) was used to indicate the presence of PPD. The ages of the mothers on their first sexual relationship, and when their first child was born was collected. We also got information about the weight, height and APGAR scores of the newborns, in order to define the healthiness of the children. All babies were considered healthy, and no significant difference was found between private or public hospital groups on this subject. Mothers from the public hospital, on average, had their first sexual relation earlier (16.9 ± 2.9 years old), when compared to mothers from the private hospital (18.9 ± 2.8 years old). Also, the low-income mothers had their first pregnancy earlier (public hospital = 21.1 ± 5.0 years old; private = 30.3 ± 4.6). The incidence of PPD in mothers from the public hospital was 25.6% and only 8.5% in private hospital. This last finding seems to support the idea that PPD can be a strategy to obtain assistance. However we still have to consider the fact that low-income mothers in our sample were, on average, almost 10 years younger when they had their first children. This earlier onset on reproductive life can also be interpreted as a strategy to deal with adverse conditions, related to fewer resources. Having their babies earlier can increase their chance on reproductive success. Further investigations are needed to determine how these two possible strategies are related (incidence of PPD and the age of mothers).

37. Post-partum Depression and Language Development: a Gender Comparison in a Brazilian Low-income Sample.

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Mothers adopt a unique style of speech when they speak with their babies, indicating an adjustment to the child's limited linguistic ability. This responsiveness can be negatively affected in the case of post-partum depression (PPD). PPD can affect the mother-child bond and is considered a risk factor as it compromises the mother's cognitive and emotional disposition, with consequences for the child's general and linguistic development. Furthermore, dyadic interaction can be influenced by individual characteristics, such as gender, which has been suggested as being one of the possible causes of variation in the interactional process. The objective this study is to compare the language development of boys and girls and the influence that PPD has on this process. The present study is part of a larger longitudinal research project which seeks to understand the origins and effects of PPD on child development among low-income Brazilian families living in adverse social and economic conditions (FAPESP nº 06/59192-2). The Brazilian version of the Edinburgh Postnatal Depression Scale was applied when the child was 3 months old. Mothers were considered depressed when they scored 12 points or more. Eighty mother/3-years-old-child dyads were filmed for fifteen minutes in a free-play session. To analyze the pragmatic aspects of verbal communication we used a Brazilian test to evaluate language development called ABFW (Andrade, Befi-Lopes, Fernandes, Weitzner, 2000). The number of the child's communicative acts and the percentage of the child's communicative performance during social interaction were computed. Some of the communicative dimensions (vocal, verbal and gestural) and functions (comments, informative requests and performative utterances) were also classified. Our research shows differences between boys and girls in almost all of the aspects we studied. Girls spoke more, interacted more with their mothers and were significantly more vocal ($F=0.62$; $p<0.05$ in the PPD group and $F=0.039$; $p<0.05$ in the non-PPD group), with the intention of transmitting and acquiring information during their communication. Boys were more likely to use communication to explore their environment, true for both the PPD group ($F=0.036$; $p<0.005$) and non-PPD group ($F=0.008$; $p<0.005$ using gestures), and to draw their mother's attention to their vocalizations and play behavior (in the non-PPD group: $F=0.002$; $p<0.005$, using vocalization). The present study also shows the differential effects on boys and girls of PPD as well as other factors of the child-rearing environment such as attending daycare, social support and the mother working out of the home. In the PPD group,

girls who went to daycare, whose mothers had social support and didn't work out of the home performed better on the test ($F=0.018$; $p<0.005$). In contrast, it was the boys of the non-PPD group (who also went to daycare and whose mothers had social support and didn't work out of the home) who scored the highest scores on the test ($F=0.049$; $p<0.005$). Thus, girls in the PPD group seemed to benefit from daycare and boys benefit most when the mother doesn't suffer from PPD. The data presented here underscores the importance of mother-child interaction for the communicative-linguistic development of the child and the consequences of PPD on dyadic interaction, mediated by the specific necessities of boys and girls.

38. Interaction Patterns of Mother-child in an Amazon Indian Village: Preliminary Results (SFA, PA)

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Parenting (Parental Investment) is a venture both biological and socio-cultural as it is adapted to the characteristics of ecological contexts, involving the best efforts of caregivers for their own reproductive success. Transcultural analysis allowed the detection of six universal parental systems - primary care, body contact, body stimulation, object stimulation, face to face exchanges and envelope narrative - that have evolved because they were efficient for solving problems faced by caregivers and babies. Behavioral expression of these socio-biological care probably varies in line with socialization goals desired by caregivers, which differ from and resemble in many points with those of other caregivers who form a community. Parents around the world have ideas and beliefs about child care, which can be regarded as representations for the development skills in specific socio-cultural environments. The parental investment has been associated with children's developmental trajectory, which is better adapted to the lifestyle where they were raised. Thus, studies on indian children are scarce and have a social-cultural bias. Thinking about it, we propose an ethological research in order to verify whether the parental systems found in other cultures are present in the culture of Amazonian indian ethnicity Asurini. We observed and videotaped 15 mother/baby dyad totaling 300 minutes of footage. We used observation periods of 30 seconds, recording the presence or absence of each parental system. The results showed that the average age of mothers was 23.6 years ($SD = 3.82$), the average age of the baby 11.4 months ($SD = 6.23$). As for the sex of babies, nine were girls and five boys. The systems were more frequent parental primary care (53.4%) and body contact (33.3%). In relation to primary care, this was expected because this caution is essential for the survival of the child, the care being phylogenetically older. The body contact is a system often found in traditional societies, in which the mother is the main caregiver in the first years of life. In these contexts, there is the need to carry the child on the body, since the maternal attention must be divided between the child and the care of everyday tasks. This system promotes closeness and emotional warmth characteristic of interdependent contexts. Stimulation Systems body stimulation by object and face-to-face recorded the following percentages, 8.3%, 2.6% and 2.3% respectively. These systems were not common among Asurinis mothers. It can be inferred that Asurini mothers prioritize the system of primary care and body contact, fitting an

interdependent orientation model. With respect, the proximal parenting styles (59.9%) was found more frequent than the distal one (7.2%), characterizing the interdependent model.

39. Differences in Nonverbal Behavior between Homosexual and Heterosexual Men (SFA, PA)

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Recent research has shown that men of different sexual orientations differ in number of traits which are sexually dimorphic, including some personality, cognitive or neuroanatomic characteristics. On average, in these traits homosexual men resemble individuals of the opposite sex. From the evolutionary point of view, male homosexuality might be a by-product of male feminization, and we may thus expect that they would be sex-atypical also in other domains, such as nonverbal behavior.

The aim of our study was to investigate possible differences in nonverbal display between homosexual and heterosexual men. In line with previous studies, we suggested homosexual men would express behavioral traits that in previous research have been identified as more feminine, in particular crossing legs or prosocial behavior such as smiles, and leaning the body forwards.

Further, we hypothesized that individuals showing these behaviors would be rated as more feminine by independent raters.

Video clips of both heterosexual ($N = 40$) and homosexual ($N = 36$) men recruited in Czech Republic and USA were rated by 79 women for masculinity-femininity on 7-point scales. We standardized 10 seconds long silent black-and-white video clips with enhanced contrast.

Using Interact software, each video clip was coded for nonverbal traits according to a created ethogram. Most traits included in ethogram were chosen from previous studies (Grammer, Honda, Juette, & Schmitt, 1999; Grammer, Kruck, Juette, & Fink, 2000; Renninger, Wade, & Grammer, 2004) and others were adjusted for our sample (Kubicova, 2011). We coded both occurrence and duration of observed traits. We observed 19 dynamic traits and 8 static traits in ethogram.

We have further reduced nonverbal behavior data using factor analysis, where we identified 5 factors („Looks“, „Prosocial movements“, „Taking space“, „Expressiveness“ and „Dominace“). In comparison to heterosexuals, homosexuals were lower on frequency in factor loaded by behavior typical for Taking space ($p=.006$), and non-significantly higher on frequency in factor of Prosocial movements ($p=.072$).

Further, homosexuals were rated as significantly more feminine than heterosexuals ($p=.008$), and regression analysis showed that judged masculinity-femininity is predicted by the factor “Taking space” ($p=.044$).

Our results show homosexual men tend to use some nonverbal traits, which on average are judged as feminine by independent raters, and might thus serve as a cue to recognize male sexual orientation (i.e. lower occurrence of movements such as opened position or elbow movements). This phenomenon can be caused by formation of nonverbal display during prenatal development similar to other sex typical or atypical traits. Nevertheless, homosexual men might also adopt their nonverbal behavior later during their lifetime as a reaction to social stereotypes concerning homosexual orientation.

40. How Low-income Brazilian Mothers Perceive Fathers' Behavior According to Depression Symptoms of Both Parents

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There are an increasing number of studies, influenced by systemic approaches of human development, on the role of fathers in the context of post-partum depression. In addition, research based on an evolutionary perspective has hypothesized that a possible adaptive function of PPD may be to obtain social support, especially from the partner (Hagen, 1999), and has shown direct causal effects of paternal support on PPD. Results from our four-year longitudinal project on the origins and consequences of postpartum depression in low-income Brazilian families (FAPESP nº 06/59192-2) show that lower rates of PPD were related to partners' involvement measured by their presence during labor and delivery as well as partners' help at home during the first year of the child's life (Mendonça et al., 2012) and that mothers with PPD perceived their marital relationship as less satisfying compared to mothers with no PPD during the first year of the child's life (Mendonça et al., 2011). However, rarely are fathers' depression symptoms integrated into the analysis. The objective of this study is to complement these results by adding mothers' perception of their partners' parental and marital behavior according to the depression symptoms of both parents. Sixty-five mothers and forty-five fathers participated in this study. The Brazilian version of the Edinburgh Postnatal Depression Scale was applied to the mother when the child was 3 months old and to both parents when the child was 36 months old. Mothers also answered a questionnaire when the child was 36 months old about their perception of fathers' involvement, co-parentality and marital relationship as at the moment of the interview and retroactively, during the first year of the child's life. A series of non-parametric repeated data analysis shows a number of significant results. First, mothers perceived fathers' involvement and their marital relationship quality more positively when the father attended the interview (statistic=14.947, p=0.000; statistic=14.373, p=0.000). Second, non-PPD mothers perceived fathers' co-parentality (only at 36 months) and marital relationship quality more positively than depressed mothers (statistic=7.191, p=0.007; statistic=5.494, p=0.019). Mothers without depression symptoms when the child was 36 months old showed the same patterns with the addition of a more positive perception of fathers' involvement. Finally, mothers perceived their partners' marital behavior more positively (statistic=6.019, p=0.014), but not other paternal behaviors, when their partners were not depressed. Fathers' presence at the data collection interview may be an indicator of their availability for the family, with mothers perceiving their

behavior more positively in this situation. In the presence of mothers' depression symptoms, mothers perceived their partners' behavior in general more negatively. In the presence of fathers' depression symptoms, mothers perceived more negatively their partners' behaviors related to the couple's intimate relationship but not behaviors related to the child's care (involvement and co-parentality). Fathers' depression seems to affect the husband-wife relationship more strongly than the parent-child relationship, suggesting that it affects the family in these two dimensions in different ways. These results highlight the importance of studying mothers' and fathers' behavior in an interdependent manner.

41. Incidence of Evolutionary Relevant Objects in Sexual Fantasies of Men and Women in Relation to Actual Sexual Behavior (SFA, PA)

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Several studies have suggested sexual differences in sexual fantasy (SF) frequency, incidence and content. In our study we focused on gender differences in the presence of evolutionary-relevant subjects that SF contain (e.g. intercourse with multiple opposite-sex partners, much younger partner, same-sex partner). We also focused on desire to realize sexual behaviour the fantasy involves and on previous experience with realization of such activity in real life. For purpose of this study we have chosen eleven subjects frequently appearing in human SF that we find evolutionary relevant and gender specific. The criteria for presence in our list of SF was to be frequent in population and also to have evolutionary benefits for each sex (e.g. we were expecting higher frequency of SF containing famous person among women, higher frequency of SF with virgin partner among man, asn.).

We asked 208 students of Faculty of Humanities, Charles University (106 males/102 females, aged 22 years on average (min=18, max=34)) to fill in questionnaires including the checklist of preselected SF. The task was to fill in frequency, desire to realize and experience with realization of sexual behaviour towards the subject represented by each SF.

The results have fully supported our hypothesis. Men were more likely to have following SF and also they desire to realize it more often: sexual intercourse with opposite-sex stranger (SF incidence $\chi^2 = 6,07$, $p = 0,023$; realization $t = 3,32$, $p = 0,001$), sex with multiple female partners (SF incidence $\chi^2 = 18,62$, $p < 0,001$; realization $t=3,88$, $p < 0,001$), sex with considerably younger female partner (SF incidence $\chi^2 = 16,95$, $p < 0,001$; realization $t=2,46$, $p=0,015$). On the other hand female participants were more likely to show higher incidence of SF and higher realization of sexual activities involving same-sex partners (SF incidence $\chi^2 = 11,09$, $p = 0,001$; realization $t=-2,736$, $p=0,007$).

Our findings are in accordance with evolutionary-psychological assumptions that there are sex-specific cognitive mechanisms evolved to help increase fitness in men and women. It is highly appropriate for man and women to show grater interest in subjects that bring benefits for their reproductive strategy. Our results show that the

inner mechanisms as SF, that does not depend on social restrictions can be an ideal material to study gender differences, as they can highlight the evolved preferences for subjects providing cues connected with the positive impact on fitness, that differs for men and women (e.g. youth, health and exclusive access bring benefits for man and access to resources brings benefits to women).

42. Sociosexuality, Partner's Mate Values and Mate Value Difference in Heterosexual Romantic Relationships

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Objective: Sociosexual orientation refers to individual differences in willingness to engage in uncommitted sexual relationships. According to the parental investment theory women, comparing to men, bear elevated costs of reproduction and consequently should be more discriminating and sociosexually restricted than men. Since sociosexuality may affect mate choice, it is possible that it corresponds to the partners' mate value (MV) and discrepancy between the partners' mate value levels (MVD). However, this potentially important aspect in human mating has not been studied before. The aim of this study was to investigate, in heterosexual relationships, whether there is a correlation between sociosexual orientation and both partners' mate values and the discrepancy between own and partner's MV, and whether there is a difference in this respect between males and females.

Methods: 143 heterosexual participants (all in romantic relationships) completed an online questionnaire. Their sociosexuality was measured using Revised Sociosexual Orientation Inventory (SOI-R) (Penke and Asendorpf 2008). The assessment of the participant's and his/her partner's mate values were obtained using the MV measure by Graham-Kevan and Archer (2009). The mate value difference was calculated by deducting the assessment of partner's MV and MV self-assessment. A Spearman rank order correlation coefficient was calculated to assess possible associations between the analyzed variables.

Results: Both in men and women, there were no relationships between sociosexuality and participants' MV or their assessment of partners' MV. However, in men with the increase of the discrepancy in mate value in favor of their partners, the sociosexual desire ($rs=-0.386$, $p=0.022$) and global sociosexuality ($rs=-0.528$, $p=0.001$) of men decreased. In contrast, in women no significant correlations were found. In both sexes there was also no statistically significant association between the length of the relationship and sociosexuality, MV self-assessment, assessment of partner's MV and MVD.

Conclusions: The results of this study suggest that male but not female sociosexuality may be related to the perceived mate value difference. Due to the elevated costs of women's reproduction, the need of high biparental care and parental investment, restricted men's sociosexuality may be valued in females mate choice. Possible benefits resulting from reduced men's sociosexuality may overcome the drawbacks resulting from relatively lower mate value and facilitate them to form and maintain MV asymmetrical relationships and/or retain a partner. Alternatively, being in a relationship with higher MV woman may discourage man from extra-pair,

uncommitted relationships. The lack of significant results in women data may be a consequence of general sexual differences in mating strategies and priorities as well as lower women's sociosexuality which may limit the significance of the SOI and MVD associations in this gender. Further studies on the MVD and sociosexuality may contribute to a better understanding of relationship formation and mate retention dynamics.

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43. Women Menstrual Cycle Affects their Nonverbal Behaviour. (SFA, PA)

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Ovulation in modern humans is frequently considered to be concealed. However, in last years, researchers found some evidences that women in fertile phase of menstrual cycle differ in many ways. Amongst changes, that have been identified, were for example fluctuations in olfactory, vocal, facial and body attractiveness, or behavioral manifestations, such as changes in dressing. However, it has not been examined so far, whether the cycle also affects non-verbal expressions of women in interaction with man during the dating.

The study used a speed-dating paradigm, in which each person meets with several people of the opposite sex for only 3 minutes and their interactions were videotaped. For the purpose of this study, we analyzed 136 videotapes of 34 women (16 in follicular, 18 in luteal cycle phase) interacting with 4 men (2 who were lowest on the scale as potential short-term partners and 2 who were highest on the scale as potential short term partners). We recorded specific behavioural acts (11 expressions) and states (12 expressions). Based on previous research, these behavioural components loaded into two factors: (i) expressions of interest and (ii) expressions of disinterest. Differences between scores in these two factors and length of individual behavioural states when interacting with men were compared by repeated measure ANOVA.

Women interacting with the men considered as potential short term partner showed significantly higher score of expressions of interest. On the other hand, we found no significant differences in overall score of interest or disinterest expressions in women who were in follicular or luteal cycle phase neither the interaction with male attractiveness score. However, there was a non-significant trend with cue „length of speaking“ ($p=0.052$): women in follicular phase spoke less than women in luteal cycle phase. It is consistent with results of the study where men were found to speak significantly longer with women in fertile phase of menstrual cycle (Kučerová, 2011).

This indicates that menstrual cycle doesn't affect women non-verbal behavior. However we found that women's non-verbal behavior is influenced by men who were rated as potential short term partner.

44. The Big-5 and the Perceived Effectiveness of Love Acts

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Evolutionary Theory based research indicates that personality affects mate selection (Buss & Barnes, 1986; Little, Burt, & Perrett, 2006) and marital satisfaction (Botwin, Buss, & Shackelford, 1997). Since love plays a role in marital satisfaction and mating (Wade, 2012) one might expect personality to also affect the perception of love acts. Therefore, the present research was carried out to examine whether or not the Big-5 personality dimensions relate to the perceived effectiveness of the love acts discovered in prior research. An internet based questionnaire and a sample of 102 participants ranging in age from 18 to 28 were utilized in this research. The Big-5 dimensions of Agreeableness, Openness to Experience and Emotional Stability were expected to be related to the perceived effectiveness of the Love acts. Additionally, men and women were expected to rate Love acts signaling commitment and exclusivity as most effective. Consistent with the hypotheses, the Big-5 personality dimensions of Agreeableness, Openness to Experience and Emotional Stability were found to be associated with the perceived effectiveness of love acts. However, Conscientiousness was also related to the perceived effectiveness of some love acts. Additionally, love acts signaling commitment and exclusivity were rated as the most effective way to show a partner that one loves him or her. These results are discussed in terms of prior Evolutionary theory based research on effective love acts and Evolutionary Theory based research on personality and mate selection.

45. The Relationship between Sex Hormones and Reproductive Success in Homosexual Men

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The current research ($N=250$) explores the reproductive success of homosexual males. It was hypothesized that homosexual men would have a higher number of biological children than the expect number of 0. This research also explored the influence of androgens on the number of biological children for both homosexual and heterosexual males. This research suggests that not only do homosexual men have biological children, the same factors are related to reproductive success in both homosexual and heterosexual men.

46. Towards an Understanding of the Universal Principles of Cognition in Men and Animals

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The various disciplines involved in the study of cognition in humans and other species differ with respect to their research methods as well as their leading research questions. This is usually justified by the fact that different species differ with respect to behaviour as well as body and brain anatomy. Consequently, inter-species differences in available sensory information could imply species-specific processing strategies. However, common ground between species is provided to the extent to which they exhibit comparable physiological needs within a common environment. Beside all diversities, many species have a common evolutionary grounding and their sensory, motor, and other cognitive systems developed to solve similar problems.

Today, disciplines like psychology and human ethology have a long tradition in researching diversities and commonalities in for example cultural background, gender, or individual personality, often with the goal to uncover the essence of intelligence, emotion, or other cognitive high-level phenomena that are universal in humans. In analogy to that we aim for an inter-species approach to the study of the general principles of cognition and intelligence. The ultimate goal of this endeavour is an unbiased view of cognition as a biological phenomenon by de-anthropomorphizing cognitive processes. We demonstrate our research approach with two examples which refer to the comparative study of visual cognition in (a) humans and non-human primates, and (b) humans and pigeons. In the first project we aim to explore the common ground for colour vision and colour preferences in two species that share a highly similar visual system. In the second project we focus on whether the principles of bottom-up and top-down guidance of visual attention that are well-known in psychological research can also be found in pigeons.

47. Linguistic Politeness from an Ethological Perspective: Theoretical Questions and Empirical Issues

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Linguistic politeness (LP) refers to the set of “linguistic features mediating norms of social behaviour, in relation to such notions as courtesy, rapport, deference and distance” (Crystal 2008). Although researchers (e.g. Eileen 2001, Watts 2003) agree that it is intimately connected to normativity, group hierarchy and cooperation - the core questions of human ethology and human behavioural ecology - linguistic politeness has largely been neglected from those perspectives (Eibl-Eibesfeldt 1989 being a notable exception). In this paper we spell out the significance of a naturalistically oriented study of LP, outline a research agenda, and identify a number of methodological problems whose resolution is a prerequisite for such an approach.

Linguistic politeness is a heterogeneous phenomenon, elusive of a consensual definition, subsuming several distinct subtypes, and manifesting itself via a variety of culture-specific politeness devices. Despite this, some form of polite linguistic behavior is considered a linguistic universal (Brown & Levinson 1978, 1987); present in all the world's languages, and available to all speakers. This universality could be due either to the existence of an innate “politeness faculty”, or alternatively, be the result of cultural evolution responding to ubiquitous cognitive/social transmission biases present in all human populations. Determining which of these mechanisms is responsible would have significance not only for our understanding of politeness, but also for the ongoing debates on the nature of cultural and linguistic universals (e.g. Evans and Levinson 2009).

From an evolutionary perspective, a particularly intriguing aspect of LP in general is its stability as a signalling strategy. While various attempts have been made at framing politeness in terms suggestive of costs (e.g. attentiveness, Clark & Schunk 1980; utterance length, Östman 1989; money, Werkhofer 1992), to date no definitive accounting of the costs of polite behaviours has been offered. This opens up avenues for alternative hypotheses, among them viewing LP as a manifestation of a generalised norm-abiding phenotype, or considering politeness devices themselves as independently replicating cultural memes.

Testing hypotheses about LP within a naturalistic framework faces difficulties related to the heterogeneity of the phenomenon, cultural differences in specific politeness

strategies, and to the operationalisation of the notion. Absolute politeness measures for utterances have turned out to be difficult to obtain (Watts 2003), and more recent work has increasingly emphasised the context-dependence of politeness devices, pointing to the fact that in real life situations, very subtle changes in the textual, physical or pragmatic context can lead to substantial differences in the perceived politeness of verbally identical utterances. We argue that a fruitful initial step can consist in building a corpus of utterances that are, firstly, elicited within narrowly defined contexts, and secondly, rated for politeness ordinally rather than cardinally - thus producing a reliable measure of more vs less polite individuals that can be used to test for correlations with other variables of interest.

