FIRST CHILEAN AND LATIN-AMERICAN MEETING ON EVOLUTIONARY PSYCHOLOGY

NOVEMBER 20 – 21, 2014. DIRECTOR HOTEL, VITACURA AV. 3600.

Thursday 20

19:00 **Welcome and announcements**

19:15 **Keynote: Richard Wrangham** (Harvard University)
Self-domestication as an evolutionary dynamic

20:30 **Wine reception**

Friday 21, Morning session

8:30 **Registration**

9:00 **Keynote: Felipe Martínez,** Pontificia Universidad Católica de Chile
The evolution of the genus Homo

9:30 **Social Interaction**

- Ricardo Guzmán, Universidad Del Desarrollo
  Group heterogeneity in cooperative dispositions is content-specific: Evidence from a framed field experiment with artisanal fishermen.
- Jorge Yamamoto, Pontificia Universidad Católica del Perú
  Latin American Happiness from an Evolutionary Perspective
- Daniel Sznycer, University of California, Santa Barbara
  Shame: A functional, cross-cultural perspective

10:30 **Coffee Break**

11:00 **Mating and sexual adaptation**

- Carmen Gloria Baeza, Universidad de Santiago
  The Dark Triad and Mate Retention Tactics: A preliminary study of Chilean students.
- Valeska Cid, Universidad de Chile
  The relationship between facial fluctuating asymmetry of men, and ratings on attractiveness performed by both sexes
- Ana María Fernández, Universidad de Santiago
  Jealousy as an adaptation to secure mating investment
- Patricia Kinkead, Universidad de Santiago
  Mate retention strategies and emotional co-regulation in the romantic dyad: An explanatory model from psychophysiology of emotions

- Paula Pavez, Universidad de Santiago
  Mate retention and the regulation of reproductive investment

- Jarka Valentova, Center for Theoretical Study
  Are evolved mate preferences really guiding peoples' actual mate choices? An example of relative height among partners

13:00 **Lunch provided by the organization**

Friday 21, Afternoon Session

14:30 **Intelligence and Cognition**

- Pablo Razetto, Instituto de Filosofía y Ciencias de la Complejidad
  A nearly neutral hypothesis for the evolution of human intelligence

- Marco Varella, Universidade de Brasília
  The Multiple Embedded Functions' Model: A conciliatory approach to functional/adaptive understanding based on multi-layered spatio-temporal pathways

- Alejandro Rozas, Universidad Nacional de Colombia
  Dominance hinders the evolution of shared intentionality

- Roberto Araya, Centro de investigación avanzada en Educación
  Ecologically valid formats for fractions

16:00 **Coffee Break**

16:20 **Evolutionary Psychopathology**

- Jaime Santander, Pontificia Universidad Católica de Chile
  The lack of scarcity as a cause for psychopathology: a working hypothesis

- María José Herrera, Universidad de Chile
  The Big Five personality dimensions and chronic physiological stress in a rural Chilean population

- Aldo Luissi, Universidad Católica del Uruguay
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17:20 **Coffee Break**

17:50 **Keynote: Leda Cosmides,** University of California, Santa Barbara.
Can race be "erased"? Evolutionary psychology, alliance detection, and culture

18:40 **Closure and farewell cocktail**

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Talk Abstracts

Key Note from Richard Wrangham (Harvard University)
Self-domestication as an evolutionary dynamic

Animal species that have been domesticated by humans have low tendencies for reactive aggression. They also tend to share a suite of behavioral, physiological and anatomical symptoms, such as patches of white hair, small brains, small teeth, homosexual behavior and cranial pedomorphism (the "Domestication Syndrome", DS). Although the DS has sometimes been argued to represent a set of adaptations to an agricultural environment, growing evidence suggests that it is predominantly a set of non-adaptive consequences of selection against reactive aggression; a plausible explanation is that selection against aggression is most easily achieved by modification of neural crest cell migration, with multiple incidental downstream consequences that are not easily selected against. The consistent appearance of the DS in species selected by humans raises the possibility that it may occur also in wild species that have experienced, for whatever reason, selection against reactive aggression (i.e. "self-domestication"). Bonobos offer an example of such a "self-domestication syndrome," produced during their evolution from a chimpanzee-like ancestor: it includes low aggressivity, small brains, small teeth, homosexual behavior and cranial pedomorphism. Given that selection against reactive aggression is likely to have been frequent in the wild and that it has consistent effects in domesticated animals, self-domestication may be a widespread phenomenon in wild animals. It may therefore prove to be an important source of non-adaptive traits that are then available for new adaptations, such as homosexual behavior, paedomorphic traits, and extended learning. Based on anatomical changes and a novel selective mechanism dependent on language, self-domestication seems likely to have been an important contributor to human characteristics during the last 200,000 years.

