

SYMPOSIUM: LINDA MEALEY: REMEMBERING HER LIFE AND WORK

This symposium is dedicated to remembering the life and work of our late colleague and past president of ISHE, Dr. Linda Mealey. Linda authored a number of seminal works in her career. Some of them include her 1999 study, "Symmetry and Perceived Facial Attractiveness: A Monozygotic Co-Twin Comparison," published in the Journal of Personality and Social Psychology; her 1995 article, "The Sociobiology of Sociopathy: An Integrated Evolutionary Model," published in Behavioral and Brain Sciences; and her 2000 textbook, Sex Differences: Development and Evolutionary Strategies. Linda also contributed a chapter, "Evolutionary psychopathology and abnormal development" to an edited volume that is currently in press. This volume, entitled, "Evolutionary Perspectives on Human Development," is edited by Robert L. Burgess and Kevin MacDonald, and will be published by Sage Publications.

The five members of this panel will each focus on selected aspects of Linda's work and consider the impact of her research on current theory and practice in human ethology and evolutionary theory. These areas include behavioral genetics, twin studies, sociopathy, psychopathology, life history strategies and sex differences. Panelists include Nancy Segal (Organizer), Andy Thomson, Elizabeth Hill, Russell Gardner and Carol Weisfeld.

In addition to this review and analysis of Dr. Mealey's scholarly contributions, Nancy Segal will show a video tape and slide presentation covering segments of Linda's life. Panelists will share personal thoughts about Linda, and members of the audience will also be invited to do so.

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CONTRIBUTIONS OF TWIN RESEARCH TO HUMAN BEHAVIOR

Linda Mealey's work on facial asymmetry in twins, published in the Journal of Personality and Social Psychology, was a creative application of behavioral-genetic methodology for testing an evolutionary-based set of hypotheses. Linda extended this work in an unpublished paper. Linda also wrote about other ways to integrate research activity in these two disciplines. I will review this work and some of my own twin study collaborations with Linda, and outline some new directions that her work suggests.

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WORK OF LINDA MEALEY: IMPLICATIONS FOR CLINICAL RESEARCH AND PRACTICE

Linda thought a great deal about extending her research into the area of human suffering. Her seminal paper on sociopathy was a primer for forensic clinicians, a point that has been overlooked by some investigators. Linda also contributed work on anorexia that had important clinical application. She took the position that anorexia can be thought of with reference to a reproductive suppression model, and that women can be helped if we consider female/female competition conflicts. This work will be reviewed in light of its current and potential impact on research and practice.

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LIFE HISTORY THEORY AND BEHAVIOR GENETICS: LINDA MEALEY'S UNIQUE PERSPECTIVE

Linda Mealey, a behavior geneticist, had a unique perspective on the importance of environmental factors. Her research on human behavior examined individual differences using life history theory, in which ecological (environmental) factors are fundamental. She applied this evolutionary framework to psychological disorders, such as sociopathy and anorexia, to the extreme behavior of rape, and to sex-ratio differentials. Her recent work linked evolutionary psychology and behavior genetics by proposing that the adaptive significance of variation in behavior can be clarified by determining how heritable and non-heritable differences map onto life history strategies. This direction is potentially very fruitful for future research.

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LINDA MEALEY'S IMPACT ON HUMAN ETHOLOGY

Linda Mealey felt passionately about ethology and researching behavior in evolutionary context, including clinical applications and use of clinical findings as tools. When Beck Award chairperson for ASCAP, she set high standards: one year no award resulted when they weren't met. Sarasvati, Hindu goddess of learning, gained her name from a river that dried up in ancient times. Before this, the river had occupied its peoples' attention and modeled how present Hindus experience the Ganges. Might this foreshadow Linda's effect on future ethology? High energy, organizationally focused, attention to youth, high standards of research and scholarship, and not least, persistence.

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SEX DIFFERENCES

By entitling her 2000 book "Sex Differences," Linda Mealey defied the hegemony of political correctness. It was not the case that she was unaware of the distinction between sex and gender, or insensitive to feminist interpretations of research findings. Her book, like her general approach to this topic, was thoroughly and deeply steeped in the ethological tradition of understanding behavior on multiple levels: ontogenetic, phylogenetic, proximate and ultimate. Examples from her book include her treatment of how both sexes manipulate mates, how humans engage in courtship displays, how sex differences spill over into the workplace.