48. Gesture Synchronisation in a Video Chat Conversation (SFA, PA)

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Gesturing is an integral part of communication. There is evidence that gestures have the purpose to facilitate the communication for both the communicator as well for the receiver of the information. According to the Information Packaging Hypothesis (Kita, 2000), gestures, together with language, help to constitute thoughts and they reflect the mental representation that is activated at the moment of speaking. Gesturing plays an important role in speech production hence it is included in the process of conceptualisation, reasoning and problem solving. However, not only the communicator benefits from gesturing, but the listener as well. Gestures help the recipient of the message to understand better. It is discussed that the neurological basis for this lies in human brain areas (inferior frontal cortex and superior parietal lobe) where so called mirror neurons are situated (Iacoboni and Mazziotta, 2007). Mirror neurons activate whenever we are looking at another individual performing an action and cause the same internal motor representation as if we ourselves were performing that action. It is a simple neural mechanism for understanding actions that other people do. The system is also held responsible for synchronization with others in body postures or gestures. This leads to our hypothesis that recipients synchronise with the communicator by imitating corresponding gestures, in order to achieve better understanding of the other's message. Evidence that the listener imitates the gestures of the speaker would support the theory that understanding is also embodied. The goal of this study is to examine whether participants synchronise in gesture production. The research was conducted on 99 pairs of participants (66 same sex dyads and 33 mixed sex dyads) interacting via video chat. While the participants accomplished two tasks (retelling a short animated movie and describing the picture of a house) the videos of the chat were recorded. The picture and the movie were appropriate material to use, as their content was difficult to conceptualize and according to the Information Package Hypothesis, an increased amount of gesturing was required. Sound was recorded on two channels, one for each participant. The recordings were analyzed with computer vision methods (motion energy and optical flow). We analysed motion synchronisation in gestures in vertical and horizontal motion in cross-correlation matrices. Additionally, we measured synchronisation between motion patterns and speech. Gesture synchronisation between two participants shows that understanding is not only a matter of words, but

also nonverbal communication. While we speak, not only verbal symbols are transmitted, but the whole body is involved in the communicative process. We will attempt to develop a new theoretical frame delineating how mental process and embodiment work together not only in transmission but also in the understanding of information.

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49. What Women Paint

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John Hinshaw (2011) presented work on the representation of fatherhood in art. His work inspired us to step back and consider not only the topics of art, but also the creator. There are two proposed evolutionary functions of art that have placed the emphasis on who create. The first is that art is a byproduct of large human brains (e.g. Gould), and the second is that art is a sexually selected (male-produced) trait (e.g. Dutton, Miller). While there have historically been more male than female artists, we propose that this bias could well be based on politico-historical norms in addition to evolved sex differences, as women have increasingly expressed themselves artistically with changing gender norms. For our current analysis we have restricted our examination to the topic of non-abstract paintings created by Western women. We performed a face-value level analysis of what is important to female artists and found many instances of women painting other women, self-portraits, and landscapes. Mothering was well represented, but also paintings of family members. Flowers and food objects were frequent topics, and household scenes (e.g., a living room or kitchen table). We rarely found paintings of war, violence, conflict, or of hunting, all of which are frequent topics of men's paintings. We discuss our findings using predictions based in evolutionary theory, and revisit the current explanations of the origins of art given the rise of the female artist.

50. What You Get Is What You See? Pretending Facts in Applied User Ratings Studies (SFA, PA)

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The evolution of communication can be seen as arms race between sender and receiver, whose goals might be in conflict. The sender might use communicative signals to manipulate the receiver, while the latter tries to access honest information from the sender. It is a well known phenomenon that to pretend certain facts can lead to success. In fairytales wolves pretend to be humans by dressing up, in medical science placebo effects are common, and with framing effects one can influence our perception and pretend facts beyond facts.

Are these biasing effects limited to communicative contexts, or can they be instrumentalized for technical rating studies? Do our subjects believe everything we tell them?

We conducted a lab-rating study focusing on the perceived quality of Internet connections (QoE). A switch-box had been created whereby participants were able to switch manually between a DSL fixed line and a mobile 3G Internet access mode. Whereas the 3G modem was only a mockup, Internet connection was provided only by the DSL fixed line. XX Participants were asked to rate the perceived quality of the connection, while we manipulated the Internet parameters in the background. Each user rated each technical condition twice – once provided by the allegedly wireless access and once with the fixed line one.

Even if subjects had to rate the connection quality with identical technical parameters, they were less critical when rating the wireless 3G connection than when assessing the wireline one.

The results imply that even if all parameters are steady, it is possible to influence participant's reception by affecting their expectation. This study supports the assumption that human assessment of external stimuli depends on the current state, which is in line with appraisal theory (Scherer 2001).

This research has been performed within the projects U-0 and ACE 2.0 at the Telecommunications Research Center Vienna (FTW) and has been funded by the Austrian Government and the City of Vienna within the competence center program COMET.

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51. Smiles as Reactions to Excuses for Actions with Negative Emotional Influence (SFA)

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Human facial expressions can be considered as emotional symptoms and as communicative signals as well. In case of Duchenne smiles a great deal of data supports that this expression is a symptom of genuine happiness. However, there is a lack of knowledge about the specific social contexts in which the Duchenne smile has a role as a communicative signal. This study aims to find out whether displaying Duchenne smiles can be reactions to others' excuses for their actions with negative emotional influence. 28 students were asked to watch a series of pictures from the International Affective Picture System (IAPS) alone while they were covertly filmed. The analyzed part of the film clips began when a confederate appears from behind a folding screen. There were three conditions: 1. *excuse*, the confederate pretends surprise and says he did not know about the presence of the participant 2. *no excuse*, the confederate has no emotional expressions and does not say anything about whether he knew the participant has been present 3. *control*, the same as the first condition, but participants are informed about the presence of a stranger behind the folding screen, hence his appearance is expected. Participants also completed self-report emotional scales before and after the experiment and the Temperament and Character Inventory – Revised (TCI-R) at the end of the experiment. The eye-contact between the participant and the confederate, Duchenne, non-Duchenne and open smiles were coded by two coders who were blind to the aim of the experiment. The duration of the eye-contacts was longer in the 'no excuse' condition than in the 'excuse' or control condition. Duchenne and open smiles were displayed at higher rates in the 'excuse' condition and non-Duchenne smiles were displayed at higher rates in the control condition. The emotional state was significantly more negative after the 'no excuse' condition. Participants' temperament did not influence the display of their facial expressions or the self-reported emotional states. The findings confirmed that the unexpected appearance of a stranger without any excuse had a negative effect on participants. In addition, Duchenne and open smiles can be elicited by a stranger's innocent intentions due to his false beliefs as an excuse for the negative effects of his action. The assumed signaling function can be discussed within the framework of Fridlund's Behavioral Ecology view in which Duchenne smile is described as a readiness to play or affiliate.

52. Women with Better Relationship with Father Prefer Similar Somatotype in Partner as Their Father Had

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A number of recent studies have shown that partner preferences can be meaningfully influenced by mechanism of sexual imprinting. It was, for instance, found that individuals born to older parents prefer older opposite-sex faces than a control group, and that people prefer partners with similar hair and eye color like their parents have. Relationship between individual and opposite-sex parent during childhood seems to be a crucial factor in this mechanism – i.e. quality of relationship between an individual and his/her opposite-sex parent during childhood predicts choice of similar characteristics in mates. Recent studies were focused on facial and personality characteristics, but no one examined influence of sexual imprinting on body constitution. The main aim of this study was to test possible influence of sexual imprinting on preferences for somatotypes in women. In particular, we focused on link between father's somatotype and preferred male somatotype. In accordance with previous studies, we suggested that women will prefer and choose similar somatotypes in both their ideal and actual partners as their father had, but this link would be modulated by quality of relationship between daughter and father during childhood.

Females (N= 990, average age 26) were asked in online survey to select the picture from matrix of 25 Sheldon's somatotypes, which best matches somatotype of their current/last partner, their ideal partner and their father (as they remember him from childhood). Each somatotype consist of three components (mesomorph, ectomorph, entomorph), and is described by three values ranging from 1 to 7. Thus, we received a level of somatotype similarity between these pairs. Participants also filled in a questionnaire on relationship quality with their father during childhood.

Stepwise regression revealed that quality of relationship with father was significantly predicted only by the level of similarity between fathers and ideal partners somatotype ($B=.142$, $p=.007$). Thus, females who rated their relationship with father higher prefer more similar somatotype in their potential partners as their father had. We found no significant link between somatotype of actual partner and father. There

was no significant link between relationship with the father and level of somatotype similarity between father and actual partner.

Confirmation of main hypothesis shows, that sexual imprinting influences female preferences, but not real choice, in somatotypes, but only in case, they perceive relationship with their father during childhood as positive. It seems real choice might be influenced by other factors which should be addressed in other research.

53. Mate Value Asymmetry and Relationship Satisfaction in Female Opinion - Web-Based Study (PA)

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Mate value (MV) involves all the aspects of an individual which may enhance potential reproductive success. Many studies have shown positive assortative mating in terms of various aspects of mate value. However, there is a lack of work that directly shows how the partners' mate value difference (MVD) is related to the satisfaction in heterosexual relationships. Therefore, the main aim of this study was to investigate how, in female opinion, the mate value difference is related to relationship satisfaction (RS).

In our study we focused on women currently staying in their heterosexual relationships ($N = 156$). Participants completed online questionnaire concerning different aspects of MV (six characteristics: attractiveness, personality, education, intelligence, career/job prospects, popularity) and relationship satisfaction level (based on Relationship Assessment Scale). We classified women in three categories of couples defined by partners' MV discrepancy, i.e. where woman has higher, lower and equal MV in comparison to her partner.

The relationship satisfaction was the lowest in the category where woman assessed her MV higher than her partner's ($H(2,156) = 35.56, p < .0001$). The level of women's RS did not differ in two other categories of relationships. Moreover, in the couples where man's MV was assessed higher than woman's, the relationship between RS and MVD was insignificant.

Our results suggest that MV asymmetry may affect women's satisfaction from their relationships only to the limited extent defined by the relatively lower man's MV. We provide several possible mechanisms that may explain the findings within the context of evolutionary psychology and human behaviour.

54. Body Shape and Muscularity Preferences in Short-term and Long-term Relationships

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Previous research confirms the common expectation that physical attractiveness is an important aspect of mate selection in many species, including humans. This makes sense from an evolutionary perspective since physical appearance reflects fitness and reproductive potential. Body shape and muscularity are among the traits that would reflect fitness and, therefore, seem likely to affect the attractiveness of potential dating partners. Some research supports this expectation. Recently, some research on the impact of physical traits on attractiveness has found that preferences and weights can vary depending on whether the context is short-term or long-term dating. For instance, women view muscular men as sexier but less committed to their mates, apparently leading them to prefer more muscular men as short-term sex partners (Frederick & Haselton, 2007). Men put more emphasis on bodily (versus facial) attractiveness in the context of a short-term relationship (Confer et al., 2010; Currie & Little, 2009). Despite a large volume of research in this area, much less is known about women's preferences for male traits, and the issue of female muscularity remains essentially unstudied. Moreover, previous research has focused on ideals rather than ranges of acceptability of attractiveness.

The present study examined the role of body shape and muscularity in estimations of attraction for short- and long-term dating in both men and women. As part of an on-line survey, adults viewed four visual-analog rating scales: These depicted variations in body shape (thin to obese) or muscularity in men or women. A new visual-analog rating scale for female muscularity was created for this purpose; the first such scale of this sort. The on-line survey was completed by 191 participants who were asked about the ideals and acceptable ranges in body types for short-term ("hook-up") and long-term dating. Our expectations included: [1] Women will prefer more muscularity in a short-term context, [2] Men will desire to be more muscular than what they indicate as their current level, [3] Women will most often want to be thinner, and [4] Given the much greater resource commitment in long-term dating, men will be more selective of long-term dates and, thus, select smaller ranges of female body types as attractive for long-term relationships.

Men generally wanted to be more muscular and thinner than their perceived size, while females did not want to be more or less muscular on average, but wanted to be thinner. The fact that only men wanted to be more muscular supports the

evolutionary perspective on sex differences in the value of muscularity. When selecting ideal body types in potential dating partners, women preferred slightly thinner and more muscular bodies for hook-up dating than for long-term dating. Women also selected a narrower range of body sizes as “acceptable” for hook-up dating than for long-term dating. In contrast, for men there were no such significant differences for either ideals or acceptable ranges except for a narrower range of female muscularity selected as acceptable for long-term versus hook-up dating. The results are interpreted within social and evolutionary contexts.

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55. Homogamy and Complementarity in Long-term Homosexual Couples. (SFA, PA)

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Recent studies show that both physical and personality characteristics influence mate choice. Two theories explaining particular mechanisms of mate choice were proposed. Theory of homogamy suggests that individuals prefer partners with similar personality traits as they have. Such relationships last longer than relationships based on opposite characteristics. From an evolutionary perspective mate choice based on homogamy can be explained by theory of kinship selection: thus, partners who are more similar to each other are more altruistic, even if they are not relatives. In contrast, theory of complementarity states that people choose mates with opposite personality traits; these relationships last shorter. From a biological point of view, this strategy is particularly useful because it reduces risks associated with inbreeding. According to a widespread belief gay couples are characterized by the complementarity of gender roles (i.e. 'top' × 'bottom'). Nevertheless, previous studies showed that partner preferences of gay men depend on their own level of masculinity-femininity: the more masculine individual the higher preference for masculinity, and vice versa.

Main aim of the current study was to test homogamy and complementarity of personality traits in long-term same-sex male couples. Based on previous studies, we suggested that some traits may be rather influenced by the mechanisms of homogamy (for example age, gender nonconformity, some personality traits or sociosexuality) while other traits are influenced by complementarity (for example socioeconomic status). Furthermore, we assumed that the above mentioned strategy of homogamy and complementarity will also influence the relationship satisfaction of gay couples, as was shown in heterosexual couples as stated above.

The research sample consisted of 41 male homosexuals (mean age 24.6, SD = 4.75) and their long-term partners (mean age 27.4, SD = 5.21). All participants completed anonymous set of questionnaires focused on the five factor personality structure (NEO-PI-R), the current quality relationships (Spanier's test of dyadic adjustment), questionnaire focused on gender diagnosticity and revised Sociosexuality orientation inventory (SOI-R).

Each questionnaire was evaluated separately, and we will compare the individual scores of participants and his partner by correlational and regression analyses. The results will be interpreted in the frame of theory of homogamy and complementarity.

56. Mate Choice in Long and Short Term Relationship between Homosexual Woman

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Different criteria used for partner choice among men and women have been identified in several cross-cultural studies. This difference probably stems from the different degrees of parental investment of each gender. Women seem to be predisposed to select partners with characteristics of emotional and material investment, as well as good indications of health. Men, on the other hand, may use the same criteria as women, however, they give more importance to physical appearance and youth. In short and long term relationships the literature indicates that there is a difference in the choices among women. In the first case they have demonstrated to prefer characteristics related to physical health compared to the second type of relationship, in which the emphasis has been focused on partners who are good at providing resources and who have high level of emotional investment. There are few studies that investigated the criteria that homosexual women use in their partner choice. Data from studies investigating the origin of homosexuality suggested the possibility of biological influences. In evolutionary terms homosexuality could have evolved in part as a byproduct of the evolution of the typical pleasure in sexual activities. If this hypothesis is correct, the potential for developing a homosexual, heterosexual or bisexual orientation can be enhanced by characteristic environments of particular individuals. This assumption may suggest that the psychological mechanisms for mate choice are similar among women of different sexual orientations. To test this general hypothesis, we investigated the preferences in partner choice of 100 women in reproductive period, from 18 to 40 years, who classified themselves as "exclusive homosexual" or "homosexual, and sometimes heterosexual." For data collection we used two instruments, one for the selection of participants and another for data collection. The instrument of data collection was divided into five sections: 1) Demographic Data, 2) Data from research partners, 3) Criteria valued in choosing a partner, 4) Criteria valued in choosing a short and long term partner, 5) Variables related to sexual performance. Participants were contacted by the method a) "snow ball", b) bars attended by gay groups and c) GLBT associations. We specifically investigated the variables involved in choosing short and long term partners and compared the results with data collected by Cruz (2009) with heterosexual women in reproductive period. The results indicated that there is greater preference for physical attributes in short-term relationships among both homosexual and heterosexual women. In both

groups there is a greater demand for long-term relationship attributes. Attributes related to bonding were more demanded in this type of relationship; possibly because 75.6% of these women have an income and do not depend on their partners to fend for them in the relationship, reducing the need for partners who invest in material resources. Homosexual women seem to have the same standards of partner choice as heterosexual ones do.

57. Marital Satisfaction: an Assessment of Northern Brazilian Couples (SFA)

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We investigated perceptions of couples on their own marital relationships. According to Evolutionary Psychology, the evolutionary framework which supports this study, those perceptions are part of monitoring mechanisms of relationship satisfaction. Specifically, we aimed to investigate how couples living in the metropolitan region of Belém-Pará- Brazil evaluate the quality of their current marital relationships, through the comparison between responses of each husband and wife. We used the MARQ questionnaire to assess their marital satisfaction, thus we found length of relationship was 12.62 years on average. Most couples were middle class and 86% of these reported satisfaction in their relationships. Among the 12 scales of MARQ Questionnaire, jealousy, partnership, and love were more important for relationship satisfaction than other factors. When we analyzed participants' responses divided by sex, both husbands and wives evaluated sexual jealousy, reconciliation and problems with their partner as the most important factor for satisfaction within the relationship. Among those who are satisfied in their relationships, we were able to find homogamy in their age, income range, and level of education. Our results support the Evolutionary Psychology hypothesis about the omnipresence of love and jealousy as mechanisms of pair bonding from early mankind to today. Among Northern Brazilians couples, it seems the jealousy mechanisms are strongly underlie their mating behavior. The small differences in the evaluation of relationships between sexes did not impact significantly on the satisfaction of wives and husbands in their relationships.

58. The Effect of Starving and Dietary Restrictions on Human Body Odour (SFA, PA)

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Previous work on non-human species showed that mate choice and reproductive success is in part affected by cues of secondary sexual characteristics which are cues to assess condition of potential mate. These cues could be influenced by diet e.g. amount of proteins in rodent odour. Similarly in humans, body odour plays a significant role within mate choice process and is affected by the ingested diet. Therefore the main aim of our study was to test how starving and diet affects the hedonic quality of human axillary odour.

We used balanced within-subject experimental design. Odour samples (cotton pads fixed in both armpits and worn for 12 hours) were obtained from healthy female donors across three conditions. In the first experiment i) during their habitual food regime; ii) after 48 hours of starvation (drinking water was provided) and iii) after 72 hours after restoration of caloric intake. In the second experiment i) during their habitual food regime, ii) after 14 days of glucose restriction and iii) after next 14 days of diet prescribed by obesitologist. Cotton pads were then freezed. Axillary samples were assessed by male raters for their pleasantness, attractiveness and intensity. We also collected details about donor's weight, BMI, measurements of chest, waist, hips, measurements of body composition and blood and urine assays. Obtained data were processed by repeated measure ANOVA and bivariate correlation analysis.

The odour samples collected during caloric restriction were rated significantly less pleasant, less attractive and more intense compared to odour samples collected after starving. We calculated difference in ratings between second (during starving) and first (before starving) sampling. The differences in ratings of attractiveness and differences in glucose levels were negatively correlated. Interestingly, we also found that body odour was rated more pleasant, more attractive and less intense after restoration of food intake than prior starving (we presumed no significant differences); this could be caused by specific diet recommended after starving to avoid potential digestive difficulties. Our results suggest that restoration of food intake positively influences hedonic assessment of human body odour.

Results will be discussed within the sexual selection framework. Body odour quality is linked not only to markers of genetic compatibility or fertility status but also to the dietetic factors. These might provide cues to current fitness status and metabolic efficiency.

59. Sex Differences in the Status Consumption of Coffee

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Status consumption is the process in which a person purchases products or services in the attempt to signal his or her high status. Status consumption is prevalent in both industrialized and non-industrialized countries. For instance, in Bolivia, the poor are willing to pay more for goods with a symbolic designer label, even at the expense of basic goods. In mainstream marketing literature it is common to suggest that gender differences in consumer behavior are minimal. More specifically, most studies in the field of status consumption do not find any sex difference when employing self report measures. Mate selection theory, however, predicts that males would advertize their status more than females. We therefore hypothesized that in comparison to females, male students who bring coffee to class will show a stronger preference to branded coffee over non-branded coffee.

1,053 students in a large Israeli college (55% female) were observed in 30 classroom observations. Of these observations, 13 were conducted by naïve observers who were not notified of the study hypotheses. First, it appeared that more men entered the class with coffee (17%) than women (12%; FET, $p = 0.016$, $N = 1053$). Second, as hypothesized, when observing students who came with coffee to the classroom, 85% of the men brought the branded coffee, in comparison to 64% of the women (FET, $p = 0.002$, $N = 149$). This effect was evident in both subsamples of the classes that were observed by naïve observers (FET, $p = 0.019$, $N = 66$), and those observed by the researchers (FET, $p = 0.014$, $N = 83$).

We believe that this effect results from the stronger need of men to signal their status, which they express in their choice of brand products. Our observational results are discordant with those using self-report measures. It is possible that while people who purchase status brands do not report it. This may be due to limited awareness, or to the negative perception of acting in a manner which may seem as irrational. The study results show that sex differences do occur in at least some forms of status consumption, and suggest that signaling status may be done even through daily inexpensive products such as coffee.

Wednesday 15th August

09:00 AM - 10:00 AM

LOUISE BARRETT Reflecting Unfathomable Depths, or how to MAke Non-magical Minds	Main Lecture Hall <i>Chair: Maryanne Fisher</i>
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10:30 AM - 12:30 PM

Behavioral Economics	Main Lecture Hall
Life History and Development	Small Lecture Hall

01:50 PM - 03:30 PM

Attractiveness	Main Lecture Hall
Theories in Human Ethology	Small Lecture Hall

04:00 PM - 06:00 PM

Physical Appearance	Main Lecture Hall
Social Interactions and Sexuality	Small Lecture Hall

07:00 PM - 10:00 PM

Heuriger	Neustift am Walde
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Reflecting Unfathomable Depths, or How to Make Non-Magical Minds

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“Ladies and gentlemen, I can envision a day when the brains of brilliant men can be kept alive in the bodies of dumb people.”

Steve Martin, “The Man with Two Brains”

The notion that our brains make us the people we are is one that permeates our culture, particularly popular culture. A quick peek at Wikipedia reveals that there are at least thirty or so films that involve some form of mind transference, when one person's mind somehow ends up in another person's body. Clearly, we find this very appealing and --however implausible the actual mechanics are --we seem happy enough to buy into the notion that if a person's brain is moved between bodies that person would, to all intents and purposes, remain the same. This is, of course, a very Cartesian perspective.

Even if one disregards the notion that there is some kind of incorporeal, magical ‘mind stuff’, and adopts a purely materialist notion that our brains *are* our minds (although how this actually works is anybody’s guess...), we still have a strong sense that cognitive abilities reside solely in the brain; in our everyday lives, we are constantly reminded to ‘use our heads, not our hearts’ when it comes to decision-making, and when a man is accused of thinking with something other than his brain, it is rarely a compliment. Bodies are a necessary encumbrance, then, but have nothing to do with how we think about the world. This is probably because, as humans, we tend to focus only on certain kinds of abstract cognitive processes, such as logical, linguistically-based, rational problem solving, as the main job that our brains do for us. It is also the case that we assume that all these cognitive processes are securely bound by our ‘skin and skull’, occurring only in our brains. We then project this view onto other animals, studying them from a highly anthropocentric perspective, where the degree to which their behaviour is considered both interesting and intelligent is tied strongly to how much it resembles our own, and where larger brained species are much more likely to have human-like traits projected onto them simply because of our own big-headed bias to assume that brain size is crucial for producing intelligent behaviour.