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Key Note from Leda Cosmides (University of California, Santa Barbara)

Can race be "erased"? Evolutionary psychology, alliance detection, and culture

Felipe Martínez, Pontificia Universidad Católica de Chile

The evolution of the genus Homo

This paper presents current debate about the origins and evolution of our genus. The genus Homo includes a set of early and archaic species, as well as our own species Homo sapiens. During the Pleistocene, several species of early Homo inhabited Africa and Eurasia. The evolution of the genus is characterized by changes in our ontogeny that favored encephalization and facial retraction, along with complex cultural and social development. The paper aims to address the following questions: How and where the genus Homo arises in the fossil record? What are the main phylogenetic hypotheses? What do we know about the evolution of our main morphological and behavioral traits? What do we know about the emergence of anatomically modern humans and modern behavior? Recent fossil discoveries and archaeological evidence are discussed, as well as recent advances in genomics and paleoanthropology.

Thematic Section: Social Interaction

Daniel Sznycer, University of California, Santa Barbara

Shame: A functional, cross-cultural perspective

Targets of social devaluation incur costs ranging from mild to lethal. The adaptive problem of social devaluation would have selected for countermeasures to limit its deleterious effects. By hypothesis, one such countermeasure is the emotion of shame: a neurocognitive adaptation designed to prevent the spread of negative information about the self, and to minimize its negative impact if the spread occurs. The front-end of shame should be sensitive to several variables predictive of devaluation, including the probability of detection, the probability of devaluation given detection, and the degree and costs of devaluation. To assess the role of degree of devaluation on shame activation, we created two sets of 29 hypothetical scenarios involving discrediting information (e.g. having a disfigured face, having poor table manners). One group of subjects was assigned to the discredited perspective and asked how much shame they would feel in each scenario; another group was assigned to the audience perspective and asked how negatively they would view an acquaintance if the latter were in those situations. The scenario- specific shame means highly correlated with the audience negativity means. This was true in the US, India, and Israel (mean r across countries: +.72). In no case was the shame-devaluation match stronger within a country than between countries, suggesting that despite cultural variation in shame a detailed species-wide architecture of social valuation exists that governs this emotion in similar ways across populations. Further, the match to devaluation is specific: Emotions that covary with shame such as anxiety and sadness fail to track audience devaluation. Evolutionary psychology is a productive avenue for mapping shame and the psychological architecture of social valuation.

Ricardo Guzmán, Universidad Del Desarrollo

Group heterogeneity in cooperative dispositions is content-specific: Evidence from a framed field experiment with artisanal fishermen.

The implicit assumption that groups present a general (or content-nonspecific) level of cooperativeness has been taken in the study of cooperative dispositions between groups. Based on this assumption, experimental social dilemmas have been presented in abstract terms to measure differences in cooperative dispositions between groups. We test this assumption by comparing the cooperativeness between two types of artisanal fisher communities, which differs in their social-ecological performance, in three experiments that has the same game-structure, common pool resource, but differ in content by the way in which are framed. To framing the game we considered two fisheries that fishermen practice in their daily activity: the chilean abalone, which is regulated by a community quota, and the hake, whose fishery is open access. A third treatment framed as money was used as control. Results show that framing not only affects cooperative levels within groups but it also can make between groups differences disappear by changing the content of the game. This study support the idea that groups cooperative dispositions are content-specific, highlighting the relevance of content when comparing between group cooperativeness.

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Jorge Yamamoto, Pontificia Universidad Católica del Perú

Latin American Happiness from an Evolutionary Perspective

Happiness world surveys describe Latin America as the happiest region in the world. An inductive, qualitative and quantitative study identifies three confirmatory needs factors positively related to subjective well-being in Latin America: Optimistic adaptation, a good place to live, and raise a family. Results are discussed in terms that Latin America is a relatively unsure place to live, that resembles the ancestral challenges. The collectivistic interaction based on family, and close friends, is a main resource to face the challenges for survival and fitness. An Optimistic adaptation is a copying-trait like cultural style that helps to adapt to circumstances but take advantage when an opportunity arises. Differences between rural Andean, rural Amazonian, peri urban and urban environments are presented. Implications for development programs are discussed.