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HIS YOUTH CANNOT HUMILIATE HIS OLDER DAYS

As an evolutionary and behaviorally oriented biology teacher in Israel, I simply wrote Lorenz in 1973. By returnmail I received his invitation to the MPIV Seewiesen and 2 years later - to his home at Altenberg. He opened me the doors to ethology and to ethologists. From his autobiography I knew about a politically doubtful period in his life; I was, however convinced of his naivety, since in my berliner boyhood I sensed, that not only too many Germans felt likewise, but - worse - most german Jews too couldn't believe, that their beloved "nation of poets and thinkers" would really harm them. Having read his critics as well as the smear campaigns against him and put them up against his work, his deeds and above all the tremendous effect, these had on our picture of Man & nature - I stick to what I used to tell my pupils referring thereto: Konrad Lorenz was one of the greatest minds of his century - and had some human weaknesses.

I will enliven my presentation with some personal dias & tales.

[Plenary](#)

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Sex Roles and Gender Socialization in Tribal Societies of Southwest Asia and Africa: A Film Lecture

Beginning with 24 documentaries of indigenous tribes of Asia and Africa, we identified theoretically pertinent selections from all the different cultures pertaining to adult sex roles and gender socialization in children of all ages. A film documentary will be presented that covers five aspects of everyday life in the tribes that are nearly always segregated by gender: 1) food acquisition; 2) building shelters and fabricating

objects; 3) infant and child care; 4) dancing; and 5) play and sport. Two key differences between males and females were found to be common: greater competition and risk-taking in males, and greater nurturance and empathy, particularly towards infants and young children in females. In play, boys were observed more frequently in competition involving risk-taking and large-muscle co-ordination, while girls were observed in childcare and low risk activities involving fine muscle co-ordination. These naturalistic observations are interpreted in the light of parental investment theory and sexual selection.

Paper Session: Mate Choice & Attractiveness

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IS MALE RISK-TAKING A CUE FOR MATE CHOICE?

Human risk-taking shows strong sex differences, suggesting that risk-taking may be sexually selected. We investigated whether young heterosexual women might use risk-taking as a cue for mate choice. As measured on a domain-specific risk inventory, women reported finding male risk-taking in recreational and social domains attractive, perhaps because it acts in those domains as a cue for physical quality and social status respectively. Risk-taking in three other domains was unattractive. We found that men know which risks women find attractive and unattractive. Finally, couples were positively assorted for risk-taking, suggesting a "likes attract" rather than "opposites attract" mate-choice mechanism.

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TALL BISHOPS AND GENUFLECTION GENES

Since 1900 the taller candidate for U.S. president has won over 80% of the elections. Similarly, all over the world, taller candidates are usually selected for positions of authority and leadership. In fact, tall men are more often chosen for most jobs, they are more often promoted and commonly paid more. They are also more often chosen as mates, and in polygynous societies, have more wives. This talk will present evidence of many height advantages, will explore why we have evolved heightist biases, and what this has to do with 'genuflection genes.'

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CHANGES IN PERSONAL ATTRIBUTES DUE TO FACIAL SURGERY

Human assessment of beauty and human beauty standards have attracted considerable attention in recent years. Plastic surgery allows manipulation of physical attributes to a large extent. We investigated whether facial surgery due to progenesis alters facial symmetry and attributes towards faces. Pre- and postoperative photographs of male and female subjects were rated. Facial horizontal symmetry was analyzed by means of Geometric Morphometrics methodology. Subjects received significantly higher ratings for sexiness, sympathy and attractiveness after surgery. Symmetry did not change significantly due to surgical corrections and was not associated with facial attributes neither for pre- nor for postoperative faces.

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ODOUR ATTRACTIVENESS AND DOMINANCE: A MENSTRUAL CYCLE PHASE EFFECT

Females of some rodents prefer odour of dominant males. Here we tested a role of smell in assessing dominance in humans. We asked 48 men to wear pads in their armpits for 24h and to fill out a

questionnaire on dominance. Sixty-five women, not using hormonal contraception, rated odour pads for attractiveness. For each woman, we computed the correlation between the subjective ratings of the men's odour and their dominance score. We found positive correlation of attractiveness and dominance score in a sample of 30 women in follicular phase of menstrual cycle, but not in the 35 women in other phases of the cycle.

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SEXUAL ORIENTATION, FERTILITY AND BODY ODOUR

Menstrual cycle timing has significant effects on female olfactory perceptions. Previous research indicates female perceptions of androstenone (present in male body odour) become more positive around ovulation, potentially facilitating inter-sexual contact at peak fertility. This study both evaluated these findings, and the affects of male sexual orientation on this process. This is an important issue as several authors indicate male homosexuality may be conserved through providing characteristics beneficial for inter-sexual social contact. Body odour samples were collected from heterosexual and homosexual males and were presented to female participants at two cycle phases (ovulatory and luteal) over two consecutive cycles.