But is this really accurate? In this talk, I hope to persuade you that cognition *isn’t* all in the head, that bodies *are* more involved than we suppose, and that some cognitive

processes are distributed even more widely than that, reaching beyond our body and brain, and out into the environment itself. This in turn illustrates how it is our flawed understanding of our own cognitive processes that leads us into error when we consider other species; we simply fail to appreciate that intelligent, adaptive behaviour can easily be produced by nervous systems much simpler than our own, and that complex behaviour is frequently the product of very simply internal mechanisms acting in concert with bodily and environmental resources. Once we see things from this point of view, our anthropomorphic/anthropocentric bias falls away; we can recognize true commonalities between ourselves and other species, rather than anthropocentric chimera; and we are drawn to see that our own peculiarly human form of cognition may owe more to what goes on outside our heads, rather than in them. Drawing on a variety of disciplines from animal behavior and comparative psychology to robotics, artificial life, and developmental psychology, this talk suggests that we need to think again about the nature of thinking...

V. Behavioral Economics

Chair: Tecumseh Fitch

Main Lecture Hall

10:30	Johannes Jaeschke, Georg Primes, Martin Fieder, Elisabeth Oberzaucher, Bernard Wallner Peers Defect and Bosses Cooperate: Expectations unmet lead to Physiological Stress (SFA, LMA)
10:50	Georg Primes, Johannes Jaeschke Facial Perception of Co-players Influences Outcomes in an Ultimatum Game Tournament (SFA)
11:10	Sonja Windhager, Klaus Atzwanger, Katrin Schaefer Eye Catchers: Direct Behavioral Observation of Responses to Social and Natural Stimuli in a Real-life Situation (SFA, LMA)
11:30	Daniel Re Facial Cues to Apparent Height Influence Leadership Choices in Simulated War and Peace Contexts (SFA)
11:50	Lenka Linke, Karel Kleisner Big Boss, Big Trust: Occupational Hierarchy Predicts Perceived Trustworthiness in Executive Managers (SFA)
12:10	Hady Fink, Alexander Fink, Wulf Schiefenhövel Corruption and Reciprocity: An Empirical Study of the Brazilian Health Care System

Peers Defect and Bosses Cooperate: Expectations unmet lead to Physiological Stress (SFA, LMA)

Johannes Jaeschke, Georg Primes, Martin Fieder, Elisabeth Oberzaucher, Bernard Wallner

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Social hierarchy and corresponding rank patterns impinge on behaviors and the long-term stress response of individuals in numerous non-human primate species (1). Research about health consequences of the socioeconomic status revealed comparable interdependencies between human physiology and social status in westernized societies (2). However, for humans the question which patterns of social status and behavior trigger a stress response remains to be answered. We conducted an experimental cooperation game aimed at disentangling some of these patterns and their influence on elevated cortisol levels. We suggest that the level of participants' cortisol level is a function of the frequency of received defection and the social rank distance between participants and their reference agents (RAs).

In a computer-based experiment 91 male students played a repeated sequential cooperation game (RCG), receiving information about a RA's socioeconomic status as rank indicator for a human social hierarchy. All subjects were first movers, facing programmed RAs representing 4 different types: Agents with a high or low socioeconomic status either cooperated reciprocally in about 20% or 45% of the cases (3). Subjects were given the impression that they played against a real person. We collected saliva samples 2-4, 18 and 32 minutes after finishing the RCG, as well as on 2 pre-experimental working days.

Our findings indicate that in response to the experiment a significantly increased stress response per se does not distinguishably depend on the frequency of defection a participant faced or the social rank distance between participants and RAs. However, matching subjects into payoff-status groups allowed to pinpoint differences in game perception: Subjects who faced a non-cooperative low status agent as well as subjects who faced a cooperative high-status agent showed significantly increased stress responses. In the two other groups of participants, resting samples and experimental samples did not differ significantly.

The results of our study provide evidence that cortisol rise in response to social dilemma situations depends on the rank distance between interaction partners and expectations regarding behavior. Measuring the stress response in experimental

games thus allows for insights into real life interactions and corresponding behavior patterns.

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Facial Perception of Co-players Influences Outcomes in an Ultimatum Game Tournament (SFA)

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Behavior in the Ultimatum Game (UG) has been investigated intensively for the past decades for being an approximation of a bargaining situation of everyday life. The use of cues - both abstract and context related - in settings of experimental economics highlighted the importance of social influence factors in the decision making process (e.g. Rigdon et al., 2009). Lately, visual cues such as facial photographs of participants were included in settings and interpretation of outcomes (e.g. Zaatar et al., 2009). We argue that perceived facial traits, so far being neglected in experimental economics, affect both, proposer and responder behavior in the UG. It has been shown that we are able to assess essential information for social interactions from the human face (e.g. Fink et al., 2007), an evolutionary adaptation of indisputable relevance. Therefore, this approach represents an eligible step from strictly anonymous settings towards a more relevant approximation of daily life interactions in a controllable environment.

In total, 40 beardless male students of the University of Vienna took part in UG sessions. Photographs were taken under standard lightning conditions with neutral expression, gaze directed towards the camera and facial ornaments being removed. The UG was conducted using the strategy method in which participants specify individual offers as well as minimum acceptance levels for their co-players represented by respective standardized photographs. To account for the issue of social distance in experimental settings (see e.g. Burnham, 2003), we use a round robin tournament framework where final rank order defines participants' payoffs. Subsequently, students of the same University but different faculty rated the photographs on items such as masculinity, dominance, age and assertiveness.

Average ratings of these traits were used to analyze potential associations with behavior and outcomes in the UG tournament. We suggest that masculinity related characteristics increase a player's capability to obtain higher profits in this kind of setting. Also, our results are in line with previous findings indicating that information based on social cues strongly influences behavior in common economic settings.

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Eye Catchers: Direct Behavioral Observation of Responses to Social and Natural Stimuli in a Real-life Situation (SFA, LMA)

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The exploration of any environment can be divided into three stages: (1) initial encounter and decision to explore it further or to move on, (2) information gathering (if explored), (3) decision whether to remain in the environment and exploit it. This process is found to be influenced by both natural and social cues. What makes us stop and stay? This question is not only important for retailers, but also for urban planners. That is because environmental preference is positively correlated with prosocial behaviors and the desire to affiliate in a situation. In the current study, we unobtrusively observed the behavior of passers-by and predicted that social stimuli (other persons having stopped) and biophilic stimuli enhance the likelihood to stop and stay in a particular area of a shopping mall. Yet, we had no *a priori* assumption on the magnitude of impact of these two.

Altogether, the behavior of 481 non-stopping and 521 stopping persons out of 12,921 observed passers-by was coded by means of direct behavioral observation via a hidden video camera. We combined scan sampling with focal sampling and continuous recording of five behaviors (stopping, going back, pointing, bodily contact, and facing the window display) and registered the total duration of stay as well as the time span between two stopping focal subjects ("waiting time"). Sex and estimated age of the focal subject were recorded as well as the number of persons in their company together with the estimated social relationship (child, partnership, peers) and how many of them stopped. Data collection took place in an Austrian shopping mall, where the research area was a trapezoid part of the arcade. An aquarium was temporarily installed in the window display of an exclusive gift shop.

When the aquarium was present, people were considerably (and significantly) more likely to stop (8.5% versus 3.3%) and to use pointing gestures (26% versus 7%). Yet, an aquarium effect on "waiting time" could only be observed when the pedestrians' flow was relatively high (> 10 passengers/minute in one direction; 90 s with aquarium versus 152 s), but then it was as strong as the effect of one or more strangers already standing there (reduction by 53 s). The duration of stay was further influenced by the behavior of acquainted persons. When all companions stopped, the focal person's total duration of stops was 5.2 times the duration of stops of a focal

subject left behind by all companions, and 2.1 times the duration of stops of solitary individuals.

The findings of this study suggest that modern citizens are still subject to their evolutionarily shaped response mechanisms. They use social cues for attention orienting and focus on sign-stimuli indicative of environmental conditions favorable to survival (moving water, plants, and animals). That the aquarium affected people's stopping behavior in high-density conditions only, and then as effectively as the presence of other stopped people, was surprising and might be interpreted in terms of attention restoration theory. Elements fostering well-being and communication might be particularly precious in anonymous city contexts.

Facial Cues to Apparent Height Influence Leadership Choices in Simulated War and Peace Contexts (SFA)

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Physical height has a well-documented effect on human leadership selection. Tall people are more likely to gain leadership positions in both the business and political world, suggesting that height acts as a cue to physical and social dominance. Facial appearance also affects leadership selection, with face judgments of leadership ability predicting political election outcomes and corporate CEO success. We tested whether face cues to apparent height also affect judgments of leadership ability. We found that face cues representing tall apparent height increased judgments of leadership ability in natural images of men's and women's faces. Furthermore, face cues to tall apparent height were favoured more when choosing a leader in the simulated context of war than the context of peace. Face cues to height were found to be morphologically distinct from face cues to sexual dimorphism, and influence leadership and dominance judgments more so than facial masculinity. Given the extensive display of leadership candidates' faces during times of leader selection (campaign ads, media appearances, vote ballots, etc.), face cues to height may have a pronounced influence on leadership decisions in the real world.

Big Boss, Big Trust: Occupational Hierarchy Predicts Perceived Trustworthiness in Executive Managers (SFA)

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Face perception provides cues about an individual's social, economic, and reproductive success. While perceived attractiveness would play a major role in show business and dominance in armed forces, we suggest that success in corporate hierarchies would depend rather on perception of trustworthiness. In this study, we examined the relationship between perceived trustworthiness, dominance, attractiveness and social status represented by position within a corporate hierarchy.

Participants, all males, were approached on a golf course, i.e., in a stress-free environment while relaxing apart from their business engagement. A static portrait of a participant's face assuming neutral expression was taken and all participants were asked to fill out a short questionnaire. The number of superiors and subordinates of each, and their position in corporate hierarchy were used as a proxy of social status. 77 female and 47 male university students rated the facial photographs of 55 male managers for perceived trustworthiness, attractiveness, and dominance. Social status did not affect the perception of attractiveness and dominance, but it did significantly affect perceived trustworthiness: the more trustworthy face, the higher number of subordinates and the lower number of superiors. We also found a significant correlation between perception of trustworthiness and occupational position; heads of corporations (chief executive directors) were judged as more trustworthy than heads of departments. However, the effect was significant only for women's ratings, which may indicate women's higher accuracy in estimating the social status of men. Geometric morphometrics revealed facial features associated with a perception of trustworthiness. When facial shape was tested against occupational position, the chief executive directors did not significantly differ from heads of departments.

A superior inevitably engages in risk-taking behavior such as delegation of responsibility, sharing organizational plans, and involvement in decisions. We suggest that selection of subordinates might make perceived trustworthiness one of the most desired 'features', especially when choosing an employee/collaborator from an unknown group of people.

Corruption and Reciprocity: An Empirical Study of the Brazilian Health Care System

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Transparency International (2009: 14) defines corruption as: „*The abuse of entrusted power for private gain*“. The phenomenon has been well studied from different perspectives: political and economic studies (Becker 1968, Rose-Ackerman 1978) are the most popular. Reciprocity as a concept has also been examined (Fehr/Gächter 2000). However, the aspect of corruption as form of reciprocity has hardly been studied. The few exceptions found are using theoretic models of rational choice (Game Theory) (Lambsdorff/Frank 2007, Ubeda/Duenez 2011).

Corruption is prevalent in all cultures and societies and therefore appears to be a successful strategy in the evolutionary process. Looking at the underlying factors, Evolutionary Biology/Psychology and Human Ethology can offer new perspectives and methods to understanding the phenomenon.

As first approach to this topic, we are presenting evidence from a field study conducted in the rural part of the Brazilian Northeast. The issue at hand is petty corruption in the health care system.

Background. Petty corruption is defined as “*Everyday abuse of entrusted power by low- and mid-level public officials in their interactions with ordinary citizens, who often are trying to access basic goods or services in places like hospitals, schools, police departments and other agencies.*”

Especially the health sector is known to be prone to corruption (Vian 2002, 2008). There are many causes of corruption in this area: a high degree of imbalance of information and power between patient and health care provider, inelastic demand for services due to lack of choices, complexity of the system etc.. According to the 2009 Global Corruption Barometer, 9% of the population reported to have paid bribes in the previous 12 months for medical services.

Procedure. Corruption is difficult to measure. Based on current literature and experience of the authors, a questionnaire was developed in several test rounds during a previous study (Fink 2011). 125 women were then chosen (convenience sample) and personally interviewed by two interviewers using this questionnaire in 2010.

Results and Conclusions. Incidence of corruption: 32% report some sort of corrupt experience in the health sector. However, opinion concerning corruption and reality diverge: there is far less corruption than the people interviewed had predicted themselves.

The majority (80%) of corrupt incidences are political (promising votes, etc.). One-shot corrupt acts (bribery) were hardly detected. Furthermore, differences between urban and rural area indicate that depending on the setting, the motivation for corruption is different. Even for cases of petty corruption, personal relationships appear to be much more important than expected. Data on the various forms of corruption will be provided.

Further studies using additional methodological approaches plus emic and ethic evaluations provided by persons on both sides of corruption-practices are predicted to show that the reason for the ubiquitous prevalence of corruption is its rootedness in human biopsychology. Corruption will therefore be very hard to eradicate, especially in societies where involvement in the system as a giver or receiver of favors, is an essential contribution to survival.

VI. Life History and Development

Chair: William McGrew

Small Lecture Hall

10:30	Kai Willfähr, Mikko Myrskylä Epigenetically Pre-adapted Offspring or Detrimental Epidemic Survivors? – Disease Load at Birth Predicts Survival Rate in Later Epidemics
10:50	Anna Howat-Rodrigues, Rosana Tokumaru , Patrícia Izar Childhood Unpredictability and Its Relationship to Sociodemographic Data and Future Expectations (SFA)
11:10	Peter Jonason, Anna Czarna, Norman Li Location, Location, Location: The Dark Triad and Life History Indicators in American, Singaporean, and Polish Samples
11:30	Charlotte Störmer The Age-specific Impact of Within-family Mortality Experiences on the Speed of Female and Male Life Histories
11:50	Rachel Ripardo, Eulina Lordelo Stressful Events in Childhood and Adult Attachment

Epigenetically Pre-adapted Offspring or Detrimental Epidemic Survivors? – Disease Load at Birth Predicts Survival Rate in Later Epidemics

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The theory of functional epigenetic inheritance postulates that parents are able to imprint their offspring's epigenome prior to conception in response to environmental cues in order to adapt the offspring's phenotype. In this regard, it has been suggested that an increased risk of mortality for example under high epidemic pressures might act as a trigger of epigenetic imprinting. As a result, epigenetic imprinting of the offspring's epigenome may be adjusted to optimize the trade-off between growth and maintenance (immune system) to match the environmental cues perceived by its parents. If the parents predict the offspring's future environment (e.g. regarding the epidemic stress level) correctly, it is to be expected that the offspring benefits from a phenotype-environment-match. In turn, if the parental prediction of the future environment is incorrect, the pre-conceptional modification of the offspring's epigenome may result in a phenotype-environment-mismatch.

In the present study, we focus on the measles and smallpox epidemics of the 18th century in New France [Canada] as a potential case of epigenetical imprinting as described above. Children born between 1705 and 1725 were categorized into five groups based on their status of measles-exposure at birth. With this respect we considered whether they were born (1) prior to (2) at the beginning of (3) during the peak of (4) during the ending of or (5) after the measles epidemic of 1714-1715. We used proportional Cox regression and fixed effect models to estimate to what extent the children's exposure status to the measles epidemic of 1714-1715 at birth affected their survival of the consecutive measles epidemic from 1729 to 1731 as well as the smallpox epidemic from 1732 to 1734.

The results indicate that children conceived during the peak of the measles and born during the ending of the measles epidemic (exposure category 4) exhibited a significantly higher survival of both following epidemics. This also holds true if the model is stratified by family ID (fixed effect). Children born before or after the end of the measles epidemic of 1714-1715 show no increased survival of the later epidemics.

We argue that functional epigenetic inheritance might be a possible explanation for the results, and further discuss to what extent the survivors of the measles epidemic

of 1714-1715 (exposure category 1, 2 & 3) may suffer from an acquired vulnerability due to their measles infection.

Childhood Unpredictability and Its Relationship to Sociodemographic Data and Future Expectations (SFA)

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The perception of unpredictability refers to an individual's uncertainty about resource availability in the environment. Theoretical models suggest that the perception of unpredictability develops during the individual's childhood, leading to the formation of a mental model of unpredictability. It is generally considered that an adult individual's expectations about long and short term resource availability is affected by this childhood mental model and by the immediate environment unpredictability. This study aimed to relate the childhood perception of unpredictability of young people and adults with their future expectancy, and with current socio-demographic features. The study included 529 people: 158 adults in conflict with the law that had already been in prison (mean age = 34.2 years; $sd=10.17$), 372 graduate students ($m=19.6$; $sd=3.33$) and 121 women above 40 years old who concluded at least high school education ($m=50.9$; $sd=8.66$). They answered the Family Childhood Unpredictability Scale for Brazilians, and a questionnaire on sociodemographic data (age, education degree, purchasing power index – 0 to 43, working conditions, marital status, religion, number of children), and future expectancy. Cluster analysis split child unpredictability into two groups: (a) Cluster 1 showed low mean unpredictability in all dimensions (feed, discipline, care/support, financial resources); (b) Cluster 2 showed high mean unpredictability in all dimensions.

Logistic regression showed that the current sociodemographic features: age, purchasing power and being in conflict with the law affected child unpredictability. High unpredictability was related to people that were in conflict with the law, purchasing power between 4 and 20, and age between 21 and 54 years old; The model wasn't significant for future expectancy. As predicted, people who perceived their childhood as more unpredictable, and people with a high unpredictable mental model, also experienced unpredictability in their adult life, as were those with the lowest purchasing power and those who were responding to criminal process.

Location, Location, Location: The Dark Triad and Life History Indicators in American, Singaporean, and Polish Samples

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The current research examined the link between the Dark Triad traits and individual's life histories in the USA ($n = 264$), Singapore ($n = 185$) and Poland ($n = 177$). It was hypothesized that relationships between the Dark Triad traits and *fast* life history indicators would be more pronounced in populations that experienced greater hardship and environmental unpredictability connected to socioeconomic stress and that this is because the Dark Triad traits represent a context-dependent, fast life histories strategy. Results showed that (1) in a society (i.e., Poland) that has suffered protracted periods of socioeconomic stress, there was a strong and more expansive link between the Dark Triad and life history indicators and (2) men scored higher than women did on the Dark Triad traits in all three locations. Results are discussed from a Life History Theory perspective.

The Age-specific Impact of Within-family Mortality Experiences on the Speed of Female and Male Life Histories

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Life History Theory predicts that mortality is one of the most important environmental cues shaping (human) life histories. There is evidence that individuals confronted with high mortality environments show characteristic traits of fast life history strategies: they marry and reproduce earlier, have shorter inter birth intervals and invest less in their offspring.

However, there is a lack of information in the literature regarding how mortality experiences translate into adaptations in the speed of life histories in historic human populations and on male life histories in specific. Furthermore, little is known about whether family or individual level mortality experiences have the greatest effect on life history decisions.

In a comparative approach using Event History Analyses (EHA) I study the impact of family and individual level mortality exposure on two central LH parameters, age at first marriage and age at first birth, in three historic human populations (Germany, Finland, Canada). Mortality experience is measured as the number and timing of sibling deaths an individual was confronted with until the age of 15 at the family (EHA) and the individual level (EHA stratified by family ID). Models control for the interaction of covariates with time.

Results show that both sexes can adjust the speed of their life histories according to mortality exposure. Individuals confronted with mortality at the family level show characteristics of faster life histories. Individuals marry/reproduce earlier when confronted with higher numbers of sibling deaths. This effect shows an interaction with time: early loss of siblings delays reproductive events while later loss of siblings is related with earlier marriage/birth. In contrast, to the effect of mortality exposure at the family level, there is no general impact of individual mortality experiences on reproductive timing.

In addition to previous studies indicating that female life history traits vary in relation to environmental risk the present study shows that this is also true for male life histories. For both sexes the impact of mortality experiences on the speed of their life histories depends on the timing of these mortality events and is, therefore, age-specific.

This study provides evidence for the importance of environmental factors and the family environment for reproductive timing whereas individual experiences seem to play only a minor role in these life history decisions.

Stressful Events in Childhood and Adult Attachment

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Life conditions in childhood have been associated with several types of stressful life events. Some theoretical models from life history theory suggest an association between stress level and peculiar developmental pathways, where stress is sometimes related to material poverty, and sometimes related to a tumultuous psychosocial environment. The problem would be to identify which stressors have influence in the development and if this is the result of an objective material configuration or is tempered by the way the situation is perceived. In this case, it is a relevant issue for the universality of the phenomena under study because the measures of poverty and stress make references to the environment, limiting the findings generality. Therefore, this research aimed to identify specific childhood stressors; assess adult attachment style, and relate the stressful childhood events to adult attachment style. We employed a descriptive and correlational approach, involving 150 women, aged between 18 and 45 years and randomly selected. We applied a life history questionnaire, an attachment scale and parenting style scale. The hypotheses sustained were that an insecure attachment style is related to a greater amount of specific stressful events, family, psychological and / or material, and to a perception of events as stressors. Descriptive and inferential analysis revealed that an insecure attachment style was positively correlated with more educated mothers, having fewer siblings and with being younger. Further analysis showed that the family atmosphere and psychological stress had a greater impact on attachment styles than variables related to material conditions of childhood, despite the possibility of an indirect relation. Besides these types of stress, some variables related to illness, crime and death of the father alone resulted in positive correlations with insecure attachment. No association was found between attachment style and perceptions of stressful events, possibly due to sample characteristics, with insufficient quantity of stress experience. We suggest more research employing the perception of the stressor.

VII. Attractiveness and Body Composition

Chair: Craig Roberts

Main Lecture Hall	
01:50	Kok Wei Tan, Ian D Stephen Sensitivity Threshold and Cross Race Effect in Facial Colours Discrimination (SFA)
02:10	Camille Ferenzi-Lemaître, Sylvain Delplanque, Ines Mehu-Blantar, David Sander Human Attractiveness: Congruence between Multiple Sensory Signals
02:30	Ian Stephen, A Treshi Perera Effects of Short-term Exposure to Media Images on Judgements of BMI of Women's Bodies as Healthy and Attractive
02:50	Jan Havlíček, Jaroslava Valentová, Zdeněk Vilikus, Věra Pivoňková, Rudolf Hoffmann, S Craig Roberts, Jaroslav Flegr Is Physical Attractiveness Related to Health Status? Results from Cross-cultural Data Set
03:10	Vit Trebicky, Jan Havlicek, S. Craig Roberts, Anthony C. Little & Karel Kleisner Perceived aggressiveness predicts fighting performance in Mixed Martial Arts fighters (SFA, LMA)

Sensitivity Threshold and Cross Race Effect in Facial Colours Discrimination (SFA)

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Human facial skin colour reflects individuals' underlying health (Stephen et al, 2011), and enhanced facial skin CIELab b* (yellowness), a* (redness) and L* (lightness) are perceived as healthier by Caucasian and South African participants (Stephen et al, 2009, 2011). This effect may be restricted to own-race faces, possibly because of unfamiliarity with other-race skin colour (Stephen et al, 2012). Skin redness also reflects emotional state (Drummond & Quah, 2001). Recently, it has been shown that people are able to discriminate very small changes in skin blood coloration in Caucasian faces (Re et al, 2011), possibly due to selection for ability to detect social signals (Changizi et al, 2006). Here we examine Malaysian Chinese participants' sensitivity thresholds to skin CIELab L* (lightness), a* (redness) and b* (yellowness) colour changes in Asian, African and Caucasian faces. Twelve face photos (4 East Asians, 4 Caucasians and 4 Africans) were transformed to produce six pairs of images of each individual with different amounts of red, yellow or lightness, from very subtle ($\Delta E=0.3$) to quite large ($\Delta E=9.6$) differences. Malaysian Chinese participants were asked to decide which of sequentially-displayed, paired same-face-photos was lighter, redder or yellower. Changes in facial redness were more easily discriminated than changes in yellow or lightness, suggesting special significance for red in social perception of faces. Participants were significantly better at recognizing colour differences in own-race (Asian) and Caucasian faces than in African faces, suggesting the existence of Cross Race Effect in discriminating facial colors, possibly due to unfamiliarity with African skin colour. Humans' color vision may have been selected for skin color signaling (Changizi, Zhang, & Shimojo, 2006), enabling individuals to perceive subtle changes in skin color, reflecting health and emotional status.