Thematic Section: Mating and sexual adaptation

Carmen Gloria Baeza, Universidad de Santiago

The Dark Triad and Mate Retention Tactics: A preliminary study of Chilean students.

Some authors suggest that many personality traits are associated with a variety of strategies that individuals use in order to preserve and maintain romantic relationships, this tactics can include intersexual and intrasexual behaviors. The Dark Triad is constituted by machiavellism, psychopathy and narcissism, that although are undesirable and potentially destructive traits for others that surround the individual, are now being rediscovered as adaptively advantageous in reproductive terms. The purpose of the present investigation was to assess the association of each of these personality characteristics with the different mate retention tactics. We conclude that the positive associations between Dark Triad personalities and mate retention tactics are related to direct vigilance strategies, positive intersexual stimulus, and public signals of possession. Additionally, intersexual differences in mate retention tactics show that men have higher levels of vigilance than women, and time monopolization, while in subjugation women score significantly higher than the men. It is necessary to continue investigating this phenomenon in South America, since most research has been done in European or North American samples which may sometimes differ from the local context.

Valeska Cid, Universidad de Chile

The relationship between facial fluctuating asymmetry of men, and ratings on attractiveness performed by both sexes

Facial Fluctuating Asymmetry (FFA) is proposed as an indicator of genetic quality in human beings. There is evidence that support the notion that attractiveness is negatively associated to FFA. However, an important number of these studies have been carried out from the perspective of men´s ratings on female faces, and without considering if hormonal variables could affect ratings on attractiveness. This is especially relevant when women rate the attractiveness of men´s faces. We study the possible relationship between FFA, assessed using pictures of men (N = 35), and ratings on attractiveness performed by men (N = 105) and women (N = 337). We found in both sexes negative relationships between FFA and ratings on attractiveness. In women, the negative relationship was maintained throughout different stages of menstrual cycle, and when using birth control pills. These results indicate the relevance and robustness of the relationship between FFA and ratings of attractiveness.

Ana María Fernández, Universidad de Santiago

Jealousy as an adaptation to secure mating investment

Jealousy has been proposed to be an adaptation for orchestrating responses to the probable or actual infidelity of a romantic partner, and acting to retain the mate and remove the threat posed by the third party. Loss of a partner's reproductive or extra-somatic investment to a third party is costlier for an individual when their partner has a high mate value. Thus, I predict that the physical attractiveness of a partner, a component of mate value and an index of health and genetic quality, should positively correlate with the jealousy of an individual when cues signal the infidelity of the partner. Data from 65 Chilean college-aged romantic couples support this prediction. The data also indicate sex differences in predicted responses to a partner's infidelity. In both sexes jealousy seems

to be activated in specific ways to secure mating investment, with attractiveness positively associated to male reactive jealousy, and female preventive jealousy. This data suggest that jealousy is a finely tuned emotional mechanism designed to retain a mate.

Jarka Valentova, Center for Theoretical Study

Are evolved mate preferences really guiding peoples' actual mate choices? An example of relative height among partners

Mate preferences, as an integral part of evolved mating intelligence, should guide individuals toward ancestral fitness-enhancing mate choices. However, actual choices can differ from ideals, and this can have impact on relationship outcomes. On an example of a sex-dimorphic trait of height, which plays an important role in human mate preferences and actual choices, we tested if preferences differ from actual choices, and whether this gap influences relationship quality. On 790 homosexual and heterosexual men and women from Czech Republic and Brazil we showed that in general, despite being different, preferences correlate with actual choices. Thus, mate preferences guide actual mate choices, as predicted. Interestingly, in heterosexual women preferences and choices varied the most, and the ideal-real mismatch in relative height negatively affected relationship quality most strongly in Brazilian women. Since height is connected to men's dominance and resources, the match between ideal and actual partners in this trait can be of higher adaptive significance for women. Importantly, taller men can choose, and women, despite their preferences, often do not get what they want. Finally, sex, sexual orientation, and own height, although not culture interacted with height preferences and choices, with homosexual individuals reporting less gender typical choices than heterosexuals.