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SEXUAL SELECTION AS MECHANISM FOR CONSPICUOUS CONSUMPTION

In this paper the original model of Thorstein Veblen on conspicuous consumption is presented and elaborated into an explanatory model. First, his unique insights on conspicuous consumption and habits of thought are presented and analysed. Then, an elaboration of his theory is constructed by drawing upon insights of various disciplines. The use of sexual selection, and especially the handicap principle, for the analysis of conspicuous consumption is examined. The role of sexual selection as crucial explanatory variable is emphasized. This paper concludes by offering an interdisciplinary frame for the future analysis of conspicuous consumption.

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2D:4D AND PERSONALITY: THEORETICAL CONSIDERATIONS, NEW DATA, AND RESEARCH SYNTHESIS

The ratio of the second to the fourth finger (2D:4D) is sexually dimorphic. This ratio is thought to be a retrospective window into fetal hormonal conditions, and has been shown to be related to sex-dependent traits in the domains of behavior, cognition, disease, and fertility (Manning, 2002). Specifically, several accounts report sex-specific relationships between 2D:4D and personality dimensions (Austin et al., 2002; Fink et al., in press). Here we provide theoretical considerations of those observations, review shortcomings of previous research, present new data on this research question, and synthesize the existing data in a meta-analysis.

[Paper Session: Love and Relationships](#)

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MALE INFLUENCES ON FEMALE INTRASEXUAL COMPETITION: A PRELIMINARY REPORT

Competitor derogation, one form of female intrasexual competition, refers to any act intended to lower a rival's value. Using this theory, and the vehicle of facial attractiveness judgements, we hypothesized that women will derogate potential rivals when a desirable male is in close proximity. We asked women and men to rate the attractiveness of female and male faces, and varied the sex of the experimenter. When tested by the attractive male experimenter, women derogated female faces compared to women tested by the attractive female experimenter. We interpret this finding to suggest that attractive males may elicit female intrasexual competition.

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GUY-GIRLS AND GIRL-GIRLS: ALTERNATIVE STRATEGIES IN FEMALE COMPETITION?

A "guy-girl/girl-girl" construct emerged during ethnographic research about female friendship, gossip, and reputation in college sororities. Women referred to themselves and other women as "guy-girls" (male-oriented in their friendships) or as "girl-girls" (female-oriented in their friendships). I explored this phenomenon with subsequent surveys. Sorority women self-reported on several variables, including the degree to which they viewed themselves as "guy-girls" and as "girl-girls," athleticism, relational aggression, self-disclosure, and experiences with friends of both sexes and boyfriends. Women also reported on the closeness, social power, and kindness of one another. Guy-girls and girl-girls are interpreted as using different strategies in female-female competition.

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HUMAN MALE MATE GUARDING AND ITS LINK TO FEMALE FERTILITY STATUS

Due to changes in female fertility and preferences across menstrual cycle, the mate guarding of primary male partner is expected to peak around ovulation. We examined this hypothesis by our research of 41 couples from Slovakia. During three menstrual cycles female participants filled in a diary of 30 questions targeted on mate guarding of the primary male partner. We found a significant change in intensity of several mate guarding tactics across menstrual cycle with a prominence around ovulation, e.g. male partners wanted more to spend the time with the female partner and the communication of couples was more harmonious.

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DO THE SEXUAL SIDE-EFFECTS OF SEROTONIN-ENHANCING ANTIDEPRESSANTS JEOPARDIZE ROMANTIC LOVE AND MARRIAGE?

In the United States 213 million prescriptions for antidepressants, most of them serotonin-enhancing, were filled in 2003. These medications can have serious consequences due to their impact on several neural mechanisms. Disruption of monoamine neurotransmitters in the brain and spinal cord can jeopardize feelings of elation and obsessive thinking, thereby suppressing feelings of romantic attraction. Their effects on sexual desire, arousal and orgasm also suppress unconscious evolutionary mechanisms designed to enable humans to assess, choose and attach to appropriate reproductive partners, causing deleterious social consequences. We review the theoretical bases and empirical evidence for our hypotheses and propose needed research.

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HUMOR AND MARITAL SATISFACTION IN FOUR CULTURES

Miller suggested that men were selected for humor because it connotes intelligence. Women particularly seek humor in "personals ads," and in Grammer's observational study women preferred an amusing man. Research suggests that joking may connote compatibility or affection, or relieve anxiety. We studied appreciation of spouse's jokes. In the US, UK, China and Turkey both spouses were happier with a humorous spouse. Wives saw their husbands as funnier than husbands saw wives, supporting Miller. Both sexes perceived a humorous spouse as intelligent, kind, dependable, and understanding (Turkish wives n.s.). A humorous spouse was associated with lower anxiety (except for US).