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Human Attractiveness: Congruence between Multiple Sensory Signals

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Choice of a high quality mate is based on more than one phenotypic trait, such as physical appearance, voice and body odor. Theory of multiple signals suggests that several signals coexist to facilitate female choice, through redundant messages (“back-up” hypothesis) helping reduce errors, or through non-redundant messages (“multiple messages” hypothesis) allowing differential choice according to context. In humans, first evidence shows that attractiveness of two sensory modalities can be positively correlated in some cases (faces and body odors, or faces and voices). In this study, we investigated whether three different sensory cues would signal attractiveness concordantly: visual, auditory and olfactory, collected on the same individuals. This experiment constitutes the first use of a new database of voices and faces currently under development (GEAD: GEneva Attractiveness Database).

A total of 79 heterosexual non-smoker individuals (aged 22.5 ± 3.8 yrs) participated as donors (39 men and 40 women, half taking hormonal contraceptives and half not taking hormonal contraceptives and estimated to be in the fertile phase of their cycle). They were videotaped and recorded in standard conditions in the laboratory, which provided a short neutral video sequence, a neutral picture of the face, and audio recordings of three vowels and the word “bonjour”. They also rubbed a cotton cloth on their face and head, and wore a cotton t-shirt, for 6 nights. A group of 98 individuals with similar characteristics participated as raters (aged 23.4 ± 3.8 yrs), including 41 men and 57 women (part of them being fertile and not taking hormonal contraceptives). Rating sessions provided evaluations of attractiveness (short and long-term), beauty/pleasantness, masculinity/femininity and trustworthiness of stimuli from the opposite sex. Objective measures such as face symmetry or voice pitch were also performed.

First analyses based on ratings averaged by donor showed that there was a positive correlation between attractiveness of body odor and static and dynamic face, but only for the stimuli provided by fertile women rated by men (not for stimuli from non-

fertile women rated by men or from men rated by women). Femininity levels of both types of samples were also positively correlated. No significant link between body odor and voice, and between voice and face was found. The results will be discussed with regard to potential signals enclosed in the different sensory modalities, and put in relation with objective measures of face symmetry, voice pitch and proxies of hormone exposure (2D:4D finger ratio, for example).

Effects of Short-term Exposure to Media Images on Judgements of BMI of Women's Bodies as Healthy and Attractive

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Research has shown both facial adiposity (apparent weight in the face; Coetzee et al, 2009) and body mass index (weight scaled for height; BMI; Swami & Tovee, 2005) to be significant predictors of female attractiveness and apparent health. Studies looking at the relationship between attractiveness and apparent health have shown that individuals differentiate between the two, preferring a lower weight for attractiveness than for health (Coetzee et al, 2011; Tovee et al, 2007). These differences have been discussed with regard to sociocultural factors such as pressure from parents, peers and media influence, while comparison with attractive and unattractive individuals has been shown to affect women's self-rated attractiveness (Little & Mannion, 2006). Little empirical research has investigated the effects of short-term media exposure to positive and negative portrayals of low- and high-weight women on people's perceptions of healthy and attractive body weight. Here, we allow male and female Malaysian participants to manipulate the BMI of full-length body photographs of Malaysian Chinese women to enhance apparent health and attractiveness. Participants were randomly assigned to groups who viewed slideshows of plus size-attractive, lightweight-attractive, plus size-less attractive or light weight-less attractive models, or a control condition before completing the manipulation task. Both males and females preferred a lower weight for attractiveness than health. For female, but not male participants, a significant interaction was found between type of manipulation (attractiveness or health) and type of media images they were exposed to. Preferred BMI for health was in line with the lower recommended healthy BMI for Asian populations (compared with Western populations; WHO, 2004). Results suggest that women's perception of BMI as healthy and attractive maybe affected by comparison with attractive and unattractive light-weight and plus size models in media images.

Is Physical Attractiveness Related to Health Status? Results from Cross-cultural Data Set

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Physical appearance significantly affects mate preferences and mate choice decisions. Sexual selection theories frequently see traits individuals find attractive as markers of individual quality. Thus, it is widely held that attractiveness is an indicator of health and physical fitness. However, previous studies directly testing this assumption were rather inconclusive. This could be mainly attributed to inadequate measures of health and to studies being restricted to western societies with high standards of medical care which might blur the results.

To target these questions we collected facial and body photographs and vocal recordings from 150 individuals (75 women) from Czech Republic and 98 (50 women) from Namibia (all aged between 18 and 30). Each participant was also examined by an experienced physician for their history, current and prediction of future health status. Photographs and vocal recordings were subsequently assessed by a panel of at least 30 opposite-sex raters from both countries. We employed GLM with health status measure as dependent variable, age and sex as covariates and attractiveness ratings as independent predictors. In the Namibian target sample we found that both current health and prediction of future health were significantly predicted by body attractiveness as rated by both Namibian and Czech opposite-sex raters. In contrast, results of the Czech target sample showed no significant association between health status measures and ratings of either facial or body attractiveness.

Our results indicate that attractiveness ratings are linked to predictions of health which might be particularly significant in species with long-term biparental care. However, this link was restricted to body attractiveness and was not apparent in a sample derived from population with high level of medical care.

Perceived aggressiveness predicts fighting performance in Mixed Martial Arts fighters (SFA, LMA)

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Accurate assessment of competitive ability is a critical component of contest behaviour in animals, and could be just as important in human competition, particularly in our evolutionary past. Here we tested whether facial perception could play a part in this assessment, by investigating the association between perceived aggressiveness in fighters' faces and their fighting success. We used 146 photos of Mixed Martial Arts (MMA) Caucasian fighters' faces and their fighting success. The standardized photos were rated for perceived aggressiveness in an online survey by 618 raters. Perceived aggressiveness was positively associated with the proportion of fights won, after controlling for the effect of weight which also independently predicted perceived aggression. Shape regressions revealed that aggressive-looking faces are generally wider and have a broader chin, more prominent eye-brows and a larger nose than less aggressive looking faces. Our results indicate that success in male-male physical confrontation is predicted by perceived aggressiveness. Perceived aggressiveness was associated with masculine appearance and so the link between face shape and fighting success is perhaps due to the action of testosterone associated with masculine facial appearance.

VIII. Theorizing in Human Ethology

Chair: Charlotte DeBacker

Small Lecture Hall

01:50	Ullica Segerstrale Anthropomorphism as a Research Tool
02:10	Niruban Balachandran PsychTable.org: A Proposed Taxonomy of Human Evolved Psychological Adaptations
02:30	Karolina Safarzynska The Coevolution of Culture and Environment
02:50	Luke McCrohon Some Clarifications Regarding the Replication of the Physical Form of Cultural Replicators
03:10	Charlotte De Backer Media, Meals and Moral Socialization: Does the Fast Lane Erase Moral Attitudes?

Anthropomorphism as a Research Tool

Ullica Segerstrale

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R A Fisher, who formulated the famous “Fundamental Theorem of Natural Selection”, whereby organisms are seen as striving to maximize their individual fitness has been described as an example of “disciplined anthropomorphism”. Ethologist Bill Hamilton in his famous 1964 paper suggested instead that organisms should be seen as maximizing their inclusive fitness, i.e. taking into account also their effects on each other. However, Hamilton’s achievements are typically attributable to a different type of anthropomorphism of a more creative, “undisciplined” nature.

Hamilton early and acutely experienced an intense love for colorful flowers and insects, so much so that he wanted to be an insect himself and visit flowers. Later we see him sympathizing with desperate fig wasps, admiring brave asphalt flowers, and laughing with trees. Hamilton turned his unusual empathy with the natural world into a type of anthropomorphic reasoning, whereby he imagined himself being his study object and strategizing, in the style of “What would I do if I were a gene?” Or a vicious Ebola virus wanting maximal spread. He used the “gene’s eye’s view” (later developed by Dawkins) in two early papers as a heuristic device. This gene-focused reasoning also became the basis of evolutionary game theory.

Hamilton typically used computer simulation of mathematical models as a research tool, interacting closely with the emerging patterns, staring at them for hours. (It might have been a sensation similar to watching live animals). Once, as he was intensely watching some co-evolving cycles of hosts and parasites, he imagined himself as one of the host organisms making strategic choices about what to do about the increasingly threatening parasites. In other words, he stepped into his own creation. This caused an epiphany which resulted in Hamilton’s parasite avoidance theory of sexual reproduction (the Parasite Red Queen theory) and the Hamilton-Zuk “healthy mate” theory of sexual selection.

But anthropomorphism can surely be taken further. A creative use was recently exemplified by Hamilton’s student Olivia Judson, who in her book *Dr. Tatiana’s Sex Advice to All Creation* plays therapist to many of the bizarre insects, whose habits inspired her mentor’s famous paper on extraordinary sex ratios.

PsychTable.org: A Proposed Taxonomy of Human Evolved Psychological Adaptations

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This paper discusses the need for a comprehensive taxonomy of human evolved psychological adaptations (EPAs). The Web-based classification system tentatively proposed here, PsychTable.org: A Functional Table of Human Evolved Psychological Adaptations, can be used to classify and explore hundreds of EPAs, as well as to connect directly with a worldwide community of scientists, educators, students, contributors, and the general public. Collaborators can propose empirical evidence and studies that support the existence of individual EPAs using Schmitt and Pilcher's interdisciplinary diagnostic criteria for evaluating evidentiary breadth and depth. Researchers worldwide can help compile individual dossiers that profile individual EPAs' neurolocalizations, neurochemical substrates, cross-cultural presence, elicitors, outputs, and so on. PsychTable.org can also be used to nominate hypothesized EPAs that may be substantiated or appear in the future via emerging research, gain rapid insight into which areas of evolutionary social scientific research are open to further empirical inquiry, and provide a Web-based study tool for students. Drawing from human ethology, neurobiology, behavioral ecology, primatology, behavioral genetics and cognitive science, the hypothesis-generation and didactic functions of this taxonomy of EPAs are also discussed.

The Coevolution of Culture and Environment

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We propose a model of multi level (group) selection in the presence of climate change, where environment and culture coevolve. In the model, a population is subdivided into groups, each with access to a renewable resource. Individuals employ different harvesting strategies: defectors harvest more resources than cooperators and punishers. In groups with many defectors, resource extraction may exceed the level of sustainable harvests, causing resource exhaustion. Weather shocks accelerate resource scarcity and eliminate groups with many defectors. The model is used to study conditions under which resource conservation evolves. Conservation of resources is costly but it enhances the group's chances of survival. We study conditions (parameter's space) under which environmental crises enhance the evolution of cooperation. We examine how between-group interactions such as resource- and harvest-sharing affect the probability of resource exhaustion.

Some Clarifications Regarding the Replication of the Physical Form of Cultural Replicators

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Dawkins' (1976) introduction of the concept of a meme, a replicating unit of cultural evolution, acted as the stimulus for the development of a number of replicator centric theories of cultural evolution (e.g. Hull 1988, Blackmore 1999). These theories have proved quite controversial, with extensive debate as to the applicability of the replicator model to cultural transmission (Rose 1998, Smith 2012, etc). This paper contributes to this debate by clarifying the distinction between the "physical form" and "information content" of cultural replicators. While this distinction is largely inconsequential in biological evolution, it is argued to be highly significant in cultural evolution.

A central point of controversy surrounding memetic theories stems from disagreement concerning the physical form of memes. For some authors they are physically located in the brain (e.g. Brodie 1996, Gabora 1997, Lynch 1998, etc), while for others they take the form of cultural products located in the external environment (e.g. Csikszentmihalyi 1993, Croft 1999, etc). While arguments in favor of both positions exist, it has been shown that the supposed dichotomy represented by the two positions can be avoided entirely by adopting a multistage model of memetic transmission (McCrohon 2011). This resolves one aspect of the debate, but does not address related concerns that memes lack a code-script equivalent to DNA (e.g. Benitez-Bribiesca 2000).

Dawkins himself considers this to be a significant issue facing memetics, and recently made the following comments on the issue:

"If memes in brains are analogous to genes they must be self-replicating brain structures, actual patterns of neuronal wiring-up that reconstitute themselves in one brain after another." (Dawkins 2006, p. 323)

He cites the work of Delius (1989) which he believed could eventually lead to the discovery of patterns of neuronal wiring up in the brain constituting individual memes; essentially the discovery of a memetic equivalent of DNA. Since Delius's paper there have been significant developments in our understanding of the neuronal bases of memory, including the recent localization of the storage of memories to particular neurons (Liu et al. 2012), and so this discovery may now not be far off. This makes critical consideration of Dawkins' claim important, particularly given the

possibility that it may be discovered that information is not encoded identically across brains. If this is the case, what significance would it have for the plausibility of memetic theories?

It will be argued (contra Dawkins) that from an evolutionary perspective, a common physical pattern need not be replicated across brains. Rather, the replication of memes' information content (i.e. potential for altering their environment), not their physical encoding is significant. In biological systems the existence of only a single encoding scheme renders information and form equivalent, but this is shown not to be necessary for evolution. Two analogies demonstrating this are introduced, the first in terms of a computer virus replicating between computers making use of different encodings, and the second in terms of a hypothetical organism capable of re-encoding its DNA during reproduction. In both cases it is shown that the lack of a common physical pattern between replicated copies does not inhibit darwinian evolution as claimed.

Media, Meals and Moral Socialization: Does the Fast Lane Erase Moral Attitudes?

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Studies show that in Western cultures media use heavily and negatively correlates with time spent at communal meals, such as the family meal. Questions remain if this is true for other (than Western) cultures, and especially cultures with a strong food culture, such as most Asian cultures (Q1).

Next, the decline in family meals results in a loss of opportunities for moral socialization. That is because a traditional family meal encompasses acts of creating equal shares (food portions), acts of hierarchical rules (serving order), acts of gratefulness (to the cook), acts of purity (because of contamination threats) and general acts of politeness towards others around the table. Communal meals are daily opportunities to teach children and novices not to be greedy, to obey hierarchy, and to be grateful to others via these non-verbal table rituals. In addition, table conversations also teach novices about rules and norms that govern a group. Studies have shown that talking while eating more often leads to discussing topics that may give rise to debate, since the attention can always be shifted away from the conversation to the food on the table when things get too heated. No doubt communal meals contribute to moral socialization. But what if communal meals are in decline? Are attitudes towards moral behaviour then also in decline (Q2)?

To answer both questions, we collected data students in Belgium (N=470) and Taiwan (N=320) to measure frequencies of media use, eating patterns, food preferences and consumption, and attitudes towards acts of altruism.

IX. Physical Appearance and Psychological Attributions

Chair: Randy Thornhill

Main Lecture Hall

04:00	Vera Pivonkova, Martina Malkova, Jitka Lindova, Jana Veleminska, Jan Havlicek The Accuracy of Big Five Personality Judgments Made on the Basis of 3D Composites
04:20	Nancy Segal Personality Resemblance in Unrelated Look-Alike Individuals: Resolving a Twin Study Challenge
04:40	Iris J Holzleitner, David I. Perrett, Bernard P Tiddeman, Dengke Xiao, David Hunter Sex Typicality in 3-D Facial Shape
05:00	Gert Stulp, Buunk Abraham, Thomas Pollet, Simon Verhulst Is Human Height Related to Intra-sexual Competition? (SFA, LMA)
05:20	Marina Butovskaya, Valentina Burkova, Audax Mabulla Aggression, Digit Ratio and Reproduction in African Foragers: the Hadza Men
05:40	Valentina Burkova, Julia Fedenok, Marina Butovskaya, Darya Dronova Aggression, 2D:4D Ratio and Body Size in Children and Adolescents from 5 Regions of Russia

The Accuracy of Big Five Personality Judgments Made on the Basis of 3D Composites

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It is assumed that composite pictures capture common physical traits while minimizing individual facial characteristics. Previous studies aimed to find out whether viewers were able to perceive personality differences in composites created from photographs of people scoring high and low on the Big Five Factors. They found that composites of people high/low on Extraversion, Conscientiousness and additionally Emotional Stability and Agreeableness of cropped composite images of women were perceived accurately with regard to the congruent traits.

In our study, we used a new method of stimulus preparation, creating 3D composite pictures from 3D facial scans of people who had scored high and low on the Big Five Factors. Due to the higher ecological validity of the 3D facial model, we predicted an increase in the accuracy of judgment of congruent traits. Twenty 3D composites were created, each consisting of 15 facial images of men or women scoring highest or lowest on one of the Big Five personality traits. This selection was made from the pool of 52 men and 60 women. The 3D composites were presented to 42 raters (20 of them women) who judged them on 10-point scales for each congruent trait plus attractiveness and masculinity.

The raters “correctly” perceived personality differences between the high and low composites with regard to three traits in males - Extraversion, Conscientiousness, and Agreeableness - and four in females: Extraversion, Agreeableness, Emotional Stability and Openness to experience.

The results provide further evidence that personality can be judged accurately on the basis of facial appearance alone. This ability can hardly be explained by trial-and-error learning alone and thus points to the evolutionary importance of the adequate assessment of people’s personalities. Our results show that the use of 3D stimuli increases the accuracy of the raters’ judgments. It might be due that 3D pictures captures facial features in more complex fashion therefore 3D composite stimuli can produce more accurate judgments than facial photographs or 2D composite pictures.

Personality Resemblance in Unrelated Look-Alike Individuals: Resolving a Twin Study Challenge

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A large number of twin studies have reported genetic influence on personality, yet twin research findings continue to be questioned by some members of the scientific community. A recurring misconception is that MZ co-twins resemble one another in personality similarity, due to their similar treatment by others. It is further argued that MZ twins' similar treatment is triggered by their identical physical resemblance. The present study brings new evidence to this question by examining the personality and self-esteem resemblance of individuals in 23 unrelated look-alike pairs (U-LAs). Intraclass correlations for the personality scales of the French Questionnaire de Personnalite au Travail and the Rosenberg Self-Esteem Scale demonstrated negligible behavioral resemblance between U-LAs. These findings are contrasted with those provided by studies of MZ and DZ twins reared apart and together, which demonstrate significant genetic influence on personality. Given the lack of resemblance between ULAs, it is concluded that MZ co-twins' personality similarity mostly reflects their shared genes, and reactive gene-environment correlation best explains MZ co-twins' similar treatment by others. Another area of interest concerned the experience of meeting a look-alike for the first time. Participants completed questionnaires that included items relevant to their initial reactions and continued association. Both quantitative and qualitative data bearing upon this question will be examined. Discussion will include reference to evolutionary-based theories of social attraction.

Sex Typicality in 3-D Facial Shape

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Previous studies on preferences for facial sexual dimorphism found equivocal results. Individual differences between raters and environmental contexts aside, some of the ambiguity in findings might be due to different methodological approaches such as in the way sex typicality is determined (ratings vs. morphometric measurement of facial traits) or how potentially confounding variables (e.g., facial adiposity) are handled.

Thus, in this study we address four basic questions: Is perceived sex typicality based on the same structural facial traits that distinguish female faces from male faces? Do ratings based on two- and three-dimensional representations of faces differ? Is sexual dimorphism attractive when information is restricted to 3-D face shape? How does facial adiposity affect sex typicality and attractiveness?

Our sample comprises 3-D facial scans of 66 women and 66 men. Each 3-D face was delineated with 51 landmarks and warped to a standard face using MorphAnalyser 2.3.0. All faces were cropped to exclude neck, hair and ears, and subjected to a principal component analysis. Principal components were then used in a discriminant analysis to predict sex, and yielded correct classification for 97% of the faces. Resulting discriminant function scores were retained as an index of structural sex typicality (Scott et al. 2010). In addition, all female and male faces were rendered with the same average texture and used in two perceptual studies: Evaluators rated the sex typicality of same- and opposite-sex rotating 3-D heads and frontal 2-D face views (Study 1), and the attractiveness of opposite-sex 3-D faces in a short- and long-term relationship context (Study 2).

Preliminary results of Study 1 indicate that 3-D morphological measures of sex typicality do predict perceptual ratings of sex typicality for 3-D head models. The correspondence between morphological measures and perceptual ratings was reduced for 2-D facial images. Compared to 2-D stimuli, 3-D faces seem to provide additional information relevant for perceptual judgments of sex typicality. We suggest that ratings of perceived sex typicality are likely to include additional constructs such as emotional valence and attributed personality, which may affect attractiveness differently from structural sex typicality. Our studies indicate the importance of employing more ecologically valid 3-D representations: Much of facial structure is

not apparent in a 2-D frontal view, yet may profoundly affect perceptual ratings including judgments of attractiveness.

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Is Human Height Related to Intra-sexual Competition? (SFA, LMA)

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Throughout the animal kingdom, larger males are more likely to attain social dominance and status through intra-sexual competition. Height and social (economic) status are positively correlated in humans, and a positive effect of height on intra-sexual competitive ability could be part of the mechanism generating this pattern. However, behavioral data on the association between height and competitive ability are scarce. In this paper we address this association, using a range of varying methodologies (i.e. archival data, experiments, and observational studies).

In our first study, using data from all US presidential elections, we show that in competing for the presidency, candidates who are taller than their opponents receive more popular votes. Additionally, using data on professional football referees, we show that taller men are more likely to be head referee than assistant referee, and that taller referees are more likely to be assigned to high profile matches than shorter men. Height was also related to actual behavior as taller referees were better to maintain control of the game than shorter referees.

Although these findings suggest a positive link between height and intra-sexual competition, they provide no direct evidence that stature is related to competitive ability in social interactions. Therefore, in two experiments we tested whether height influenced outcomes in same-sex dyadic competitive interactions in a controlled setting. We confirmed that height in both sexes was related to indices of competitive ability, such as the ability to 'stand by one's view', number of interruptions and amount of talking.

To examine whether these findings extend to the real world, we performed behavioral observational studies. In line with our previous findings, we show that taller men and women are less likely to physically 'give way' than shorter men and women. In conclusion, using a wide range of methodologies we show that human height is related to intra-sexual competition. We discuss these findings in the context of previous research and discuss the societal implications of these findings.

Aggression, Digit Ratio and Reproduction in African Foragers: the Hadza Men

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It was demonstrated by a number of studies that physical aggression in men may be an important predictor of reproductive success both in traditional and modern industrial societies (Archer, 2009; Archer, Thanzami, 2007; Buss, Duntley, 2006). This is due to the fact that aggression may be used as an instrument for dominance status acquisition. Even in simple foragers societies with expressed egalitarianism, conflict over access to females had been observed. In this study we test the following predictions: 1. Right hand digit ratio correlates negatively with the self-ratings on aggression in males; 2. Number of children born in young and medium age cohorts are correlated with self-ratings on aggression; 3. In older age cohort the number of children born and survived till the age of five are positively correlated with digit ratios, and negatively with self-ratings on aggression.

The data were collected in 2006- 2010 in Mangola, the Northern Tanzania. The Hadza are known for their egalitarianism and peacefulness (Woodburn, 1982, 1988; Marlowe, 2002, 2010; Butovskaya et al., 2008). The study sample composed of 151 adult males, still living as hunter-gatherers (mean age: $34 \pm 12,65$). Subjects were personally interviewed to determine their age, sex, ethnicity, individual reproductive history. All men provided self-ratings on aggression base on Ki-Swahili version of Buss- Perry aggression questionnaire (AQ). During this second stage, the first author (M. Butovskaya) measured directly the length of the second and fourth digits from the basal crease of the digit to the tip of the digit on both hands of each participant twice by the first author.