Patricia Kinkead, Universidad de Santiago

Mate retention strategies and emotional co-regulation in the romantic dyad: An explanatory model from psychophysiology of emotions

From an evolutionary perspective, it is argued that success in the attainment and maintenance of a mate is related to the possibilities of adaptation and survival of the species. Under this scenario, it has been established that after a period of living together, mates would develop a daily and cyclical affective synchrony, promoting optimal and functional emotional state for them, as long as other conditions will be present. One of these are the attachment styles that each member shows in the relationship, creating an emotional co-regulation in the dyad, and in case of loss, a diffuse psychophysiological activation and disorganized response in facing stress. Whereas: 1) The emotional sphere plays an important role in the daily life for interaction and guidance to others; 2) There are not enough studies addressing phenomena, such as attachment and emotional co-regulation from the importance that our phylogenetic evolution has; 3) How daily a mate modulates their emotions, along with the participation of attachment and physiology of these dynamics, would influence the stability of a close relationships; and, 4) Use retention strategies differ according to the sex, dependence of the relationship, mate value, and the time they have spent together (among others), the theoretical and empirical background for an explanatory model is presented, where

variations these strategies can be explained by attachment styles, the cardiovagal tone and emotional co-regulation in stable romantic mates and committed in a relationship.

Paula Pavez, Universidad de Santiago

Mate retention and the regulation of reproductive investment

Romantic relationships are highly demanding social exchanges which ultimately lead to reproduction, and exchanged benefits in the past or expected in the future are crucial. We hypothesize that mate retention tactics (MRT) are adapted to respond to the perceived social exchange that a romantic dyad implies for the individual. We tested in 68 college-aged couples if communal-strength (benefits given or expected from a partner) scaled with their reported MRT. The results showed a direct association between the MRT of men, the benefits they give, and what women report to receive from the men, while this was not observed in women. MRT may be adapted for retaining the extra investment men place on a partner, preventing cuckoldry or termination of a reproductive relationship.

While on women MRT may not be dependent on extra investment, since the female mind evolved under the pressure of investing enormous amounts of biological resources in reproduction which are not conditional on their actual investment "given" to a partner.

Thematic Section: Intelligence and Cognition

Marco Varella, Universidade de Brasília

The Multiple Embedded Functions' Model: A conciliatory approach to functional/adaptive understanding based on multi-layered spatio-temporal pathways

Functional/adaptive thinking fosters discoveries and broadens understanding of biopsychosocial systems. However, function has been used in many different ways, mostly unitarily, which has led to misunderstandings obstructing consilience. The Multiple Embedded Functions Model addresses this problem by expanding on Wouters' "four biofunctions" (2003). It places different functional explanations of life-history problem-solving into a coherent multi-layered structure. This varies spatially from intra-individual to population level and temporally from proximal to distal (evolutionary). For example, regarding musicality, in adult individual, musical thoughts, feelings and motivations perform organismic beneficial-roles: fostering a strategic operational mode which can improve multitask skills, motor performance and relief pain. Despite of any personal intentions, musical activities further perform socioecological beneficial-roles: triggering interpersonal interaction. This can improve social-status and promote inter-personal cohesion. Such intermediate socioecological functions participate in the current fitness beneficial-roles: biasing mate selection and fostering relationship cohesion. This can increase direct and indirect reproduction, respectively. Ancestral adaptive values of musicality thus result from past fitness-pathways in terms of all possible organismal, socioecological, survival and reproductive beneficial-roles. All these interrelated functional layers are non-exclusive and applicable across many traits. This model is relevant to investigate adaptive value of mental traits and to connect Evolutionary Psychology with other fields.

Alejandro Rozas, Universidad Nacional de Colombia

Dominance hinders the evolution of shared intentionality

I argue that dominance by force, but not competition per se, hinders the evolution of shared intentionality. Well-known experiments about food competition under dominance provide evidence for second-order intentions in chimps (Hare et. al 2000; 2001). A common view suggests that shared intentions require third-order intentions or higher, and that chimpanzees have not been able to develop them. With a thought experiment, I cast doubt on the view that shared intentions require climbing higher in the orders of intentionality. I argue, instead, that shared intentions require common knowledge (CK) and that CK is achieved immediately in truthful communication. A capacity for higher-order intentions prepares minds for CK, but cannot guarantee it. Only events of truthful communication, where sources have no interest in misleading addressees about their intentions, can guarantee CK. Linear dominance hierarchies normally preclude such events. They promote a strategic use of higher-order intentions, the point of which is to hinder CK by placing one of the inter-actors, a step ahead of the other in knowledge. The upshot is that a capacity for shared intentions can evolve only within egalitarian relationships, not under dominance hierarchies.