Symposium: Ethological Approaches to Literary Study

These four papers display a range of ethological approaches to literary study. Carroll takes up the question as to whether the arts have any adaptive function, and if so, what that might be. He identifies competing models of the human mind emerging from competing conceptions of the evolutionary environment and links literary theory with cognitive archeology. Kruger is a psychologist who uses experimental techniques to assess readers' responses to literary texts, and he uses these responses as evidence for the psychological content of the texts. The specific content area with which he concerns himself is that of short and long-term mating strategies. Evans is a poet and essayist who uses Geoff Miller's theory of art as sexual display to shed light on poems within a specific poetic genre. The concept of sexual display serves as an interpretive lens through which to assess the key signals being delivered by certain poems. Nieves assesses competing paradigms of interdisciplinary study that appertain to the subject of Chicano literature. He identifies the limitations in the currently dominant poststructuralist model, affirms the fundamentally empirical and scientific character of ethological study.

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THE HUMAN REVOLUTION AND THE ADAPTIVE FUNCTION OF LITERATURE

In the past few years, evolutionary anthropology and cognitive archeology have constructed a model of human evolution that emphasizes the instability and complexity of human evolutionary environments, and they have constructed, concordantly, a model of the human mind in which cognitive flexibility is a central feature. These models provide an explanatory framework for "the human revolution"-the development of symbolic culture and revolutionary advances in technology and social exchange. I shall argue that literature and the other arts can best be explained as adaptive responses to the conditions and challenges that emerge out of the human revolution.

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DAD AND CAD MATING STRATEGIES IN BRITISH ROMANTIC LITERATURE

Empirical tests on reactions to literary characters supported hypotheses derived from Evolutionary theory. The proper and dark heroes in British Romantic literature of the late 18th and early 19th centuries respectively represent long-term and short-term male mating strategies. Women preferred proper heroes for long-term relationships, but were more likely to choose dark heroes for brief sexual relationships. A second study revealed that women were able to make inferences about the relational attributes and behaviors of proper and dark heroes when this information was omitted from the character description, and that their choices corresponded with indicators of life history characteristics.

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SEXUAL DISPLAY IN SPORTS POEMS

Geoffrey Miller maintains that modern sports evolved from primitive fitness indicators and that display is a crucial strategy in rebuffing rivals and attracting mates. If Miller is right, display should be a significant characteristic of the sub-genre known as sports poetry. I will discuss display-which can be quite conspicuous and extravagant-in two main types of poems: non-participatory poems in which the speaker observes athletes in competition; and participatory poems in which the speaker is himself or herself an athlete. I will also discuss poems in which the speaker/athlete is not competing directly with others, but is nevertheless displaying.

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ART AND ANXIETY

The wide variety of uses of the arts suggests that sexual selection is not the only plausible adaptive explanation. In smallscale societies, the arts are typically found in ceremonies that are multimedia (several arts are used at once) and participative (individuals perform together). Ceremonies primarily address biologically-important yet anxiety-producing circumstances--e.g., food, safety, prosperity, healing. Although the altered and excessive ("artified") behaviors in ceremonies are proximately motivated by the wish to affect uncertain outcomes, they may have had ultimate adaptive effects as well -- relieving individual stress, promoting attention to common problems, coordinating group effort, and reinforcing group concord.

[Plenary](#)

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BIOSOCIOLOGY OF DOMINANCE AND DEFERENCE

Face-to-face status hierarchies among humans are homologous to dominance hierarchies in nonhuman primates. Humans express dominance and deference partly through the display of their body surfaces. Underneath the skin, hormones also play a part. These processes are in some ways similar to what is observed in apes and monkeys, but in other ways are importantly different.

Paper Session: Social Behavior

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PHYSIOLOGICAL AND BEHAVIORAL ASPECTS OF PEACEMAKING IN CHILDREN

30 boys aged 7-11 years were observed during free play in summer camp. Standard PC-MC method of observation was applied (de Waal, Yoshihara, 1983). Certain anthropometrical (fluctuating asymmetry, 2D-4D ratio, BMI), physiological and psychological parameters were tested as well. The stress-reduction hypothesis was supported on physiological level. Significant correlations between intensity of aggression and physiological post-conflict reaction were obtained. Fluctuating asymmetry was significantly correlated with some basic physiological parameters. 2D-4D ratio was significantly correlated with some personal traits. This study was supported by Aldis Fund Award and by "Ethnocultural Interaction in Eurasia" grant from RAS.