It was demonstrated that men with the medium right 2D:4D ratios (0,96 - 0,99) rated significantly higher on physical aggression, anger and hostility, as well as on total aggression, compared to men with low and high digit ratios. There was no correlation between aggression and the number of children born or survived (with control for age). In the older age cohort (men, older than 40 years of age), individuals with high digit ratios ($>0,99$) on the right hand fathered significantly more children, and their children survived better till the age of five compared to the cohort of male with low digit ratios ($<0,96$). The data are discussed in the light of evolutionary theories of mating efforts and parental efforts.

This study was supported by RFHR (grants 08-01-00015a and 11-01-18088e) with the permission from COSTECH of the Republic of Tanzania.

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Aggression, 2D:4D Ratio and Body Size in Children and Adolescents from 5 Regions of Russia

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In this paper we presented the correlations between aggression, 2D:4D ratio and body size in children and adolescents from 5 regions of Russia. We also examined ethnic, gender and age differences in aggressive behavior.

Data on 3390 children and adolescents aged 9 to 18 years old were collected in 5 regions of Russia: Moscow (Central Russia), Northern Ossetia (Caucasus), Chelyabinsk (Ural), Nerehta (Central Russia), Khanty-Mansiysk region (Western Siberia). All participants were interviewed about their ethnicity and age and provided self-ratings on aggression (Russian version of Buss-Perry aggression questionnaire). Further we used the anthropometrical measurement of 2nd and 4th digits finger lengths directly from the hand of each participant twice (Manning et al. 1998). Height and weight were taken from the data of medical examination of the same period.

In this study we test the following hypotheses: 1. Boys have lower 2D:4D compared to girls in all regional groups regardless of ethnicity; 2. 2D:4D ratio correlates negatively with the self-ratings on physical aggression in boys, but not with other types of aggression; 3. Height, weight and Body Mass Index (BMI) correlates positively with physical aggression in boys.

Our results showed significant ethnic, gender and age differences in aggressive behavior (physical and verbal aggression, anger, hostility). As expected, boys have lower 2D:4D compared to girls in all groups. It was demonstrated that 2D:4D ratio correlated with different aggressive scales depending on gender and region (ethnicity). Unexpectedly we were found that body size (height, weight, BMI) correlated with different aggressive scales in girls from all regions (except Chelyabinsk), but not in boys.

This study was supported by Russian Foundation for Basic Research (grant №10-06-00010a).

X. Social Interactions and Sexuality

Chair: Thomas Alley

Small Lecture Hall	
04:00	Mónica Terrazo Felipe, Javier Martín Babarro, Rosario Martínez Arias, Fernando Colmenares Conflict Management and Prosociality among Adolescents: Effects of Friendship and Gender (SFA, LMA)
04:20	Rick O'Gorman Expectations for Interaction Type Affect Level of Oxytocin
04:40	Meredith Martin, Patrick Davies, Dante Cicchetti The Social Defense System and Children's Response to Interpersonal Threat: Progress & Pitfalls (SFA)
05:00	Thomas Alley, Lauren Brubacker The Impact of Feeding versus Providing Food on Perceived Intimacy in Mixed-Sex Dyads
05:20	Lenka Novakova, Martina Hajkova, Katerina Klapilova, Jan Havlicek The Relation of Olfactory Abilities, Sexual Arousal and Orgasmicity (SFA, LMA)
05:40	Amanda Hahn, Carmen Lefevre, Dave Perrett What Does Sexual Arousal Look Like? Temperature and Color Changes in the Face (SFA)

Conflict Management and Prosociality among Adolescents: Effects of Friendship and Gender (SFA, LMA)

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Evolutionary theory posits that individuals are expected to invest in fitness-enhancing partnerships, and since males and females differ in the way they maximize fitness, they are accordingly hypothesized to exhibit gender-related differences in the way they manage social relationships. Comparative studies have provided evidence that across a large number of species, including humans and nonhuman animals, friendship or friendship-like bonds are commonplace; the formation, maintenance, and dissolution of relationships trigger strong emotions and behavioural responses in the incumbent individuals; sociality is forged in a context of competition and cooperation to monopolize and defend valuable partnerships; and relationships are inherently conflicting. The present study addresses the analysis of social conflicts among adolescents. We examined the sources of their conflicts, the behaviours displayed during and after the conflict, and when they are bystanders of conflicts between third-parties, what they feel after a conflict and what they think about conflicts generally. We also quantified conflict and conciliatory rates, and the sensitivity to unfair relationship-related behaviours and the willingness to behave altruistically and punish free-riders. Finally, we analysed the impact of relationship status (i.e., friendship) and gender on the diversity of patterns reported. Adolescents ($N=679$; 46.1 girls, 53.5 boys), from 10 to 17 years of age (Mean= 13.37; SD = 1.872; Range = 10-17), completed a questionnaire including a large number of measures on behaviours, feelings, and beliefs related to conflict management. Adolescents got upset for different reasons depending on whether conflict partners were friends versus nonfriends. Boys and girls differed in the situations that made them feel upset, although this difference only surfaced when conflict partners were friends. Adolescents were more likely to display indirect than direct aggression, although the avoidance of aggression whatsoever was more likely with friends than with nonfriends. Girls tended to display indirect, relational aggression whereas boys were more likely to exhibit direct (physical and verbal) aggression. After a fight,

adolescents behaved differently towards friends versus nonfriends. Girls scored higher than boys on several measures including 'ask for forgiveness' and 'approach a third-party for consolation'. As bystanders, the probability of intervention was greater if some friend was involved than otherwise. Girls scored higher than boys on 5 of 6 measures related to negative feelings about the conflict. With regards to thoughts about the conflict, girls scored higher than boys on the importance they gave to peacemaking and to determining who was responsible for the conflict in the first place; whereas boys scored higher on measures that justified aggression as a means of self-defense, and to maintain dominance status. Rates of conflicts were inversely related to bond strength, and the opposite occurred with regards to conciliatory rates. Finally, girls were more altruistic, empathic, and sensitive to unfair behaviour than boys, and the latter scored higher than girls on measures of altruistic punishment and spite. These findings add new data on the adolescents' behaviour, feelings, and thoughts around conflicts, throw light on the effects of friendship and gender, and lend support to some of the main hypotheses that have been proposed to account for the evolution of social relationships.

Expectations for Interaction Type Affect Level of Oxytocin

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Oxytocin is a neurohormone previously well known for serving a vital role in pregnant and nursing females, and now recently strongly linked with playing an important role in social relationships. In particular, work has linked it to facilitating cooperation and trust. However, both the process of studying oxytocin experimentally and our understanding of its role in interactions are highly constrained. We have recently conducted studies of oxytocin's role in social interactions between different interactants under differing conditions, successfully measuring oxytocin as it naturally occurs, measured via saliva samples. This method is only recently developed, and we show that it is a viable method to measure oxytocin levels. In our initial study, we had participants attend for a lab session, with prior knowledge that they would either interact with a friend face-to-face, or via a Facebook account. We show that the simple anticipation of the nature of the interaction affects the level of oxytocin that participants attended with. A follow-up study, currently being concluded, examines more extensively the role of anticipation and the anticipated interaction on oxytocin, as well as examining whether differing levels affect the decisions for a variety of economic games. Specifically, we manipulate whether participants are attending with a friend, whether they expect to interact with a friend or stranger, or come alone. We sample their saliva upon arrival, test participants on a dictator game, ultimatum game, an endowment game and a risk-taking game. Finally, we have participants interact on distractor tasks for half an hour and obtain a saliva sample to conclude. We hope that this design will allow us to disentangle whether the expectation for the interaction drives oxytocin levels (with friend versus with stranger), or the knowledge that a friend is also attending, or not. Results for this study will be available for the conference.

The Social Defense System and Children's Response to Interpersonal Threat: Progress & Pitfalls (SFA)

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Extensive findings support pathogenic peer relationships (e.g., rejection, victimization) as potent developmental risk factors for an array of psychological problems, yet relatively little research has explicitly examined how children cope with these experiences. Ethological models of human social behavior have been invaluable in addressing similar gaps within other substantive domains (e.g., Blurton-Jones, 1973; Hawley, 2002; Omark, Strayer, & Freedman, 1980; Pellegrini et al., 2007). In this tradition, I will outline my progress towards completion of a longitudinal, observational study of the behavioral strategies children use in coping with interpersonal threat in the peer group.

Drawing on the ethological reformulation of Emotional Security Theory (EST-R; Davies & Sturge-Apple, 2007), I will focus on the social defense system in organizing behaviors (e.g., fight/flight, camouflaging, social-de-escalation strategies) to avoid or defuse interpersonal threat (Gilbert, 2000; Ohman & Mineka, 2001). EST-R posits four evolved social defense behavioral phenotypes, each with a unique adaptive function within specified interpersonal ecologies (i.e., secure, mobilizing-insecure, demobilizing-insecure, dominant-insecure). Using EST-R as a guide, I will present preliminary analyses providing: (1) descriptive accounts of the structure, frequency, and patterning of peer threats and children's responses; (2) initial support for individuals' tendencies to primarily utilize one of four prototypic response strategies; and (3) concurrent associations between these prototypic defense strategies and psychological adjustment as an initial test of the specificity of these profiles in predicting developmental outcomes.

Preliminary analyses include 124 6-11 year old boys attending a research summer camp. The majority of participants have minority ethnic or racial backgrounds, represent the lowest socioeconomic stratum, and approximately 50% have a documented history of maltreatment. Children were randomly assigned to groups of eight unfamiliar, same-age peers and remained in these assigned groups for one week. Using a subsample of video-recordings from an extensive existing data set, I will present findings from 40-minute indoor free-play periods recorded on Friday of the camp week.

Two observational coding systems were created to capture children's defense behavior at both the molar and molecular level. The PEERS-S takes a focal-animal sampling approach, requiring coders to observe a single target child for randomized 1-minute segments, recording the presence of peer threat and each of 21 defense behaviors outlined in an ethogram. The PEERS-C provides a complementary assessment in which observers watch the target child continuously for 40-minutes: (a) identifying threats; (b) providing continuous, molar ratings of the frequency, intensity, and organization of 11 different response behaviors directly following threats; and (c) providing overall, molar ratings of the degree to which the child's modal pattern of threat response exemplifies each of four prototypical social defense phenotypes hypothesized within EST-R.

The proposed presentation will center on my progress towards completion of the project's major aims, including several challenges to completion using the existing data set and my attempts to overcome these issues. I will present preliminary analyses providing some initial support for the hypothesized phenotypes utilizing SEM and LCA. I will end with an outline of the additional analyses in progress, and a number of future directions.

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The Impact of Feeding versus Providing Food on Perceived Intimacy in Mixed-Sex Dyads

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In many species, food sharing serves as mechanism for mate attraction (courtship feeding), sexual access or mate retention. This includes chimpanzees (Gomes & Boesch, 2009) and, perhaps, humans. Previous research indicates that viewers tend to perceive a couple's relationship as more intimate if feeding is observed, particularly when the shared food is 'contaminated' in the sense that it bears potential germ transfer like mouth-to-mouth kissing (Alley, 2012; Miller et al., 1998). Thus, it may be that feeding serves as a signal of sexual interest. However, while these studies show that observed feeding increases the perceived intimacy/involvement in dyads compared to no feeding, the effect may be due to the resource provisioning aspect of food sharing rather than the behavior itself.

To address this issue, the present study assessed the impact of (uncontaminated) feeding versus merely providing food on perceived intimacy and attraction. Fifty small groups of viewers (211 university students; 67 male) watched five short videos showing five different pairs of young men and women dining. Four of the videos included a segment in which food sharing appeared: either feeding or simple provisioning, with either a male or a female beneficiary. A total of 25 videos were used in various combinations and orders across the 50 test groups to control for the effects of targets (dyads) and order. After each video, participants completed a brief survey asking about the attractiveness, attraction and intimacy in the dyad they had just observed, and some demographic items. Several of these items formed a previously validated scale called "Involvement" (Alley, 2012).

The data were analyzed using a hierarchical linear model (SPSS). This showed a strong effect of video type on ratings of attraction and Involvement. As expected, univariate analyses revealed that ratings of perceived intimacy (Involvement) were higher if a couple was observed provisioning (i.e., handing food to dining partner) or feeding, with feeding producing the highest ratings. Similarly, the perceived attraction of the male actor to his female dining partner and vice versa were both lower when no food sharing was shown than in any other condition ($p < .001$), and were highest when feeding was displayed ($p < .001$). These results indicate that merely providing food is sufficient to increase perceived involvement, but that feeding may be more like kissing in that it is a specific behavior that tends to foster a stronger and more reliable impression of attraction and intimacy in couples.

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The Relation of Olfactory Abilities, Sexual Arousal and Orgasmicity (SFA, LMA)

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There is a growing body of evidence that olfaction plays a significant role in human sexual relationships and sex life as such. More specifically, research shows that olfaction is involved in, for instance, mate selection and sexual attractiveness ratings of potential mates. In women, greater reliance on olfactory cues has been found, as opposed to men who are more visual, which is why olfactory abilities are assumed to exert a strong influence on their sexual functions. In terms of olfactory cues, of special importance are the 16-androstanes, odorous steroid compounds secreted into apocrine glands and urine, being a major source of human body odor. The aim of the present study was to find out if there is a relation between psychophysically assessed female olfactory abilities and two dimensions of sexual functioning, namely sexual arousal and orgasmicity. 90 partnered normosmic female university students aged 20-30 in the follicular menstrual phase participated in the study. Their olfactory abilities (sensitivity, discrimination and identification) were ascertained using the Sniffin' Sticks test and their sensitivity to 4,16-Androstadien-3-on was tested. Moreover, perceived intensity and pleasantness of all the three 16-androstanes (4,16-Androstadien-3-on, 5 α -Androst-16-en-3-one, 5 α -Androst-16-en-3 α -ol) were evaluated. The participants were administered the following self-report measures: Female Sexual Function Index (FSFI), Sociosexual Orientation Inventory (SOI-R) and Odor Awareness Scale. Controlling for participant age and relationship duration, the results show a positive association between the FSFI dimension of orgasm and both Sniffin' Sticks-assessed olfactory sensitivity ($r = .02$), the total score ($r = .03$) and perceived intensity of androstadienone ($r = .02$). Sexual arousal on FSFI was positively associated with perceived intensity of androstenol ($r = .03$). Two other associations between olfactory measures and the FSFI dimensions emerged, namely that of perceived intensity of androstenol and sexual desire and satisfaction (both $r_s = .03$). The SOI score was not a relevant predictor. Finally, women who considered themselves better smellers (as assessed by the OAS) also scored higher on the two FSFI dimensions of interest ($r = .03$). The results of the present study argue in favour of the importance of the sense of smell for female sexual functioning but not for sociosexuality. Further research is needed to discover the underlying mechanism for the herein reported association between sensitivity of the sense of smell and certain domains of sexual function.

What Does Sexual Arousal Look Like? Temperature and Color Changes in the Face (SFA)

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Thermal imaging studies have suggested that face and body temperature increase during periods of heightened arousal including: sexual arousal, fear, and stress. The present study was designed to determine the time-course and topography of facial temperature and color changes during sexual arousal. Thermal and 2-D color photographs were captured every 1.5s for heterosexual females (N=23) while watching a film-clip depicting a sexual encounter (180s). Skin color and temperature were measured at six regions of interest (forehead, eyes, cheeks, nose, mouth and chest). Participants used a slider (1-5 scale) to provide a continuous report of arousal during the film. Results were analysed at pre-arousal, and maximum arousal time points. There was a significant increase self-reported arousal (mean = 2.7). Temperature changes were found in the nose, mouth and chest; while skin redness increases were observed in the eye, mouth and cheek regions. These findings suggest that temperature changes in the face during sexual arousal are detectable, in addition to those previously reported in genital regions. Additionally, skin redness was found to increase with sexual arousal. This technique offers a less invasive way of measuring sexual arousal. Whether these temperature and/or color changes are discernible to either an observer or to the participant remains to be determined.

Thursday 16th August

09:00 AM - 10:00 AM

RANDY THORNHILL The Evolution of Women's Sexuality: Estrus, Extended Sexuality, Concealed Estrus, and Cognition	Main Lecture Hall <i>Chair: Elisabeth Oberzaucher</i>
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10:30 AM - 12:30 PM

Symposium on Social Computing	Main Lecture Hall
Sex Differences and Consciousness	Small Lecture Hall

12:30 PM

Social Program

The Evolution of Women's Sexuality: Estrus, Extended Sexuality, Concealed Estrus, and Cognition

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Recent research questions much of the conventional wisdom about the evolution of women's sexuality. Women have two functionally distinct sexualities. At the fertile phase of the cycle, women prefer male traits that may mark superior genetic quality. At infertile cycle phases, women prefer men willing to invest resources in a mate. Women's peri-ovulatory sexuality is homologous with estrus in other vertebrates and estrus likely arose first in the species ancestral to all vertebrates. Thus, contrary to conventional wisdom, women have not lost estrus, and human estrus likely functions to get a sire of superior genetic quality, which is the evolved function of estrus throughout the vertebrates. Women's sexuality outside estrus is extended sexuality. It appears to function, as in other taxa with this type of sexuality, to get material benefits from males. Also contrary to conventional wisdom, men perceive and respond to women's estrus, including by increased mate guarding. Men's detection of estrus is limited compared to other vertebrate males, implying a co-evolutionary history of selection on females to conceal estrus from men and selection on men to detect it. Research suggests that women's concealed estrus is an adaptation to conditionally copulate with men other than the pair-bond partner, but further research is needed to determine the design of women's concealed estrus. Some research directions to determine the functional organization of women's concealed estrus are proposed. Women's sexual ornaments—the estrogen-facilitated features of face and body—appear to be honest signals of individual quality pertaining to future reproductive value.

XI. Symposium on Social Computing

Chair: Karl Grammer

Main Lecture Hall

10:30	Elisabeth Oberzaucher, Jose-Luis Patino Vilchis, Remi Emonet, Karl Grammer Human Behavior as the Basis for Social Computing: The Influence of Environmental Factors
10:40	Anna Frohnwieser, Elisabeth Oberzaucher, Karl Grammer, Richard Hopf Human Walking Behavior – The Effect of Density on Walking Speed and Direction (SFA, LMA)
11:00	Kaja Smole, Urska Stepanek, Elisabeth Oberzaucher, Karl Grammer Scanning the World – Human Strategies of Social Information Gathering (SFA, LMA)
11:20	Urska Stepanek, Kaja Smole, Elisabeth Oberzaucher, Karl Grammer Modeling the Cognitive Bases for Social Attention in Real Life Situations (SFA, LMA)
11:40	Sofia Zaidenberg, Francois Bremond Group Detection
12:00	Remi Emonet, Jean-Marc Odobez, Elisabeth Oberzaucher Automatic Discovery of Recurrent Motion Activities
12:20	Karl Grammer Social Computing and Behavior Analysis in Real Life Situations: a New Synthesis

Human Behavior as the Basis for Social Computing: The Influence of Environmental Factors

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Humans have a very large behavior repertoire, but in a given setting only a very small subset of possible behaviors can be observed. Thus, behavior cannot be studied without taking the environment into account, as stated in the behavior settings theory (Barker 1968). Elements of the social and built environment affect the human behavior, such as crowding, natural elements or prospect and refuge. Appleton (1984) describes evolved landscape preferences that lead to differences in behavior. So far research was carried out by first classifying places according to the degree of prospect and refuge offered, and then comparing behaviors between low and high prospect and refuge areas. We approached the problem from the opposite end: The distribution of behaviors in space can provide information about the quality of specific areas.

For this purpose we annotated behavior and the location of persons showing the behaviors in an underground station. We used the Anvil annotation tool (Kipp 2001) and developed a plugin for bounding boxes for the location annotation. The behavior catalogue consisted of 52 categories. In total 968 persons were annotated. We then plotted the occurrence of behaviors on space, leading to heat plots of behavior density.

We can show that the physical properties of the environment determine to a large extend which behaviors occur. Some behaviors show very distinct patterns, others are distributed more evenly in space.

This approach has shown to be useful for the classification of behavior settings. It has also the advantage that it is less theory-driven than previous approaches.

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Human Walking Behavior – The Effect of Density on Walking Speed and Direction (SFA, LMA)

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Humans have a natural desire to keep a certain physical distance from other humans, called personal space (Hall, 1966). If personal space is invaded without consent physical reactions such as increased heart rate, sweating and increased blood pressure are triggered (Middlemist and Knowles, 1976). Personal space is well described for standing and seated test subjects (e.g. Hayduk, 1981; Evans and Wener, 2007), but not for walking people. Gérin-Lajoie and his colleagues (2008) described minimum distances that pedestrians keep from obstacles, which were used as a basis for this study.

Using a newly developed system called CCB Analyser the walking patterns of pedestrians in an Austrian shopping center were recorded. Data included frequency of people, average speed, speed changes, direction changes, and two different measures for personal space, one being personal space in circles around stationary recording frames and the other being personal space for pedestrians that plan their paths ahead. We tested the hypothesis that high density and low interpersonal distance leads to a change of walking behavior – increased walking speed induced by stress (Konečni et al., 1975) and more changes in speed and direction to circumvent obstacles.

People walk faster when personal space is invaded. Walking speed and direction are changed to a higher degree at high densities. These results offer a first insight into the relationship of human walking behavior and personal space. A better understanding of the relation between those factors might be crucial for modeling flow of pedestrians, as well as panic situations.

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Konečni, V.J., Libuser, L., Morton, H. and Ebbesen, E.B. (1975). Effects of a violation of personal space on escape and helping responses. Journal of Experimental Social Psychology 11: 288-299

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Scanning the World – Human Strategies of Social Information Gathering (SFA, LMA)

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Social attention is defined as the processes by which observers select and encode aspects of other people (Frank, Vul, & Saxe, 2011). Social attention in real world settings is triggered by several behaviors that are linked to socially relevant information.

Cues that our brains use to interpret an actual social event are found on basic levels, such as gender, speed, and body motion of the people present in the scene (Shiffrar, 2008). It is imperative to study this phenomenon in real world settings, because previous work on social attention was limited to laboratory studies. This study combines behavioral observation with visual attention in a natural environment. The aim was to find out which factors elicit social attention on a subliminal level.

We tested 50 male and 50 female randomly selected participants. We projected videos from surveillance cameras of an underground station on four screens simultaneously. The participants' task was to monitor the screens and to look at the things that triggered their attention. The experiment consisted of four trials, each consisting of two-minute video junks. Participant's gaze direction was measured with an EOG (electro-occulograph). We used a four channel configuration, which simultaneously records vertical and horizontal eye movements using LabChart software. We annotated behaviors occurring in the videos with a catalogue consisting of 10 items.

Humans gather social information by scanning the environment continuously. Our results show that a certain part of visual attention is reserved for random scanning of the movies, but the attention is not randomly distributed. People pay greater attention to evolutionary relevant cues, such as intentions of others (potential threat) (Birmingham & Kingstone, 2009), and unexpected events.

We could show that visual attention can be used as a measure for relevance of a given scene, thus pointing out new directions for computer vision.

Birmingham, E., & Kingstone, A. (2009). Human Social Attention. A New Look at Past, Present, and Future Investigation, *The Year in Cognitive Neuroscience 2009*, 118-140.

Frank, M.C., Vul, E., & Saxe, R. (2011). Measuring the Development of Social Attention Using Free-Viewing. *Infancy*, 1-21.

Shiffrar, M. (2008). *The Visual Perception of Dynamic Body Language in Embodiment of Communication*: Oxford University Press.

Modeling the Cognitive Bases for Social Attention in Real Life Situations (SFA, LMA)

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Human sensory systems are confronted with large amounts of information. Processing every detail about the environment would overload our cognitive system. Therefore humans have evolved sensory biases towards evolutionary relevant stimuli. Attention is directed towards sensory input of relevance itself, or indicating relevant information. Only very few studies have addressed the question of what triggers attention in natural settings (Hoehl et all 2008). Social attention is defined as the processes by which observers select and encode aspects of other people (Frank, Vul, & Saxe, 2011). Especially the investigation of social attention requires the use of real life situations, to identify how our cognitive attention system selects relevant events in our surroundings.