Pablo Razetto, Instituto de Filosofía y Ciencias de la Complejidad

A nearly neutral hypothesis for the evolution of human intelligence

Human intelligence is considered to have evolved by positive selection; however evidence for selective hypotheses is inconclusive. By reviewing and integrating available literature about primate's brains, effective population size and duration as species, here I show evidence supporting the idea that during evolution primate intelligence was effectively neutral rather than advantageous for fitness (the "neutral brain hypothesis", NBH). The NBH may explain the majority of the evidence on human intelligence evolution and the puzzling fact that, with the only exception of Homo sapiens, the most intelligent lineage that ever existed on earth (hominin) was completely extinct. Particularly, I propose the specific hypothesis that human intelligence was a nearly neutral trait evolved mainly by random drift and that the extinction of hominin species may have been due to a process of mutational meltdown (the "melting down brain hypothesis", MBH). Thus, according to MBH, intelligence was a slightly deleterious trait that decreased effective population sizes, which in turn increased random drift, in a positive feedback that led hominin species to extinction, while Homo sapiens avoided the extinction due to later innovations such as the agricultural revolution.

Roberto Araya, Centro de investigación avanzada en Educación

Ecologically valid formats for fractions

Teaching fractions is perhaps the most challenging educational problem in elementary and middle school mathematics. One critical problem is the interference induced by the two whole numbers that specify a fraction. Thus, when comparing two fractions, there are 4 whole numbers that have to be considered. It is widely documented that the biggest whole number primes the selection of the bigger fraction. This phenomenon is called the whole-number bias. This effect is augmented when the two bigger whole numbers belongs to the same fraction (as numerator and denominator). However foraging and interchange ratios are widely used by several species, where organisms are constantly comparing ratios to make foraging and reproductively meaningful decisions. For example, there are widely documented biological markets in non-human primates where subjects track interchange ratios in the interchange of grooming with other services. Inspired in these facts we compare the effect of a temporal frequency (foraging) format and an interchange format on the strength of whole number bias in fraction comparisons in 303 fourth graders. We consider three conditions: congruent tasks, when the biggest number belongs to the biggest fraction; simple incongruent tasks, when the biggest number belongs to the smallest fraction but the second biggest number belong to the biggest fraction; and the double incongruent tasks, when the two biggest numbers belong to the smallest fraction. Fraction comparisons using the time frequency and interchange formats produce high reduction of whole number bias for the simple incongruent tasks. A smaller but still statistically significant reduction of whole number bias is also obtained for the double incongruent case. This finding can be very useful to design strategies to teach fractions.

Thematic Section: Psychopathology and XXXX

Jaime Santander, Pontificia Universidad Católica de Chile

The lack of scarcity as a cause for psychopathology: a working hypothesis

There is mounting evidence that metazoans have generally evolved to increasingly optimize their management of relative resource shortages and their heterogeneous distributions. Biological systems have evolved to find, acquire and save such resources as efficiently as possible. Likewise, mental systems have evolved in tandem with these biological systems, which has also led them to progressively improve their capacity to manage the relative scarcity and heterogeneity of available resources. We propose the hypothesis that once such mental systems satisfy their primary biological needs, they necessarily continue to function and require new objectives to work towards and new shortages to overcome. If there are no shortages, mental systems will continue their efforts to make sense of the environment (religion, science, art) or they may generate psychopathologies. This working hypothesis may be supported by conditions such as eating disorders as well as certain types of addictions, depressions and suicidal behaviors.

María José Herrera, Universidad de Chile

The Big Five personality dimensions and chronic physiological stress in a rural Chilean population

We evaluated the association between the big five personality dimensions and cortisol concentrations in a rural area of Chile (Caimanes and Tilama, fourth region) where there is an environmental conflict (water scarcity and pollution). The NEO-FFI inventory was applied and samples were obtained for cortisol analysis in individuals of both sexes, older than 18 years old (n=87). A control sample from Santiago (n=19) was used to compare cortisol concentrations. There was no significant association between personality factors and cortisol's concentrations, which may be due to a high and chronic physiological stress in this population due to a long-term constant exposure to environmental and social stressors. High values of cortisol indicate a high chronic physiologic stress in Caimanes-Tilama, probably associated to environmental conflicts by water scarcity and pollution, which produced abrupt sociocultural and economic changes in this population.

Aldo Luissi, Universidad Católica del Uruguay

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