De Waal, F.B.M., & Yoshihara, D., 1983. Reconciliation and redirected affection in rhesus monkeys. *Behaviour*, 85: 224-241.

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OUR REPTILIAN BRAIN AND RITUAL DISPLAY BEHAVIOR; ETHOLOGICAL ASPECTS OF HUMAN RITUAL BEHAVIOR IN PSYCHOPATHOLOGY, THREAT DISPLAY, AND RITUALIZED COMBAT

After the major syntheses of ritual in animal and human behavior by Huxley (1967) and, especially, Eibl-Eibesfeldt (1979), no much progress has been made in the ethology of ritualized behavior. Realizing that the ancestors of all mammals have been reptiles and therapsids, MacLean's (1982) work on the 'triune brain' has made clear that the reptilian stage of mammalian evolution has left traces in our behavior and brain architecture*. His term 'reptilian brain' is well known. His work on ritual in animal and human behavior is less well known, however. This paper presents aspects of the ethology of ritual in normal ('creatures of habit') and psychopathological behavior, in reptilian and mammalian threat displays, and in human ritual combat. Does culture indeed phenocopy nature? (as Eibl-Eibesfeldt suggested).

* The Greek philosopher Anaximander of Miletus (circa 550 B.C.) had already proposed that living matter had evolved through stages including fishes.

Eibl-Eibesfeldt, I. (1979) Ritual and ritualization from a biological perspective. In: Von Cranach et al. *Human Ethology: Claims and Limits of a New Discipline*. Cambridge: Cambridge Univ. Press, pp. 3-55.

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MacLean, P.D. (1982) On the origin and progressive evolution of the triune brain. In: E. Armstrong & D. Falk (Eds.) *Primate Brain Evolution: Methods and Concepts*. New York: Plenum, pp. 291-316.

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MAKING LOVE AND WAR, STRATEGIES TO BECOME A TABLOID STAR.

LOVERS, WARRIORS AND HEROES. TABLOID STORIES FROM AN EVOLUTIONARY PERSPECTIVE

From an evolutionary perspective gossip is functional, first as a tool for constructing and manipulating reputations, and second as a cheap means for gathering life experience. This is true for gossip about people from our social networks, but we also use this hypothesis to explain our present interest in tabloid gossip. In addition to reports on celebrities, tabloids cover stories about totally unknown people. Our interest in celebrities can be explained with both functions of gossip, and stories about unknown people with only the second. A content analysis of 852 tabloid stories, conducted with 11 coders, confirmed our statements.

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THE CHOICE OF FRIENDS - MOVEMENT QUALITY AS A DECISION CRITERION

Having friends means investing in friends, thus they should be carefully chosen. Personality as a major predictor of behaviour tendencies has been shown to be communicated via body movement. Similarity in personality plays a major role in evoking spontaneous interpersonal attraction. Thus, we hypothesise that similarity in movement quality is one of the central criteria for the decision regarding interaction, as well as being a factor which evokes spontaneous attraction. We collected data of the acquaintances of 55 female freshmen in a 2-month-period and let them dance to their own beat. The movement quality was related to the spontaneous attraction.

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A TWIN STUDY OF BEST FRIENDS

This paper reports on 457 friends of 322 pairs of adult twins from the University of London Twin Register, thereby extending previously reported work on the twins' spouses. Questionnaires were completed containing 131 items about educational background, social attitudes and personality. Similarity was the norm across all twin-friendship categories. The friends of 174 pairs of monozygotic (MZ) twins were more similar to each other ($r = 0.31$) than were those of 148 pairs of dizygotic (DZ) twins ($r = 0.20$). Model-fitting found that friendship choice was 30% heritable, 0% due to family upbringing, and 70% due to unique chance effects.

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ETHOLOGICAL ANALYSIS OF PAIN EXPRESSION IN WOMAN

The aim of this study is to contribute to the clinical characteristics of women suffering from pains, by using the ethological approach. The observations focused on the motor activity of 25 women with muscle pain (MP) or functional dyspepsia (FD) and normal subjects, during a 30 minutes clinical consultation. The results show in MP subjects, low mobility and behavioral flow, long reaction time, long sequence duration, behavioral disorganization and in FD subjects, low behavioral flow, low frequency of facial expression, short speaking duration and reaction time. The discussion draws a synthetic table of these motor manifestations as pain expression.