50 male and 50 female randomly selected subjects participated in our experiment; demographic data were collected. We presented them a virtual operator environment: It consisted of 4 screens with randomly selected movies from surveillance cameras in an underground station. Subjects had to decide when and which view triggered their attention, and had to press a key corresponding to the respective screen. Each experiment lasted for 16 minutes (8 times two-minute film clips). We annotated the behaviors in the film clips with a behavior catalogue consisting of 10 items. Each movie was seen 10 times. We used a Gaussian smoothing function to generate a continuous variable of degree of interestingness for each movie.

Attention is not randomly distributed over the videos. Some movies attracted significantly more attention in both men and women. Some behaviors, such as groups, loitering-standing around and turnstile problems were more interesting for our subjects than others. We also find sex differences that could be linked to differential evolutionary constraints (Kimura 2004): Men are more interested in groups and change in group size and women are more interested in forbidden objects and loitering.

Our findings indicate that human attention is directed toward relevant information and that the sexes differ in what is relevant to them.

Frank, M.C., Vul, E., & Saxe, R. (2011). Measuring the Development of Social Attention Using Free-Viewing. *Infancy*, 1-21.

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Group Detection

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Part of human behavior observed in public spaces, such as underground railway stations, is group behavior. We aim at automatically analyzing the scene shown in a video sequence, issued by a surveillance camera for example. Understanding the scene is detecting and consistently tracking over time salient actors (in this work – groups), and detecting their behavior. Based on the application, we define a set of relevant behaviors and describe them in a formal language based on the visual properties of detected groups, elements of the context (walls, zones, equipment in the scene) and their relations.

There is a gap to fill between social sciences and computer vision. According to McPhail (1982): *Two defining criteria of a group [are] proximity and/or conversation between two or more persons.* The proposed group tracking method focuses mainly on the task of finding associations of detected and tracked people into spatially and temporally coherent groups. For automatic recognition we derive the social sciences definition of a group to a definition based on visual properties of detected and tracked people: *two or more people who are spatially and temporally close to each other and have similar direction and speed of movement, or better: people having similar trajectories.*

We evaluated the proposed method on several datasets, including videos from the VANAHÉIM project and from the CAVIAR project. On the CAVIAR dataset extended with one long VANAHÉIM sequence, 30 behavioral events (fighting, joining, enter shop, getting off train, etc.) out of the 32 annotated events have been successfully detected, with very few false positives and false negatives.

C. McPhail and R. T. Wohlstein. Using film to analyze pedestrian behavior. *Sociological Methods & Research*, 10(3):347–375, 1982.

Automatic Discovery of Recurrent Motion Activities

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With appropriate algorithms, machines can be trained at recognizing human activities using various sensors such as cameras or microphones. Even with a specific task and manually labeled examples, these automatic systems are not reaching perfect accuracy. The underlying reason is also the most important limitation of these approaches: They require the activity of interest to be well defined, *a priori*. Our objective is to get a better understanding of human activities in different settings and thus we prefer approaches that automatically discover the recurrent activities that occur there by collecting long term observations.

We propose algorithms that start with extracting low level motion information features from videos. Then, the method tries to find recurrent activities in several hours of videos, where an activity is represented by a temporal pattern that capture a set of localized scene motion that consistently co-occur or follow each other in the data.

Applied to cameras from a metro station, the typical activities that are recovered correspond to trajectories of persons (or crowd of persons), which provide a good understanding of what is typically going on in the station. In addition, the distribution of which discovered activities occur at different moment of time can be used to study the evolution of the metro overall activity during the day. We also experimented with using the approach to spot the abnormal or unusual moments where the visual data content cannot be explained by the typical recurrent activities that were discovered and learned by the method.

Social Computing and Behavior Analysis in Real Life Situations: a New Synthesis

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In general the term “social computing” is applied to a branch of computer sciences which deals with the junction of social behavior and computational systems. It refers to any social behavior which is conducted in/or detected by computational systems. Currently such approaches are used in the analysis of human social behavior in computer environments like the WEB 2.0 for market analysis, social network analysis, or for the construction of human-computer interfaces which either take human behavior into account or act socially.

In this symposium we will extend this approach to a new interdisciplinary cooperation between computer sciences and evolutionary oriented behavior research. Although current approaches use behavior observation for the construction and verification of social computational systems, these approaches lack theoretical background in our eyes. We suggest that observation of human behavior to be based on predictions and constraints originating in evolutionary theory in order to generate general principles of behavior structuring. The introduction of evolutionary based behavior observation will not only be useful for the verification of existing computer algorithms but also for the delineation of new algorithms based on observed behavior in real life situations and human cognitive functioning.

In our case we intend to construct digital devices which make human social behavior in real life situations accessible to general users, laymen and behavior researchers. These device will then give rise to new research questions which could not be tackled up to know, because they will be able to generated large amounts of behavioral data for a more in deep analysis.

For a first approach we will use real life data collected in the FP 7 research project “VANAHEIM” (<http://www.vanaheim-project.eu>) in underground stations and data from a Viennese shopping mall collected automatically by electronical sensors. The underground data corpus consists currently of one week of video recordings from 9 cameras in an underground station.

The content of this symposium will cover the following topics:

- the influence of environmental variables in different behavioral settings on behavior
- the influence of density and crowding on human behavior
- modeling the cognitive bases of social attention in real life situations

- the detection of groups and their behavior in different group compositions
- the automatic unsupervised discovery of recurrent activities in video sequences
- patterns in crowd behavior and the detection of rare events

We assume that the synergy between ethological behavior observation and digital processing of behavior will lead to the emergence of new paradigms in both fields and will contribute to the development of innovative surveillance components for improved monitoring of complex audio/video surveillance, such as shopping malls or underground stations.

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XII. Sex Differences and Consciousness

Chair: John Richer

Small Lecture Hall

10:30	David Schmitt Why are Sex Differences Larger in Gender Egalitarian Nations? Ecological Stress, Conditional Adaptations, and the Curvilinear Hypothesis
10:50	Thomas Hirschmann Can Stress shed Light on the Embodiment of Creativity? Evidence & Interpretation of Stress as a Trigger of Embodied Reward-Effects on Creative Cognition. (SFA)
11:10	Lia Viegas, Juliana Fiquer, Emma Otto Are there differences between Brazilian men and women in orientation strategies and sense of direction?
11:30	Gregory Carter In a Mirror, Darkly: the Dark Triad's Embodiment in Women, the Negation of Evolved Sex Differences, and Their Parity with Men (SFA)
11:50	Bjørn Grinde The Evolutionary Rationale for Consciousness

Why are Sex Differences Larger in Gender Egalitarian Nations? Ecological Stress, Conditional Adaptations, and the Curvilinear Hypothesis

David Schmitt

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Several large cross-cultural studies have found sex differences in personality traits are significantly larger in more gender egalitarian cultures (Costa et al, 2001; McCrae et al., 2005; Schmitt et al., 2008). Similar "gender paradoxical" results have been found for sex differences in emotions (Fischer & Manstead, 2000), love (Schmitt et al., 2009), depression (Hopcroft & Bradley, 2007), values (Schwartz & Rubel, 2005), the Dark Triad (Schmitt et al., 2012), and dismissing romantic attachment (Schmitt et al., 2003). Potential explanations for these type of counter-intuitive findings include measurement artifacts, gene-environment interactions (with certain life history traits, ecological stress may affect the sexes differently), and what is called the "curvilinear hypothesis." The curvilinear hypothesis suggests men's and women's personalities may be less constrained (e.g., by monotheistic religions and forces involving agriculture) in both modern highly developed nations and hunter-gatherer cultures. In contrast, agricultural and pastoral cultures with extremely large disparities in resource distribution and relative gender inequality may place greater restrictions on men's and women's personalities. Examining new data on sex differences in personality and sexuality across 58 nations of the International Sexuality Description Project-2, we conclude several of these explanations merit further study. It appears sex differences in personality sometimes increase (or decrease) due to adaptive shifts in life history strategies affecting one sex more than the other, sometimes sexual selection processes operate differentially across cultures, sometimes decreased religiosity affects one sex more than the other, sometimes methodological factors are operative, and sometimes it is perhaps due to what Schwartz and Rubel (2009) have suggested, "increased gender equality permits both sexes to pursue more freely the values they inherently care about more" (p. 171).

Can Stress shed Light on the Embodiment of Creativity? Evidence & Interpretation of Stress as a Trigger of Embodied Reward-Effects on Creative Cognition. (SFA)

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Being a highly complex and multi-faceted subject, creativity has been studied using diverse research approaches like social psychology (Amabile, Hennessey, & Grossman, 1986), creative cognition (Finke, Ward, & Smith, 1992), or group creativity (Sawyer, 2003). However, due to its context-dependant nature (Amabile et al., 1986) it has proven very difficult to explain creative processes on an embodied, neuronal level.

In an endeavour to find an embodied explanation for creativity which accounts for such contextual aspects, this research has adopted an approach that assesses the effect of social influences on creativity on the basis of their *perceived stressfulness* (Fuli, 2009). Documented effects of stress on cognition (de Kloet, Joëls, & Holsboer, 2005) further suggested *attention* to be an underlying mechanism of such stress-triggered creativity-effects. Distraction arousal theory (Teichner, Arees, & Reilly, 1963) offers an explanation in this regard assuming limited mental resources that can be distracted by stressors leading to a decrease in creative performance. On an embodied level, creativity can then be understood as by-product of an *optimal allocation of attention* (Schmidhuber, 2007). Using this concept, hypotheses have been derived and tested in an experiment with undergraduate students doing a creativity test under varying levels of stress.

Resulting data supported the concept, suggesting that creativity requires a stress-free context and that stress is able to “crowd-out” creativity along with a decrease in attention. Further, creativity-crowding increased along with higher levels of task difficulty. The overall results of the experiment matched the embodied principle of “allostasis” that requires organisms to adapt to optimize their energy efficiency (Parsons, 2005). We then used a simple neural network model to further test our concept and found our idea of creativity being driven by energy-efficiency confirmed by the energy-values of the neural network model.

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Are there differences between Brazilian men and women in orientation strategies and sense of direction?

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Studies focused on the performance of men and women in spatial tasks usually indicate that men score highly in wayfinding tasks and have better sense of direction than women. Furthermore, evidence exists about gender differences in strategies to memorize routes: while men employ cardinal points and absolute references, women use landmarks and relative references. Within the framework of the Hunter-Gatherer Evolutionary Theory, it is hypothesized that these differences in memorization and spatial orientation are related with male's and female's foraging tasks during the Pleistocene era. For hunting, a men's task, it is necessary to follow a prey, that walks randomly, and go back to home in the end of the day, so it is necessary a good sense of direction and to use a orientation strategy that allows localization everywhere, as those that use cardinal points and absolute references. In opposition, for gathering, a women's task, it is possible to plan routes, and it is important to remember food position. Therefore, a good sense of direction is not essential and but the use of landmarks and relative references are important for enabling greater object location recall. Although these gender differences are considered universal, cultural aspects may influence the spatial behavior of both sexes. So far, few studies were developed to investigate orientation strategy among Latin American samples, such as Brazilians. The aim of this study is to assess in a Brazilian sample gender differences in the sense of direction and strategies to memorize routes. We investigated whether men and women differ in the: 1) description of routes; 2) usual orientation strategy; and 3) sense of direction. Participants were 24 people (11 men), mean age $27 \pm 3,6$ years. They were asked to create a route in a map and describe it. The categories were: a) participant used relative references (as street names); b) participants used absolute references (as distance). Participants also completed a scale for assessment of usual orientation strategy (using landmarks and relative references or using cardinal points) and declared sense of direction. In accordance with the literature, our data suggests that women apply more landmarks and relative references to memorize routes than men. This pattern of spatial orientation was observed in the route description as well as in the scale assessment. However, we did not find evidence that men employ more cardinal and absolute references to memorize routes than women. In Brazil it is not common the use of absolute references, particularly cardinal points, to describe routs, what may contribute to explain this lack of results. Despite declared sense of direction did not differ among both sexes, we found positive correlation between the use of absolute strategies and declared sense of direction in men. This association

may be a signal of the evolutionary origin of absolute orientation strategy among males. In conclusion, our findings suggest the role of evolutionary and cultural processes on the spatial orientation skills of humans.

In a Mirror, Darkly: the Dark Triad's Embodiment in Women, the Negation of Evolved Sex Differences, and Their Parity with Men (SFA)

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Like the concept of embodiment, the Dark Triad of personality (encompassing narcissism, Machiavellianism, and psychopathy), has received growing levels of attention over the past decade. Sex differences in this trait, and its components, have repeatedly been reported, with males scoring higher than females across myriad studies, and cultures (Foster, Campbell & Twenge, 2003; Mealey, 1995; McHoskey, 2001). This fact, and its facilitation of short-term mating and attractiveness to women (Jonason, Li, Webster & Schmitt, 2009; Carter & Campbell, 2012), has lead to a growing belief that the Dark Triad is an adaptive trait for men. It is perhaps, for this reason, that how the Dark Triad is embodied within woman has received very little attention. We know that they look different – both in respect of dress, and physically, in craniofacial terms (Holtzman, 2011) – but their broader personality, and attitudes, have remained a mystery. Whether the Dark Triad may explain sex differences across other personality constructs, and what impact this will have on emerging evolutionary theories as to these traits' persistence therefore bears consideration. With past research suggesting that the Dark Triad represents an adaptive strategy for men (Jonason, Li, & Buss, 2010) and reflects a 'fast' life (Jonason & Kavanagh, 2010), the lack of scrutiny of Dark Triad women needs redressing. Few studies have explicitly set out to explore whether a range of strong, well-replicated sex differences remain in Dark Triad women, or whether the trait constellation mitigates these, and potential reasons as to why that might be. These issues have been explored in new research, recently undertaken, across a wider range of personality traits and attitudes; across more diverse cognition and behaviour, than before, in light of the search for an explanation as to how the Dark Triad is manifest in women.

Data from this new study are intriguing. Not only is this one of the largest studies ever conducted on the Dark Triad ($n = c.900$), but participants came from a diverse, non-student population. These data will be used to explain and explore how the Dark Triad is embodied within women. Its prevalence and its effects are considered, with the results revealing the novel finding the Dark Triad, in women, mitigates almost all expected sex differences in a striking number of personality traits, attitudes, and behaviours - in the Big 5, in attitudes towards anti-social, 'laddish' behaviours, to

romantic attachment, and sex, and risk-taking and sensation-seeking, amongst others.

Candidate explanations as to why this might be are considered, in light of evolutionary theory, and theories on the Dark Triad. The present research therefore strives to further de-mystifying the relationship between the Dark Triad and women, and pursue the ultimate goal of understanding this most intriguing of traits, and why some women have evolved to embody such a personality construct.

The Evolutionary Rationale for Consciousness

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A crucial step in understanding consciousness is to reconstruct its evolutionary trajectory. Briefly, nervous systems appeared for the purpose of orchestrating behavior; and, as a rule of thumb, the challenges facing an animal have concerned either approach or avoidance. These two options were originally under the control of reflexes triggered by sensory cells. Improvements in adaptability and flexibility of response came with an expansion of the computational aspect of the system and a concomitant shift from simple reflexes to instinctual behavior, learning, and eventually, feelings. The assessment of positive and negative feelings allows organisms to weigh various options, but for this to be a viable strategy, an awareness of hedonic value seems to be required. Complex behavior may not require consciousness, as indicated by the behavioral repertoire of social insects, thus feelings were probably the first neural attributes to evolve that did. I propose that the need to experience feelings was the key force in the evolution of consciousness, and that it first appeared in the early amniotes (the phylogenetic group comprising reptiles, birds and mammals). Support for this theory in current accounts of the neurobiology of feelings and consciousness will be discussed.

Friday 17th August

09:00 AM - 10:00 AM

TECUMSEH FITCH The Biology and Evolution of Language: Case Studies in Cognitive Biology	Main Lecture Hall <i>Chair: Wulf Schiefenhövel</i>
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10:30 AM - 12:30 PM

Communication and Cognition	Main Lecture Hall
Mating and Mate Choice	Small Lecture Hall

01:50 PM - 03:10 PM

Primateology	Main Lecture Hall
Motion and Motor Skills	Small Lecture Hall

03:10 PM - 03:40 PM

General Assembly GEORGE MEALEY Genetic Basis for Religious Thought and Constructs	Courtyard
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07:00 PM - 11:59 PM

Dinner and Dance	Kahlenberg
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The Biology and Evolution of Language: Case Studies in Cognitive Biology

Tecumseh Fitch

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It is quite widely accepted that human language rests upon an evolved biological foundation, some components of which are unique to our species. There is considerable debate, however, about the precise nature of the cognitive prerequisites for language, the degree to which they are specific to language, and which components are or are not shared with other animals. The evolutionary basis of such components is also a topic of much disagreement. I will argue that resolution of such long-running debates requires a strongly comparative approach that adopts a Tinbergenian framework treating mechanism, function, ontogeny and phylogeny as equal partners in an adequate biological explanation. Even though language, as a whole, appears unique to humans, many components of language can nonetheless be studied comparatively. I will illustrate this perspective with two case studies, focused on speech and syntax, respectively. In speech, recent data indicate that a long-standing focus on the speech periphery, and particularly the descended human larynx, has deflected attention away from more fundamental changes in the neural pathways involved in speech control. A surprisingly broad set of species, including monkeys, deer, songbirds, and seals, provide comparisons that are relevant to this conclusion. Turning to syntax, recent data examining pattern perception in both auditory and visual domains supports the contention that some aspects of linguistic syntax rest on a cognitive basis that, although unusual or perhaps unique to our species, seems to apply across cognitive domains including speech, music and visual pattern perception. This ability is characterized by a human propensity to attribute complex, hierarchically-embedded structures to visual or auditory inputs. I conclude that the broad comparative approach favored by cognitive biologists has much to teach us about the biology and evolution of language, and that future progress will require investigation of a much broader set of species than has typified past work.

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XIII. Communication and Cognition

Chair: Susanne Schmehl

Main Lecture Hall

10:30	Brigitte Krenn, Stephanie Schreitter, Marcin Skowron Sex Differences in the Evaluation of and Communication with Conversational Agents
10:50	Christina Larson, Kerri Johnson, Martie Haselton An Analysis of Women's Body Language across the Ovulation Cycle (SFA)
11:10	Michael Kimmel Affordances in Embodied Co-regulation: A Comparative Analysis of Four Expert Skills and Their Affordance Profiles
11:30	Valentina Cuccio From a Bodily-based Format of Representation to Symbols. The Evolution of Human Language
11:50	Wulf Schiefenhoevel Embodied Semantics: Terms for „Right“ and „Left“ in Indoeuropean and Non-Indoneuropean Languages
12:10	Juliana Fiquer, Erwin Geerts, Emma Otta, Lia Viegas, Ricardo Moreno, Harry van de Wiel, Clarice Gorenstein Differences in Interpersonal Nonverbal Behavior among Brazilian and Dutch Depressed Patients

Sex Differences in the Evaluation of and Communication with Conversational Agents

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Knowledge about user profiles and preferences plays an important role in the design of conversational systems. Especially in internet-based communication, user characteristics are largely unknown and need to be detected from cues in the ongoing textual interaction. Thus, the ability to identify certain characteristics of a communication partner based on textual cues is crucial, in order to support conversational agents and other interactive systems in adequately interpreting and managing the ongoing dialogue. In this respect, a better understanding of differences in female and male language use in dialogues is of interest for the development of artificial communication systems, both, in order to detect gender-specific features in online communication, and to adjust the interaction style and dialogue content of an autonomous conversational system to the user.

In order to investigate gender effects in web-based dialogues, we analysed dialogue data from chats with artificial communication systems. The communication context is comparable to a bar scenario: An artificial bartender and a human client talk with each other, and the bartender agent tries to engage the human in a conversation eliciting topics that positively or negatively affect the human communication partner. Data from two communication environments have been investigated. In the one, fully autonomous generation and Wizard-of-Oz-based generation of dialogue moves is combined with and without the display of affective facial expression. 35 participants (22 male, 13 female) of Swiss nationality took part in this virtual reality laboratory experiment. The other experiment took place in an ecological setting where the participants were free to log onto a web-based chat environment any time, from anywhere they wished to, and chatted with a bartender agent that shows positive, negative and neutral communication attitudes. 91 Polish participants (33 female, 58 male) took part in the web chat experiment. In both experiments, user input was purely text-based. Communication was in English, and the data used for evaluation stem from participants who had at least average communication skills in English.

Clear evidence was found that the affective stance (positive, negative, neutral attitude) expressed in the verbal dialogue contributions of the artificial agent influences how females as opposed to males evaluate the system and how they react in terms of language use, including wordiness, dialogue act classes and LIWC categories. Most gender-related differences were found when communicating with the negative system. On the contrary, very little to no differences were found in

evaluation and language use when people communicated with the chat system displaying neutral to friendly communication attitude. The results emphasise the importance of investigating the effect specific features of artificial communicative agents have on male and female users. While some do not elicit different behavior in men and women, others significantly do. These findings are important preconditions for modelling and implementing socially aware and competent agents.

An Analysis of Women's Body Language across the Ovulation Cycle (SFA)

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Numerous studies have documented various changes in women's bodies, desires and motivations over the course of the ovulation cycle (reviewed by Gangestad & Thornhill, 2008; Haselton & Gildersleeve, 2011). Yet it is unknown whether women's body language differs across the cycle. Body language is an important source of interpersonal information and influences interpersonal interactions (Blake & Shiffrar, 2007). For example, women's body language influences whether or not a man approaches them (Moore, 1985), and controls the patterns of courtship once a dyadic interaction begins (Grammer, Kruck, Juette, & Fink, 2000). Therefore, understanding variations in women's body language across the cycle will give us insight not only into the implications of women's motivations and desires on women's own non-verbal behaviors, but also into the specific information men are receiving and reacting to. Therefore, we are conducting research designed to test two important and as yet unanswered questions: Does women's body language vary across the cycle, and are these changes perceivable?

To answer these questions, 55 women completed questionnaires and were videotaped on both a high and low-fertility day of the cycle. Ovulation near the high-fertility session was confirmed via luteinizing hormone tests. Videos were then transformed into dynamic figural outlines, which obscure details on jewelry and clothing choice, but retain the outline of the individuals, providing a dynamic image (see Ambady et al., 1999; Johnson et al., 2007). In addition, the faces of targets were blurred and the sound was removed, ensuring that the only information perceivers had access to came from women's body motions. Currently, we are conducting studies in which perceivers rate the high- and low-fertility videos along dimensions we hypothesize will vary between high and low fertility (e.g. attractiveness, femininity) to determine whether changes across the cycle present in other modalities are also present in women's body motions. Additionally, a number of secondary questions concerning variations between women in changes across the cycle will be answered using the questionnaire data. We will present preliminary results, and discuss their implications for understanding cross-sex interactions across the cycle.

This research was supported by the Owen F. Aldis Research Scholarship.