[Paper Session: Facial Expression](#)

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FACIAL ACTION AND SOCIAL ATTRACTION IN CHIMPANZEES, BONOBOS AND HUMANS

The study aimed to investigate homology in the Homo-Pan clade for the facial action - social attraction (SA) relation. Behavior may be homologous if criteria such as shared motivational system and anatomical basis are met (Preuschoft & Van Hooff, 1995). As Pan and Homo have identical facial muscles and innervation (e.g. Sonntag, 1924; Huber, 1930) we compared action Unit (AU) frequencies and AU gestalten in humans, bonobos and chimpanzees, with a FACS (Ekman & Friesen, 1978) based descriptor system, across measures of SA. Results indicate two AUs as cross-species predictors of SA, previously reported with cross-species motivational association (Gaspar, 2001).

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EXPLORATIONS IN FACIAL EXPRESSION SIMULATION

Research in facial expression analysis and its linkage to emotion theory has not brought up consistent results. Basically there are two contradictory main assumptions. One is that there are innate basic emotion, which are separate patterns, the other is that facial expressions in general are controlled by a valence and arousal circumplex model on a muscular basis. We thus decided to develop a 3-d-human-face model which allows controlled activation of single muscles. The implementation of the facial muscles follows the Facial Action Coding System. The faces for the rating study were created by activating the facial muscles randomly (4500 faces were rated in a pleasure-arousal-circumplex model by 450 subjects).

Surprisingly even randomly created faces are perceived as meaningful and there is a distinct activation for each single muscle in the arousal-valence space. We then reconstructed six basic emotions (anger, fear, surprise, disgust, joy and sadness) from the arousal-valence spaces of the single muscles. The result

indicates that all basic emotions can be reconstructed as significantly different feature spaces. Thus we hypothesize that the basic emotions are a subset of a more general arousal-valence model.

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SMILE IN NATURALLY OCCURRING HUMAN INTERACTIONS

The adaptive nature of human smiling behaviour was investigated through the analysis of the socio-ecological context in which it occurs. All occurrences of smiles were sampled during observations of on going human interactions. We used three hypotheses to predict relationships between smile rates and aspects of group size and composition: negotiation of hierarchical relationships, sexual display, and advertisement of cooperative tendencies. Results showed that females tended to smile for reasons related to the hierarchical nature of interactions whereas males' smiling behaviour could be interpreted in terms of advertisement of cooperative dispositions. The sexual display hypothesis received little support. This study suggests a possible sex-specific function of smiling behaviour.

[Paper Session: Cognition](#)

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AGE AND GENDER DIFFERENCES IN THE BEHAVIOURAL RESPONSE TO DISCRETE ENVIRONMENTAL STIMULI

The relevance of landscape perception gains significance in understanding human behaviour from an evolutionary perspective. Differences in the response to landscapes can either be caused by differences in the evaluated landscapes or by differences in the people evaluating. Lyons (1983) found that landscape preferences differed according to age and gender. Similar findings by Balling & Falk (1982), Gibson (1979) and Heft (1988) strengthen this point. The presented study, however focuses not on changes in the response to whole landscapes, but to discrete stimuli. In an experimental setting four stimuli, water, plants, animals and prospect refuge qualities were manipulated and the behavioural response of 4.050 persons was videotaped and coded. Results and impacts of this survey are discussed.

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LYONS, E. Demographic Correlates of landscape preference. *Environment and Behaviour* 15, 487-511, 1983.

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RACE CATEGORISATION AND STEREOTYPING IN THE FRAMEWORK OF HUMAN EVOLUTIONARY BIOLOGY

Research into categorisation and stereotyping has flourished during the last 15 years. The uncovering of automatic and unconscious processes, the role of emotion, and the combination of brain imaging with stereotyping research are among the most exciting new developments in this field. I interpret the findings of these psychological experiments within an evolutionary framework, and they fit easily into theories from sociobiology and evolutionary psychology. I also demonstrate the need of distinguishing between the use

of stereotypes as heuristics, and the role of stereotypes in an ingroup-outgroup context. Furthermore, the controversial character of some of the findings is discussed.

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STRATEGIES OF BEHAVIOR IN AMBIGUITY SITUATION

Studies of interrelating between choice of behavioral strategy and personal characteristics of a man. In what way aggressiveness, anxiety and tendency to risk are interrelated with choice either of strategy of behaviour in ambiguity situation? First there were analyzed two strategies of behaviour: avoidance and investigative activity. There were used psychological methods and experimentally created ambiguity situation. There was analyzing of ethological activities and its comparison with the results of psychological testing. The research consists of two parts: biological (using of behavioral animal models) and psychological.

[Symposium: Socialization for Ingroup Identity](#)

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GROUP IDENTITY IN TERMS OF SOCIALIZATION, ECONOMIC, AND REPRODUCTIVE STRATEGIES OF GYPSY, AMISH, AND INTENTIONAL COMMUNITIES

Comparing adaptive strategies of culturally very different groups can be useful in identifying common underlying functions served by these strategies and their possible evolutionary significance. Gypsy, Amish, and intentional communities are viewed in terms of socialization, economic and reproductive strategies, and divided into those shared and unshared by the three communities. Maintaining group identity appears to be a key socialization mechanism for ensuring group survival and economic viability in indifferent or hostile social environments. This is especially the case for the Gypsies and Amish who have survived over generations despite their atypical culture status. Maintaining group identity and reproductive superiority in relation to surrounding societies appear to play critical roles in ensuring economic and cultural survival.

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SOCIALIZATION FOR INGROUP IDENTITY AMONG SERBIAN GYPSIES

Based on original fieldwork among Gypsies in Serbia, this paper explores Gypsy ethnic socialization and argues that Gypsy social isolation, to some extent, is self-imposed through the acceptance of their traditions. Close kin, particularly parents, are found to be the primary socializing agents of Gypsy children. Gypsy children have little or no contact with children from other ethnic groups. A crucial aspect of Gypsy socialization is an emphasis on the distinction between non-Gypsies and Gypsies; that is, between gadje and Roma: Contact with gadje, especially sexually, is considered polluting. Their social isolation results also from their traditional refusal to accept, and become a part of the larger hierarchy of their host populations. The Gypsy tradition of endogamy helped individual Gypsies to survive, leave descendants, and transmit their traditions to them.

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SOCIALIZATION FOR INGROUP IDENTITY AMONG ASSYRIANS IN THE UNITED STATES

Based on interviews with community informants, this paper explores socialization for ingroup identity and endogamy among Assyrians in the United States. The Assyrians have lived as a linguistic, political, religious, and ethnic minority in Iran, Iraq, and Turkey since the fall of the Assyrian Empire in 612 B.C. Practices that maintain ethnic continuity in the United States include language and residential patterns, ethnically based Christian churches characterized by unique holidays and rites, and culturally specific practices related to life-cycle events and food preparation. The interviews probe parental attitudes and practices related to ethnic identity and encouragement of endogamy. Results are presently being analyzed.

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IN-GROUP/OUT-GROUP IDEOLOGY IN TRADITIONAL NEW GUINEAN SOCIETIES

In New Guinea Highland societies exogamy towards enemies was rare and common towards specific other groups. The demarcation process in which populations of a few hundred souls got welded together through an aggressive xenophobic attitude is likely to have been going on for a long time in Papuan societies, thereby leading to the pronounced cultural and linguistic pseudospeciation, so typical for Melanesia. Traditional New Guinean life seems to have been oscillating between everyday enforcement of in-group ideology and rare events of reaching out for the out-group.

[Paper Session: Nepotism](#)

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THE SUCCESSFUL APPLICATION OF THE ETHOLOGICAL THEORY OF ETHNIC NEPOTISM IN CONTEMPORARY SOCIETIES

Ethological theory has proven fruitful both as explanation and heuristic for investigating ethnic phenomena. Risky Transactions. Ethnic nepotism is altruism extended to ethnic kin. Also, it is treated as a resource for undertaking risky enterprises, mitigating risk in Mafiosi, nationalist fighters, middlemen, and dissidents. Welfare, ethnicity, and altruism. Inclusive fitness theory predicts that, since ethnic identity usually corresponds with genetic identity, altruism should be less forthcoming between than within ethnic groups. This hypothesis was confirmed in studies of street beggars, in two global studies of redistributive welfare, and in numerous other manifestations of public altruism.

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DOMESTIC VIOLENT CONFLICTS

The purpose is to explore to what extent the emergence of violent domestic conflict is related to the degree of ethnic heterogeneity (EH), of economic development (Real GDP per capita), and of democracy (ID) in the group of 151 contemporary countries whose population is more than one million. The theory of ethnic nepotism is used to explain the assumed causal connection between ethnic heterogeneity and domestic violence. Further, it is assumed that when the level of economic development rises, the chances to satisfy the demands of different groups increase and the need to violent conflict declines. The democratic peace theory is used to explain the assumed negative relationship between the level of democratization and domestic violence. The results show that each of these factors is related to domestic violence, ethnic heterogeneity most strongly.