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Affordances in Embodied Co-regulation: A Comparative Analysis of Four Expert Skills and Their Affordance Profiles

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Agents actively seek out *affordances* (Gibson 1979), i.e. perceived action possibilities in an environment relative to their specific abilities. Typically, affordances are signaled by movement-produced information like the streaming of the optic array. Despite Gibson's often criticized obscurity, his theory is now coming of age and making a bid as a contender in the field of enactive cognition (cf. Chemero 2009; "affordances 2.0"). Affordances have been applied in psychological experiments, design, sports, and AI (e.g., Warren, 1987, Gaver 1991, Fajen et al. 2009, Irran et al. 2006), refined in their ontology and formalized (e.g. Turvey 1992, Stoffregen 2003), and are currently seeing a turn towards human-to-human interaction (e.g. Stoffregen et al. 1999, Mark 2007, Richardson et al. 2007, Ramenzoni et al. 2008, Tehran 2009). Yet, theorizing suffers from blind spots which curb the notion's practical usefulness for an ecologically valid analysis of multi-stage dyadic interactions. To make affordance theory genuinely dynamic at the situated scale, I take as a point of departure a cognitive ethnography of the co-regulation skills *Tango argentino*, *Aikido*, *Feldenkrais* and *Shiatsu*, all of which feature two simultaneously acting agents interlaced in a reciprocal process of continuous sensing and action. All four disciplines involve non-everyday sensory/cognitive skills taking years to learn. My talk mainly responds to the needs of social, embodied, distributed cognition researchers who wish to study evolving interactions with an unceasing flow of complex sequential affordances. First, I discuss practitioners' differential affordance recognition. They distinguish a host of recurring multi-stage sequential patterns and learn to "manage" them. It makes a difference whether I actively explore the other body or if it simply discloses an unexpected property to me which I skillfully exploit; it makes a difference whether I signal something through non-action or through action; it makes a difference whether I trigger a state directly or at a remove by making my partner enable me, etc. Second, I discuss affordances at different time-scales. Micro-affordance nested within basic-level ones are, for instance, needed to describe *multi-stage triggering* of an integral action unit in which sensory feedback by the partner needs to be acutely monitored for properly timing one's own next action. Third, the perceived goodness of affordances changes when longer-range action plans or sensory filters are applied. General meta-strategies for affordance management have further filtering effects (diagnostic mode vs. action mode, improvisation mode vs. planned mode, etc.) Fourth, affordances partake of wider cultural action systems with a specific bodily habitus, which embodies a long history of prior interactions, and a body semiotics.

Finally, I provide an outlook on a comparison of general *affordance profiles*, i.e. dominant affordance types as reflecting the system's aims. The four disciplines display differences with regard to role distribution, external pacing, continuity, and interaction aims. My micro-analysis is based on a coding system of some twenty affordance types applied to in-depth interviews and video data.

From a Bodily-based Format of Representation to Symbols. The Evolution of Human Language

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Ontogeny cannot recapitulate phylogeny and this widely shared assumption will not be questioned here. However, a two levels model of language acquisition will be proposed. This model will focus on the increasing complexity of cognitive requirements involved in language acquisition. Its implications for the evolution of the language faculty will be presented. In ontogeny, the more complex language is, the more complex cognitive abilities must be. If cognitive requirements of language can be clearly identified, the task of identifying the phylogenetic achievements that concurred, at some point, to the acquisition of language will become easily accessible.

In this model speaking will be considered as a complex ability that arises in two different steps. The first step of competence widely relies on a bodily-based format of representation provided by embodied simulation. The second step relies on more abstract meta-representations and implies socio-cognitive skills like Theory of Mind. This hypothesis will be examined in reference to both phylogeny and ontogeny. In order to reach the second level of language competence, symbolic communication and interaction with a cultural community are needed. Hence, the origins of species-specific human complex language and cognition are in both the brain and culture.

This model, clearly, cannot be considered as a finishing point but as a starting point for the research on the origins of language.

The two levels model of language competence that will be here proposed relies on a usage-based definition of language. Currently the most prominent line of research in the study of language, and that has also implications for the phylogenetic line of research, seems to be the embodied language paradigm (Gallese, 2008). However, this account, up to now, does not seem to have any kind of interaction with usage-based studies of language.

According to the embodied language paradigm, the comprehension of an action-related word or sentence activates the same neural structures that enable the execution of that action. The Mirror Mechanism (MM) is the neural mechanism supporting both our motor abilities and our social skills, language included (Gallese,

2008). This very influential and promising paradigm of research seems to rely on the *dictionary model* of language. In the *dictionary model* of language there is a repertoire of words and each word is fixedly associated to a meaning. However, this model, implicitly or explicitly adopted by scholars working in the embodied language paradigm, should be at least complicated or extended. In fact, linguistic activity is mostly implicit and inferential, but how implicit and inferential communication works in real-life conversations is a question that can hardly be addressed relying on the *dictionary model* of language. Hence, it seems to be necessary to integrate these two different traditions to have a more comprehensive model of language that includes both the dimensions of its neural implementation and its usage in communication. The challenge raised by the origins of language research can be addressed only if we have a clear definition of language that can be used at different levels of analysis.

In the two steps model of language acquisition two different traditions, the embodied language paradigm and the Pragmatics of language, will be compared and integrated.

Embodied Semantics: Terms for „Right“ and „Left“ in Indoeuropean and Non-Indoeuropean Languages

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Handedness is an intriguing feature of our species. Other primates have individual hand preferences but no species-typic distribution (McGrew & Marchant, 1997), whereas left-handers are a minority of about 10% in all human societies studied so far. To explain this fact in evolutionary terms some hypotheses have been put forward, with one assuming an ancestral fight-advantage in close combat (cp. Faurie et al., 2005) receiving some attention. Alternative explanations have been formulated recently which include differential balances of health and reproduction among left- and right-handers in societies of neolithic lifestyle (Groothuis et al., 2011).

This contribution is concerned with the linguistic reflection of right versus left-handedness and of „right“ and „left“ as semantic and social concepts in general. It has long been observed that there is a strong correlation between the words for „right“ in the sense of the right side and „proper, correct, rightful“ etc., whereas the words for „left“, the left side, carry negative connotations. Classic examples are Latin *dexter* and *sinister*, or German *rechts* and *Recht* (law) and *links*, *linkisch* (clumsy) and *linken* (to trick somebody). I will present data on 34 languages, 21 Indoeuropean and 13 Non-Indoeuropean. There is no single case with a negative bias for „right“ and a positive bias for „left“. In 21 cases there is a positive bias for „right“ and a negative one for „left“, in 5 cases there is a positive bias for „right“ and no negative one for „left“, 1 case with a negative bias for „left“, but no positive one for „right“ and 6 cases (which belong to just two related groups of languages) with a positive bias for „right“ and a euphemistic, overly positive one for „left“.

Swedish, Norwegian, Icelandic and Danish have terms like *höger* (from *hag-* comfortable) for „right“ and *vänster* (from Old-Germanic *winistar* for friend) for „left“. The same surprising euphemism is found in Ancient and Modern Greek where the term for „right“ is *dexios*, wheras *left* is *aristeros*, grammatically violating the rule that an elative (*aristos*, the best) can not be trasnformed into a comparative: even better than best. It seems that these two linguistic, cultural traditions in the furthest north and southeast of Europe have consciously counteracted the negative bias for „left“ found in all other cultures by a super-positive term. Political correctness stemming from many thousand years ago.

Which words our ancestors have found to name which thing is a very interesting question. Modern linguistics usually hold that words are arbitrary. From the viewpoint of human ethology, this position can successfully be challenged (cp. Allott, 1995) The words for „right“ and „left“ in the languages of the world, of which only a small segment has been included in this study, project the experience of one's own body as well as that of others and transpose ideal versus non-ideal body images into spoken language and mental, psychosocial concepts. Embodiment from body to society.

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Differences in Interpersonal Nonverbal Behavior among Brazilian and Dutch Depressed Patients

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Deficits in social skills of depressed subjects may elicit rejection from others, leading to a low level of social support. Using ethological methods, Dutch studies on nonverbal behavior demonstrated that low convergence between depressed patients' support-seeking behavior (Speaking Effort - SE) and others' support-giving behavior (Encouragement - EN) is associated with poor prognosis. The absence of interpersonal convergence during interactions is related to low levels of rapport and social satisfaction, which may contribute with socio-emotional problems in depression. So far, studies about depression and nonverbal interpersonal convergence have been exclusively carried out in Caucasian samples. Considering that expressive behaviors and symptoms of depression are influenced by culture, in the present paper we studied the relationship between interpersonal nonverbal behavior of patients and an interviewer and the course of depression in two culturally different samples. We investigated whether and how 1) Brazilian and Dutch depressed patients differ in the levels of interpersonal behavior during clinical interviews (e.g. patient's SE; interviewer's EN and convergence between SE and EN), and 2) convergence between patient's and interviewer's behaviors predicts the short-term outcome of depression. Participants were 55 Dutch depressed patients (18 men) from the Medical Centre of the University of Groningen and 28 Brazilian patients (8 men) from the Clinics Hospital of the University of São Paulo. Both samples were evaluated at admission to an in-patient clinic (T0) and 8 weeks after admission (T1). At T0 and T1 patients completed the Beck Depression Inventory (BDI) to assess depressive symptoms. Patients' and interviewers' nonverbal behavior were recorded during a 15-minute interview at T0. Using a specific ethogram, we computed the amount of SE, EN, as well as the convergence between them (e.g. absolute difference of SE and EN). Brazilian patients displayed more SE behavior than Dutch ones

during the interview (Independent Samples t test; $p<0.05$). Convergence between SE and EN were also higher in the Brazilian sample ($p<0.05$). Moreover, among the Brazilian patients, the convergence between SE and EN at the end of the interview at T0 predicted the outcome of depression on the BDI at T1 (ANOVA; $p<0.05$): less convergence was associated with a poor outcome ($p<0.05$). Our results demonstrate that culturally different depressed patients differ in the levels of nonverbal behavior during clinical interviews. Brazilian patients show more SE behaviors as well as higher nonverbal convergence with their interviewer than Dutch patients. In addition, this behavioral convergence predicts depression outcome for Brazilian patients, but not in the Dutch sample. Despite this fact, the present data associated with previous findings of the literature suggest that the role of interpersonal processes in depression may be universal. The results further underscore the usefulness of ethological tools in research on the role of nonverbal interpersonal behaviour in depression among different cultural contexts.

XIV. Mating and Mate Choice

Chair: Jan Havlicek

Small Lecture Hall

10:30	Daniel Kruger The Health Impact of Male Scarcity in Modern Human Populations
10:50	Sigal Tifferet, Orly Bar-Lev, Shani Zeler, Daniel Kruger Cad's Best friend? Dog Ownership Increases Long-term Relationship Attractiveness and Attenuates Short-term Mating Perceptions
11:10	Rosana Tokumaru, Leandro Gama Moraes Positional Bias: a Brazilian Study
11:30	Ari Freuman, Glenn Geher Masculine Facial Architecture Decreases Mating Intelligence in Ovulating Females
11:50	Marco Varella, Jaroslava Valentová Observed Sex Ratio of Street Artists: a Test of Miller's Cultural Display Model
12:10	Katerina Klapilova, Monika Ubryova, Ales Kubena, Jan Havlicek The Association between Facial Similarity in Long-Term Couples and Overall and Sexual Satisfaction in the Relationship

The Health Impact of Male Scarcity in Modern Human Populations

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Reproductive dynamics are strongly influenced by the relative proportions of potentially reproductive males and females in a population. Patterns following from the Operational Sex Ratio of groups in other species are reflected in human populations. Because the reproductive strategies of men and women are somewhat divergent, market influences of supply and demand on the intensity of mating competition and selectivity for partners produce different outcomes in female biased and male biased populations. Scarce females are more effectively able to secure commitment from partners as well as demand higher levels of resource investment. Male mating opportunities are enhanced by scarcity and incentives for long-term commitment are diminished, encouraging serial and simultaneous polygyny. Male scarcity is associated with higher divorce rates, more out-of-wedlock births, more single mother households, higher rates of teenage pregnancies, and lower paternal investment.

Male scarcity may influence behavior and health outcomes beyond these socio-demographic trends. Modern populations with male scarcity may have shorter gestational times and lower birth weights on average, due to the lower prevalence of paternal investment. These adverse birth outcomes may partially result from mechanisms evolved to evaluate environmental conditions and regulate maternal investment trade-offs. The increase in direct male mating competition when men are scarcer leads to higher levels of male violence across modern societies. This project examines the relationship of male scarcity to fundamental aspects of men and women's reproductive strategies that have considerable consequences for public health.

We compared year 2000 county-aggregated birth records across the USA with 2000 U.S. Decennial Census data ($N = 450$). We calculated the ratio of men to women for ages 25-64 and concentrated disadvantage across residential Census Tracts in the City of Flint, Michigan with 2000 U.S. Decennial Census data. We geocoded assault arrests by the Flint Police Department and calculated average monthly assault rates for those aged 10-24 between 6/2006 and 12/2008. We created a path model to examine the relationships between adult male scarcity, concentrated disadvantage, and adolescent assault rates.

Confirming our predictions, male scarcity was associated with higher rates of premature gestation and low birth weight. The proportion of families headed by single mothers partially mediated the relationships between male scarcity and birth outcomes and was the strongest proximal predictor of low birth weight and premature gestation. Other known socio-demographic predictors of modern birth outcomes did not account for these relationships.

Male scarcity predicts adolescent assault rates both directly and as mediated by “concentrated disadvantage” (including proportion of households with low family income, on public assistance, and with a single parent and child, all understandably related to male scarcity). In combination, these factors explain 40% of the variance in adolescent assault rates across Census Tracts.

These results demonstrate the power of evolutionary Life History Theory as framework for understanding persistent social and health issues in modern populations. Male scarcity has important consequences and thus is an important risk factor that needs to be taken into consideration.

Cad's Best friend? Dog Ownership Increases Long-term Relationship Attractiveness and Attenuates Short-term Mating Perceptions

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It has been proposed that men have evolved to specialize in short-term “cad” and long-term “dad” mating strategies. Cads devote more reproductive effort to mating than to parenting; they attract women by showing that they are highly competitive, socially dominant, and brave. Dads devote more reproductive effort to parenting than to mating; they attract women because they are compassionate, kind, romantic, and industrious, demonstrating the ability and willingness to invest in the relationship and parentally invest in potential children. We hypothesized that dog ownership will increase the long-term attractiveness of men, especially for cads, as this would signal nurturance. The effect in cads was hypothesized to be mediated by decreasing the perceived short-term mating strategy of the character.

One hundred Israeli women (age: $M = 25.5$, $SD = 3.35$) read two vignettes that were composed so as to reflect a typical dad and cad. Each participant read two vignettes: a cad with a dog and a dad without a dog or a dad with a dog and a cad without a dog. After each vignette the woman rated the attractiveness of the character for four purposes, and his level of short-term mating strategy, based on the Kruger Life History Scale (KLHS). The Actor-Partner Interdependence Model (APIM) was used to analyze the dyadic data using multilevel modeling.

The multilevel model revealed that both dog ownership, $\beta = .14$, $t(98) = 2.18$, $p = .03$, and dad vignette, $\beta = .18$, $t(98) = 2.96$, $p = .004$, were positively associated with ratings of long term attractiveness. The interaction between the two was as expected but did not reach statistical significance, $\beta = .13$, $t(98) = 1.74$, $p = .09$. Simple slope analysis of the interaction indicated that dog ownership had no effect on the long term attractiveness of the dad, $\beta = .002$, $t(187) = 0.02$, $p = .98$, but did increase the attractiveness of the cad, $\beta = .13$, $t(187) = 2.71$, $p = .007$. As hypothesized, dog ownership decreased perceived short-term mating strategy, $\beta = -.24$, $p = .015$; and short-term mating strategy inversely predicted long-term attraction in cads, $\beta = -.42$, $p < .001$. The effect of dog ownership on cad long term attraction in the mediated model ($\beta = .16$, $p = .08$) was less than in the unmediated model ($\beta = .27$, $p = .007$).

This significant reduction is reflected in the bootstrap estimate of the indirect effect $\beta = .11$, 95%CI [0.02, 0.20].

Archeological findings suggest that dogs have accompanied humankind for thousands of years. Owning a dog may signal that a man has the necessary nurturing resources to care for others and invest in them over time. Such a trait may be valuable for a woman choosing a spouse. While signaling nurturance was beneficial in the case of the cad, it had no effect on the long term attractiveness of the dad, who was probably perceived as stable and investing.

Positional Bias: a Brazilian Study

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The importance of relative standing among peers to the decision making of individuals has received growing attention of economists and psychologists in the last decades, with a growing recognition of the relevance of evolutionary accounts to this phenomena. Evolutionary hypotheses range from general explanations about the adaptiveness of the human ‘positional bias’ to specific propositions about the evaluation of certain goods. Considering the importance of intercultural data to the development of evolutionary explanations, this research investigated the existence of positional concerns among a sample of 127 brazilian university students towards a set of 17 goods. Participants chose between a world where they have more of a good than other people (the positional alternative) and a world where everyone’s possessions of the same good is higher than in the positional alternative, but the participant has less than others (the absolute alternative). Participants significantly chose the positional alternative for the following goods: *participants' own IQ and attractiveness, the IQ of a hypothetical child and Income (high value)*. The goods with significantly more absolute alternative choices were *commuting time, days of illness, vacation time, monetary loss, attractiveness and income of a hypothetical partner, weekly hours of work, income (low value), car value and residence area*. The goods *child attractiveness, risk of car accident and college average grade* did not show significant variation. Women chose the positional alternative significantly more than men in the goods *partner's income and vacation time*, while men significantly chose the positional alternative more than women in the good *weekly hours of work*. Although some of our results show similarities with previous studies assessing college students samples (more positional concern for high values of income, own IQ and child's IQ and for partner's income in the case of women, and preference for absolute values of losses) other results diverged from current findings (lack of positional concern for partners attractiveness, residence area and car price), which may be due to the values used in the alternatives of choice for each item - an issue which will be investigated in further stages of this research. We conclude that 1) our results favor the evolutionary hypotheses about the ‘positional bias’ as a cognitive adaptation; 2) the unexpected evaluation of some of the goods indicates an important role of the context and of personal characteristics that have not been included in evolutionary explanations. Further cross-cultural studies and a more general evolutionary approach, including causal and developmental explanations, are necessary to better understand the ‘positional bias’ phenomena.

Masculine Facial Architecture Decreases Mating Intelligence in Ovulating Females

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Research has documented shifts in preferences for male facial architecture over the course of women's ovulatory cycle (Penton-Voak et al., 1999). Specifically, females prefer males with masculine facial architecture as they near ovulation. While there have been many studies focusing on physiological and behavioral shifts in ovulating females, there has been little research on the proximate mechanisms that account for how ovulation may ultimately lead to copulation.

Various male faces were assessed by 114 normally cycling American females on various dimensions, including dimensions associated with mating intelligence (specifically, commitment skepticism). The faces were paired with one of two personal statements, one statement suggesting a predominantly long-term mating strategy, and the other, a predominantly short-term mating strategy. Our study found that masculine but not feminine male faces triggered shifts in mating intelligence. When paired with a long-term strategy statement, masculine faces triggered decreased commitment-skepticism, but when paired with a short-term strategy statement, predicted increased commitment-skepticism. Paradoxically, ovulating females rated these same masculine faces as being less desirable as a short-term mate (i.e., they were less interested in short-term arrangement with the masculine males). This finding may shed light into the proximate mechanisms that ultimately account for pair-bonding during ovulation. It follows that although females are ultimately dual-strategists (i.e., they pursue both a long-term and a short-term strategy), they are continually motivated to engage in a long-term strategy. What changes during ovulation is that their ability to accurately assess whether a male is likely to remain committed decreases, but only when exposed to masculine facial stimuli (and perhaps masculine phenotypes writ large). This finding has further implication for sexual strategies theory, specifically, the dark triad: Ovulating females may be more vulnerable to deceptive behavior in the presence of a masculine face; in fact, honest behaviors during ovulation may even be detrimental to a male short-term strategist's fitness.

Observed Sex Ratio of Street Artists: a Test of Miller's Cultural Display Model

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Miller proposed that cultural and artistic propensities have evolved through intersexual selection, where individuals choose others and advertise their qualities by displaying their desirable phenotypes (genius, talent, creativity, and taste). One prediction of his courtship model of cultural display is that there should be strong sexual dimorphism in the tendency toward such display and to produce culture. Since men compete for their mates much stronger than women, they would be more willing to widely advertise their extended phenotypes. Previous studies have shown that although women are more prone to the aesthetical and artistic domain, by appreciating, engaging and studying more arts than men, males produce more jazz albums, paints, novels, and scientific discoveries than women. We tested for a male biased sex ratio on street artists surrounding one of the most touristic areas of Prague, the Charles Bridge. In total 115 street artists were observed by both authors during a sunny day of spring. All street artists are officially registered and have their picture, name and modality of art written on an identification card which has to be displayed together with the art products. The observed traits were: sex of the registered artist, type of art (painting, caricature, jewellery, music, photograph and sculpture), material used for jewellery (stone, metal, glass, ceramics, wood and leather), as well as the sex of the selling person. Non-parametric analysis showed a higher number of male artists ($n=87$) than female ones ($n=28$) ($\chi^2= 30.270$, $p>0.000$). Regarding the type of art more artists were presenting jewellery ($n=46$) than sculpture ($n=3$) or music ($n=6$) ($\chi^2= 74.609$, $p>0.000$). Jewellery was in most cases made from metal ($n=18$) than leather ($n=1$), stone ($n=3$) or wood ($n=5$) ($\chi^2= 26.600$, $p>0.000$). The seller was predominantly male ($n=54$), than female ($n=33$) or absent ($n=28$) ($\chi^2= 9.930$, $p=0.007$). The crosstab chi-square divided by sex for the kind of art showed that men are more into caricature ($n=21$ male and $n=1$ female) while women are more into jewellery ($n=18$ female and $n=23$ male) ($\chi^2= 16.425$, $p=0.012$, contingent coefficient=0.354). Among the jewellery artists' there was no sex difference in the choice of material. Regarding the sex of the seller, arts from male artists were more often sold by men ($n=49$ male seller and $n=5$ male seller for women) and arts by females were sold by women ($n=15$ female and $n=18$ female seller for man) ($\chi^2= 14.927$, $p=0.001$, contingent

coefficient=0.339). Our result support Miller's cultural display model of artistic show off as part of male extended phenotype mating advertising. On spot artistic display such as facial caricature and music (although there was only 6 male musicians and no female, thus no significant difference) showed the highest male biased sex ratio. Female preference for producing jewellery can be explained by their higher interest in self-adornment and grooming since they compete for attractiveness. More cross-cultural observation research should be done the test whether those results hold for different cultural settings.

The Association between Facial Similarity in Long-Term Couples and Overall and Sexual Satisfaction in the Relationship

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Previous research suggests that people tend to choose a partner based on the theory of positive assortative mating (Penton-Voak et al., 1999). According to this theory, individuals prefer partners with physical and mental characteristics similar to theirs. Preference for facial similarity among partners has been repeatedly confirmed (Hinsz, 1989; Bereczkei et al., 2004). Facial resemblance was found to evoke a feeling of familiarity and confidence, however, it excludes mutual sexual attraction among partners (De Bruine, 2004).

The aim of our study was to determine whether facial similarity of long-term partners is related to the overall and sexual satisfaction in the relationship. Based on previous findings, higher overall but lower sexual relationship satisfaction was expected within couples with higher facial resemblance.

During the final session of “The cohabiting relationship research project” (Klapilová et al., 2006 - 2009) both members of 50 long-term couples (mean age = 27 (4.3) years; mean length of relationship = 5.4 (2.1) years) completed standardized questionnaires assessing their overall relationship satisfaction (Dyadic Adjustment Scale) and sexual satisfaction (Hurlbert Index of Sexual Compatibility). In the mean time, standardized facial photographs of both partners were taken.

80 raters (all university students; 40 men/40 women; mean age = 23.3 (2.9) years), judged the similarity of standardized facial photographs of long-term partners via two methods: 1) rating of similarity on 7-point scale; 2) assessing the order of similarity of each subject’s partner within the group of 10 randomly selected photographs of individuals of the opposite sex. Hypotheses were tested using LMM analysis.