[Plenary](#)

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Gender, aggression and the 'feeling' of an adaptation

Paper Session: Fitness, Genes & Heritability**GOOS Lisa M., SILVERMAN Irwin**

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MEASURING THE INFLUENCE OF GENOMIC IMPRINTING ON HUMAN BRAIN DEVELOPMENT VIA INTRA-FAMILIAL CORRELATIONS: THEORETICAL IMPLICATIONS

Genomic imprinting refers to the differential expression of a gene depending on parental origin. Animal experiments and human clinical studies suggest that genomic imprinting operates such that the maternal genome has a greater role in the development of particular areas of the neocortex. Based on this hypothesis, the investigators found closer correlations between children and their mothers, compared to their fathers, for abilities assumed to be mediated by frontal, parietal and temporal lobes. An explanation of the adaptive functions of the maternal cortex is proposed, linking the present data to Haig's theory of resource acquisition.

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TRAUMA DOWN THE GENERATION: FITNESS AND SURVIVAL

The aim of this study was to examine the long-term distress as the selective factor in humans and to reveal the possible inherited characteristics, which enable individuals to survive. 100 children of former prisoners of war (POW) and 100 control individuals were tested. Prisoners of war were reproductively more successful. POW children differed in the number of anthropological, physiological, and psychological characteristics from the control group: they were more prone to infectious diseases, less asymmetrical and more gracile. This study was supported by the grant from Institute of Urban Ethology, Vienna, Austria.

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THE MALADAPTIVENESS OF MODERN FERTILITY DECISIONS

Modern contraception has profoundly changed reproductive behaviour. Evolutionary researchers are still debating whether conscious fertility decisions are adaptive or maladaptive. However, empirical evolutionary studies on fertility behaviour have exclusively relied on optimality models, which assume fitness maximization. Although most researchers agree that current fertility behaviour does not maximize fitness, no attempts have been made to study fertility decisions as maladaptive behaviour. Drawing on concepts by Tooby and Cosmides (1992) and Boyd and Richerson (1985), I present a general heuristic framework to the study of maladaptiveness and apply it to the willingness to become a parent.

Plenary**Plooi Frans X.**

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The 4 WHY's of age-linked Regression Periods in Human Infancy

The development of age-linked regression periods in human infancy is described. The ages at which the regression periods occur have been confirmed by independent research groups in three other countries. Mother-infant conflict periods shortly follow the regression periods. These are vulnerable periods: peaks in illness and Sudden Infant Death have been found at approximately the same ages.

The causation of the age-linked regression periods has to do first and foremost with sudden brain changes such as a sudden, sharp increase in head circumference at or shortly before the ages at which the regression periods start. A Hierarchical Perceptual Control Theory (HPCT) model of the development of the human nervous system during the sensorimotor period is presented, together with preliminary experimental studies testing the HPCT-model. To complete this model of human sensorimotor development, the complementary reorganisation model is presented where the trilogy of mind, that is affect, cognition, and conation, finds its place.

The function of regression periods is discussed. Regression periods are not only difficult periods for the baby, but also very worrying, annoying, and irritating periods for the parents. This draws the attention of the parents towards the baby and this, in turn, might enhance survival directly or indirectly, through promoting the intelligence and prosocial behaviour of the infant. These measurable effects were shown in an experimental Parenting Support and Education Program.

[Paper Session: Language and Communication](#)

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ON THE EVOLUTION OF SPEECH: VOCAL BEHAVIOR VERSUS GESTURES

It has been repeatedly claimed that manual gestures were the first means of communication in early man and therefore the origin of language. The purpose of this paper is to show that this claim is untenable in the light of comparative neuroanatomy. The neural basis of vocalisation is different in nonhuman primates and Homo sapiens. The former rely on phylogenetically old midline structures in the brain; the vocal behavior is species-specific and basically unmodifiable. The latter system, the cortical voice pathway, is part of the phylogenetically young pyramidal tract, which controls fine movements and learnt skills. In monkeys and apes the pyramidal tract controls the hands and fingers, but not the laryngeal nerves or the tongue. Therefore man, but not monkeys and apes, can form vocal patterns at will. This faculty makes speech possible.

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EVOLUTION OF LANGUAGE - MOTOR ASPECTS

The paper surveys progress in research into the motor theory of the origin and functioning of language. The journal Science, in a recent issue, contained a section on research into the evolution of language with emphasis on what was described as the "Motor Route", the notion that changes in the brain's motor areas were crucial for language capability, particularly links between language and areas in the brain controlling gestural movements of the hand and articulatory gestures. The discovery of mirror neurons, as a neural basis for imitation, has increased the plausibility of a motor/language connection in both the evolutionary and the ontological acquisition of language.

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AN ONTOGENETIC APPROACH TO THE EVOLUTION OF HUMAN LANGUAGE

According to this ontogenetic account of linguistic evolution, parental selection operated in infancy and possibly childhood, natural and sexual selection applying in juvenil