As in previous studies, partners were judged as more similar to each other compared to the mean rating (scale rating: $t = 6.87$, $p < 0.001$; rank: $t = 15.4$, $p < 0.001$). Findings showed that higher couple similarity indicates higher overall (scale rating: $t = 5.3$, $p < 0.001$; rank: $t = 4.96$, $p < 0.001$) but also higher sexual satisfaction in women (scale rating: $t = 4.05$, $p < 0.001$; rank: $t = 2.28$, $p = 0.023$). Interestingly, in men it is opposite: higher similarity rating indicates lower overall and sexual satisfaction in the relationship. The opposite direction of association of couple’s facial similarity with the overall and sexual satisfaction of men and women that was not in accordance with our predictions will be discussed.

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XV. Primate and Human Behavior

Chair: Andrew Whiten

Main Lecture Hall

01:50	Paco Bertolani Spatial Orientation in Wild Chimpanzees
02:10	Irene Godoy, Susan Perry Inbreeding Avoidance and Cues to Relatedness in a Wild Primate Population (SFA)
02:30	Jenny Collard Changes in Social Behaviour During the Formation of a New Group of Chimpanzees (<i>Pan troglodytes</i>) at Leipzig Zoo
02:50	William McGrew The 'Other Faunivory': Insectivory in Human and Non-human Primates

Spatial Orientation in Wild Chimpanzees

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How humans and animals find their way in the environment between out-of-sight locations is an interdisciplinary field that has generated some debate. The possibility of mental or cognitive maps of the environment has been investigated for the last 60 years. Current debate on cognitive mapping leaves open two possibilities: a Euclidean, or geometric, or vector-based map *versus* a topological, or route-based map. In a Euclidean map, resources are memorised in relation to each other, and in each travelling event the subject invents the best optimal route (e.g. a novel shortcut) by doing vector calculations based on distances and angles. On the other hand, in a route-based map, distances and angles are not preserved, resources are memorised in relation to the route network so that novel shortcircuiting should be absent. Both models produce efficient travel between out-of-sight resources, but they make distinct predictions on the travelling patterns produced. In a route-based map hypothesis, most of the travel should occur along well-established and habitually-reused paths, and changes of direction are expected to correspond to these routes. Conversely, in a Euclidean model, each travelling event should result from a novel calculation aimed at finding an optimal route, and extensive route reuse should not be seen. In addition, changes of direction should correspond to the starting and ending points of these optimal routes, i.e. the feeding resources. I tested these predictions in a community of wild chimpanzees from Kibale National Park, Uganda by analysing 570 km of travel over 19 months. I used GIS technology to document the chimpanzees' paths with an unprecedented degree of accuracy, which allowed detailed description of the chimpanzees' habitual routes. I also used a recently proposed statistical test to identify points where a significant change of direction occurred, and I coded these points in relation to the habitual routes and the feeding resources. The analysis of these data shows that during 74% of the observed travel the chimpanzees used well-established and habitual routes. Of 1560 changes of direction identified, only 19% corresponded to feeding resources; most (63%) corresponded to the aforementioned network of routes, and the remaining 18% could not be classified as either of these two kinds of points. Such results strongly support a route-based cognitive map in chimpanzees. This finding is analysed in relation to similar spatial orientation, or navigation in traditional and modern human societies.

Inbreeding Avoidance and Cues to Relatedness in a Wild Primate Population (SFA)

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White-faced capuchin monkeys (*Cebus capucinus*) serve as excellent models for studying the mechanisms underlying kin recognition and inbreeding avoidance because adult males are commonly co-resident with sexually mature close female relatives. We present behavioral and genetic data from the Lomas Barbulal Monkey Project to investigate the existence of different cues that infant female capuchins can use to detect close male genetic relatives during their first year of life. We investigate how well (1) adult male rank, (1) early spatial proximity, and (3) age proximity correlate with close genetic relatedness in capuchins. Using proximity data on opposite-sex dyads collected from 10 minute focal follows (N=18 infant females, 689 hours of focal data) and group scan samples from 23 infant females, we found that (a) infant females spent significantly more time in proximity of alpha males than they did near subordinate adult males, and (b) alpha males were much more likely to be the fathers, grandfathers, or great-grandfathers of infants than were subordinate males. Infant females also (a) spent significantly more time near similarly aged peers than they did around older juvenile males in their group, and (b) peers were more likely to be paternal half siblings than were non-peers. Both adult male rank and infant spatial proximity to adult males were highly informative indicators of relatedness between infant females and adult males, while age proximity and spatial proximity were only moderately informative indicators of paternal sibship between infant females and juvenile males. Females appear to have available multiple reliable cues for discriminating their direct paternal ancestors (fathers, grandfathers, and great-grandfathers), but cues for detecting paternal brothers appear to be fewer and less reliable in this population. Since variation in cue quality impacts how effective cues are in preventing inbreeding, this variation in cue quality might explain why paternal sibling inbreeding is more common in our population than is inbreeding between males and their direct descendants.

Changes in Social Behaviour During the Formation of a New Group of Chimpanzees (*Pan troglodytes*) at Leipzig Zoo

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This study investigates the maintenance of social relationships among chimpanzees (*Pan troglodytes*) when the value of these relationships changed due to the integration of individuals from two groups into one group. In socially living animals, other individuals are potential rivals as well as social resources (e.g. sources of information, sexual or grooming partners). Relationships can thus be differentially valuable depending on the partner's *characteristics*. Based on theories by Cords & Aureli (2000), Kummer (1978) and Lewis (2002) on the value of relationships in primates I developed a hypothesis regarding changes in behaviour that maintain these relationships. I hypothesised that changes in group composition will cause changes in the existing social relationships for each individual as well as changes in the group's dominance structure. This will change each individual's relationship value for its partners. My hypothesis was that these changes in each individual's relationship value would lead to changes in the partners' relationship maintenance behaviour.

To investigate this hypothesis I observed the integration of three adolescent females into a group consisting of three human-reared juveniles and an adolescent male at the Wolfgang Köhler Primate Centre at Leipzig Zoo. Confirming my hypothesis, I found that chimpanzees are able to flexibly adjust their behaviour to changing social circumstances and the relative value of different relationships. I discuss a planned study in which I will investigate whether human children learn to do the same during their preschool years.

The 'Other Faunivory': Insectivory in Human and Non-human Primates

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Mainstream anthropological wisdom emphasises the key role of meat-eating and hunting in human evolution, past and present. This paper seeks to explore the possible role of invertebrates in the diets of living (*Homo sapiens*) and extinct (*H. neanderthalensis*) hominins, proposing some tentative modelling based on the foraging and diet of living nonhuman primates, especially great apes (primarily chimpanzee). Subtopics raised include: modes of insectivory (or entomophagy), taxonomic contrasts across the Order Primates, the role of technology in harvesting prey, sex differences, and ethnographic comparisons across traditional societies. The paper includes new findings on: Ecological details of predator-prey relations between primates and insects; similarly detailed analyses of the nutritive content of invertebrate dietary components; cognitive, developmental and social learning processes involved in the acquisition and performance of insectivory; insights into the role of elementary extractive technology, including lithics; cultural transmission of exploitative skills and techniques; key role of an animal product, honey, as a universally-prized foodstuff, for both humans and apes. Some tests of proposed hypotheses have fared better (microwear, stable isotope) than others (coprolite, residue). Finally, I present unpublished data on the relationship between insectivory and lifetime reproductive success in female chimpanzees in the wild. Insectivory is a nutritionally and energetically viable alternative to carnivory of vertebrates, under certain conditions.

XVI. Motion - The Basis of Embodiment

Chair: Daniel Kruger

Small Lecture Hall	
01:50	David Eilam, Hila Keren, Joel Mort, Omri Weiss Motor Rituals: When, Why and How They Emerge from Normal Daily Behavior?
02:10	José Antonio Muñoz-Reyes, Carlos Gil-Burmann, Bernhard Fink, Enrique Turiegano Aggressiveness, Hand Grip Strength, Body Mass Index, and Fighting Ability in Spanish Adolescents
02:30	Thomas V. Pollet, Vincent Neddermeijer, Ton Groothuis, Gert Stulp Evidence for Overrepresentation of Left-handedness in MMA Fighters and More Broadly in Direct Interactive Sports: a Test and a Meta-Analysis
02:50	William Brown, Meishan Raal-Nunes, Lee Taylor Body Symmetry and Motor Behaviour: a Sensory-Motor Integration Perspective

Motor Rituals: When, Why and How They Emerge from Normal Daily Behavior?

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Ritualized behavior is a way of organizing acts according to complex rules that require sustained attention and high cognitive control. By ritualization, behavior gets divorced from its original function and target an alternative, sometimes unobvious/illusionary goal. Rituals appear in specific life stages such childhood, pregnancy, or parenthood, or in various domains such as religion or sports. An exaggerated form of rituals occur in pathology; for example, Obsessive-Compulsive Disorder (OCD) patients perform salient cleaning, checking, ordering and hoarding rituals according to strict rules. Despite a high degree of variability among rituals, several characteristics are shared throughout: (i) rigid performance; (ii) repetition; (iii) high concentration during performance; and (iv) absence of an obvious function. While these characteristics make it easy to intuitively distinguish rituals from other behaviors, the lack of rationality, the high prevalence, the shared features, and the diversity of content, raised the question on the possible link between daily motor behavior and motor rituals.

Here we compared several daily motor tasks (donning a shirt, making coffee, etc.) with sport rituals during basketball free-throws and weightlifting, and with various OCD rituals. For this we scored the acts that comprised each motor task, and the commonality of performance of each act was used as a proxy for functionality: the more individuals perform a specific act, the stronger the inference that this act is functional and relevant to the task at hand. Conversely, the less common the act, the less functional it was for that task. We found that each motor task or ritual comprised *functional acts* that were performed by all subjects, and *non-functional acts* performed by only few subjects. Subsequently, we found that each task or ritual comprised three sections: (i) 'head' - the initial section of the task that comprised only non-functional acts; (ii) 'body' - the central and pragmatic section that comprised the functional acts; and (iii) 'tail' - the terminal section that comprised non-functional acts and/or repetitions on former functional acts. Notably, both the 'head' and the 'tail' were not required for task completion, raising the question of their adaptive value.

We suggest that the 'head' serves as a preparatory phase, whereas the 'tail' serves as a confirmatory phase. This provides a solid rationale for the long 'head' and absence of 'tail' in sport rituals with definite end and high stakes, for the relatively long non-functional tail in OCD rituals, for the long functional tail in perfectionism, etc. All

these types of motor behavior could be directly derived from the relatively short head and tail of everyday motor tasks.

The above notion is based on two sport-related tasks, several OCD rituals, and several daily motor tasks; therefore, the generalized to normal routines, normal rituals, and pathologic rituals should be taken with a grain of caution. Nevertheless, this notion and methodology ought to serve as a framework for further studies on structured or repetitive behaviors such as religious-cultural collective rituals, gaming and gambling behavior.

Aggressiveness, Hand Grip Strength, Body Mass Index, and Fighting Ability in Spanish Adolescents

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According to the recalibrational theory, anger may be linked to strength and fighting ability and serve as a bargaining mechanism to improve the welfare that can be obtained in social conflict. It has been proposed that men with enhanced fighting abilities have a better bargaining position in conflicts and are also more prone to anger. In women, the use of anger linked to physical attractiveness is the main component of the recalibrational theory of anger as attractiveness reflects health and fertility in women, thus making attractive woman more interesting as sexual partners, mates, and allies. The present study investigated handgrip strength (HGS), body mass index (BMI), and self-reported fighting ability in relationship with aggressiveness in 288 Spanish adolescents aged 14 to 18 years. Our results indicated a positive relationship between self-perceived fighting ability and HGS in both sexes. There was a negative association between BMI and anger in late adolescent women (17 to 18 years), but no significant relationship between fighting ability and aggressiveness. For men, there was a positive relationship between fighting ability and physical aggression, but the strength of this relationship decreased with age. Moreover, there was a positive association of fighting ability and anger in late adolescent men, but not in middle adolescents (14 to 16 years). Taken together, our results suggest that the sex- and age-dependent associations between fighting ability and physical and non-physical aggression indicate divergent adaptive skills between sexes, which are driven by intrasexual competition.

Evidence for Overrepresentation of Left-handedness in MMA Fighters and More Broadly in Direct Interactive Sports: a Test and a Meta-Analysis

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Human left-handedness occurs at a relatively stable frequency (around 10%) throughout human history. The persistence of this percentage, however, poses a fundamental evolutionary problem given that left-handedness is negatively associated with health and fitness measures and heritable. One hypothesis, known as ‘the fighting hypothesis’, explains the persistence of left-handedness by stating that the fitness-adverse effects are balanced by its advantage in (male-male) physical aggression: a case of frequency dependent selection (Raymond, Pontier & Dufour, 1996). Here we test in a sample of fighters (Ultimate Fighting Championship UFC; <http://www.ufc.com>; a mixed martial competition), whether (1a) left-handers are indeed overrepresented and (1b) left-handers have a frequency dependent advantage. We extend these findings by (2) performing a meta-analysis including all sports to examine whether an overrepresentation of left-handers is also present in other sports (e.g. boxing, judo, fencing, tennis).

1) Videos of 140 UFC fights were coded for handedness, based on predominant fighting stance: ‘orthodox’ (right) vs. ‘southpaw (left)’ (193 fighters). The proportion of left-handers was tested against the expected proportion for males based on a large population sample (one sample *t*-test against .126). Next, using a linear mixed model (*lmer* function in R with binomial distribution), we tested whether or not left-handers were significantly more likely to win against a right-hander (controlling for country of birth, weight and age).

2) An extensive literature search on handedness and sports led to 42 studies (with 180 effect sizes, N>95,000). Of these studies sex, handedness, experience, type of sport (non-interactive (e.g. Golf); indirect interactive (e.g. Tennis) and direct interactive (e.g. Boxing) were coded. The MCMC GLMM package in R was used for meta-analysis.

1) Left-handed UFC fighters were strongly and significantly overrepresented as compared to the general male population. The linear mixed model showed no evidence for a left-handed advantage when facing a right-hander, however.

2) There was also clear evidence for an overrepresentation of left-handers in direct interactive sports compared to the baseline population. In males, there was also a significant overrepresentation in indirect interactive sports but for females there was no overrepresentation of left-handers in these sports. There was no significant overrepresentation in non-interactive sports.

Left-handers are substantially overrepresented in UFC fighters as compared to the general population, but left-handed fighters were not significantly more likely to win from right-handers. The overrepresentation of left-handers was also found in direct interactive sports and, for males, also in indirect interactive sports, but not in sports where there was no interaction between contestants. Implications of these findings are discussed with reference to the fighting hypothesis and alternative explanations for an overrepresentation of handedness in combat sports.

Body Symmetry and Motor Behaviour: a Sensory-Motor Integration Perspective

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Fluctuating asymmetry (FA) -- subtle random departures from perfect symmetry -- is an inverse measure of developmental stability: an organism's ability to reach an adaptive endpoint despite environmental perturbations. Across diverse species, laboratories and behaviours, FA has emerged as a negative predictor of enhanced motor performance (Swaddle, 1997; Martin & López, 2001; Manning & Pickup, 1998; Longman et al., 2011). The underlying proximate mechanism(s) responsible for these associations are yet to be determined. Sensory-motor integration (Thoma et al., 2006) was investigated as a candidate proximate mechanism for decreased motor performance among high FA individuals. In a sample of thirty premier league cricket batsmen (i.e., each player was selected from the top or bottom team of the league table), we sought to establish whether fluctuating asymmetry of thirteen bilateral traits was a negative predictor of grip indicators of higher ranked team membership and batting performance (a sensory-motor integration skill). A discriminant function analysis revealed that grip performance (strength and endurance) predicted higher ranked team membership with 87% accuracy. Grip strength and body weight were significant positive predictors of batting average. As hypothesised, a composite of relative fluctuating asymmetry was a negative predictor of the grip profiles indicative of higher ranked team membership and a batting performance composite variable (i.e., a principal component of batting average and order). Enhanced sensory-motor integration among developmentally stable individuals may underlie negative associations between fluctuating asymmetry and enhanced motor performance across diverse species, including humans.

General Assembly

Scientific Introduction: A genetic basis for religious thought and constructs

George Mealey

It is argued that the process if Creativity is a genetically produced Closure mechanism for the survival of both our physical and spiritual needs, including the creation of religious constructs which, therefore, are also genetic in origin!

Two factors that underlie all religious constructs are “Closure”, the desire or need to understand and to know the meaning of our existence, and the coupled concepts of “good and evil”.

The closure mechanism is developed in the context of the process of the creative process itself, and is shown to be a self-training, experiential process of anthropomorphizing problems, by asking “what does a problem fear most for its survival?” The answer is always the same, the solution, because when solved the problem no longer exists! The answer to the problem of hunger, is to make it go away, not survive, so that I could survive. It has been said that “Necessity is the Mother of Invention” and over the years I have come to believe that “Survival is the Father of Creativity”. This was at the core of my search for closure, and its connection to the power of creativity.

It would be difficult to argue against the stated observation that the coupled concepts of good and evil, a major force in our developmental behavior, is a building block in virtually all religious constructs. It is argued that a religious belief system always presents two sides! Therefore, it is inherently ambiguous! Ergo, it cannot define the absolute!

⁽¹⁾ e.g., Kristen Swenson, The Free Lance-Star (Fredericksburg, Va.) “5 things to know about the Bible.”

⁽²⁾ Linda Mealey’s thesis “The sociobiology of sociopathy: An integrated evolutionary model.” BEHAVIORAL AND BRAIN SCIENCES (1995) 18, 523-599

⁽³⁾ Barbara Oakley’s Book “EVIL GENES, Why Rome Fell, Hitler Rose, Enron Failed, and My Sister Stole My Mother’s Boyfriend.” Prometheus Books 2007.

⁽⁴⁾ Pathological Altruism by Singer, T., & Hein, G (in press) New York: Oxford University Press.

⁽⁵⁾ ‘tween, a drama with music. Book, Music and Lyrics, and “The In-Between Generation RAP” (CD), by Mike O’Malley aka George J. Mealey, and produced in cooperation with the Cincinnati Commission of the Arts, 1987.

Social Program

Wednesday 2012-08-15

Heuriger: Fuhrgassel Huber

Neustift am Walde 68

1190 Wien



Located in the heart of Neustift am Walde between vineyards and the Vienna Woods Ernst and Gerti Huber's Winery with its cosy parlours and romantic patio has been a popular wine tavern for almost 30 years.

The architect for our house was Professor Walter von Hoesslin, the stage designer of the Vienna Opera House.

From the city, take the tram line 38 (Schottentor, Universität) to Gattenburggasse and then the bus line 35A to Neustift am Walde.

Thursday 08-16-2012

Social 1: Bus Tour

Historical Vienna with tour through Schönbrunn Palace



To provide you with a first impression of the city, we start our tour at Ringstrasse. This boulevard with an approximate length of 4 km was created in the course of the city's first expansion in the middle of the 19th century on the area of the former Glacis. We will see buildings like the Museum of Fine Arts, the Museum of Natural History, the City Hall, the Burgtheater, the Parliament, the University, and many more. The highlight of our excursion is a tour through Schönbrunn Palace, the summer residence of the former Imperial House of Austria.

Social 2: City Walk

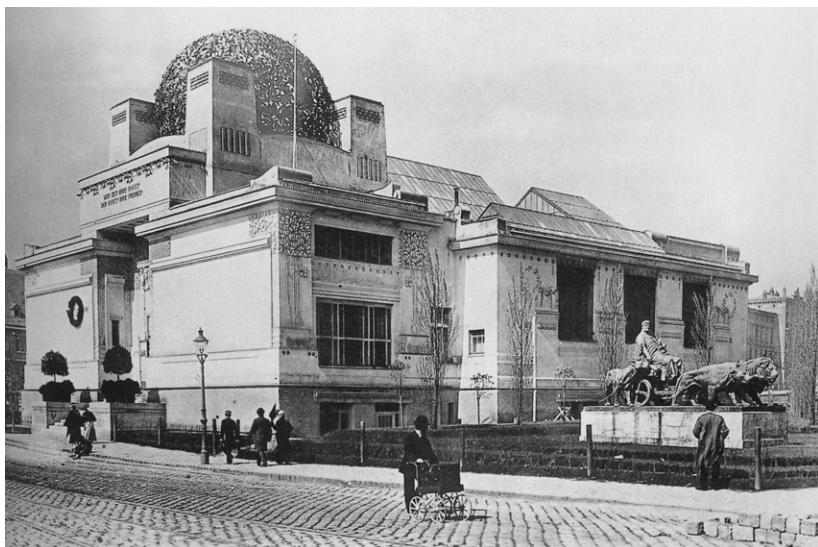
Life at the Viennese Court



This city walk starts with a tour through the individual tracts of the Vienna Imperial Palace, the winter residence of the Imperial family. To get an impression of their daily life, you will be shown the former office and private apartments of Emperor Franz Josef and his wife, Empress Elisabeth, known as Sisi. You will visit the newly built Sisi Museum and the Silver Chamber, where the valuable silver tableware and service is exhibited, which was used by the Imperial family on a daily basis.

Social 3: Art Nouveau in Vienna

Explored on foot



In the course of this city walk we will show you some extraordinarily beautiful Art Nouveau buildings. The most renowned representatives of the Art Nouveau style are the architects Josef Hoffmann, Joseph Olbrich and especially Otto Wagner (1841-1918), who ranks among Vienna's most important and noteworthy Art Nouveau architects at the turn of the century. His masterpieces, like, for example, the Karlsplatz subway station or the building of the Post Office Savings Bank brought a major change to the townscape of Vienna. The highlight of our walk is a guided tour through the Secession, which was created by architect Joseph Olbrich and features the "Beethovenfries" of Gustav Klimt.

Social 4: Museum
Museum of Anatomy and Pathology



The Narrenturm (Fool's Tower) in Vienna is continental Europe's oldest building for the accommodation of mental patients. Built in 1784, it is next to the site of the old Vienna General Hospital (today a university campus), and is now home to the Federal Pathologic-Anatomical Museum Vienna.

Social 5: Hiking tour *to the Otto-Wagner-Church*



The Kirche am Steinhof (also called the Church of St. Leopold) in Vienna is the Roman Catholic oratory of the Steinhof Psychiatric Hospital. The building designed by Otto Wagner is considered one of the most important Art Nouveau churches in the world.

Social 6: Wolf Science Center Ernstbrunn



This research center and exceptional wolf keeping facility is the place where the similarities between wolves, dogs and humans are explored. The wolves are hand-raised by scientists and therefore have a close and trustful working relationship with us. They regularly participate in cooperative and cognitive tasks to study their mental abilities and to keep them physically and mentally busy which also benefits their welfare. Come and watch some of our scientific activities and interactions with the wolves!

Friday 2012-08-17

Dinner and Dance at the Kahlenberg
Am Kahlenberg 2-3

Awards: LMAs will be awarded by George Mealey.



Kahlenberg was a present of Emperor Ferdinand II given to the Camadulense Order in 1628. They were instructed to build a monastery. The St. Josefs Church was surrounded by 20 small monk houses. The Kahlenberg became famous through the polish King Soebieski, who defeated the Turkish troops in 1683 and liberated Vienna from their occupation. The monastery was sold and closed in 1782. Some of the small monk houses still exist as reminders of the past. Kahlenberg flourished in 1874 with the building of the cog railway and in 1935 with the building of the Höhenstraße.

From the University, take the tram line D to Neustift am Walde, Beethovengang and then the bus line 38A to Kahlenberg.

Bus shuttle:

- departure at 06:50 PM
- meeting point in front of the university's main building

Emergency contacts: +43 699 19446487
ishe.2012@univie.ac.at

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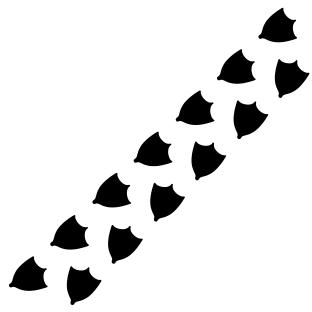
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