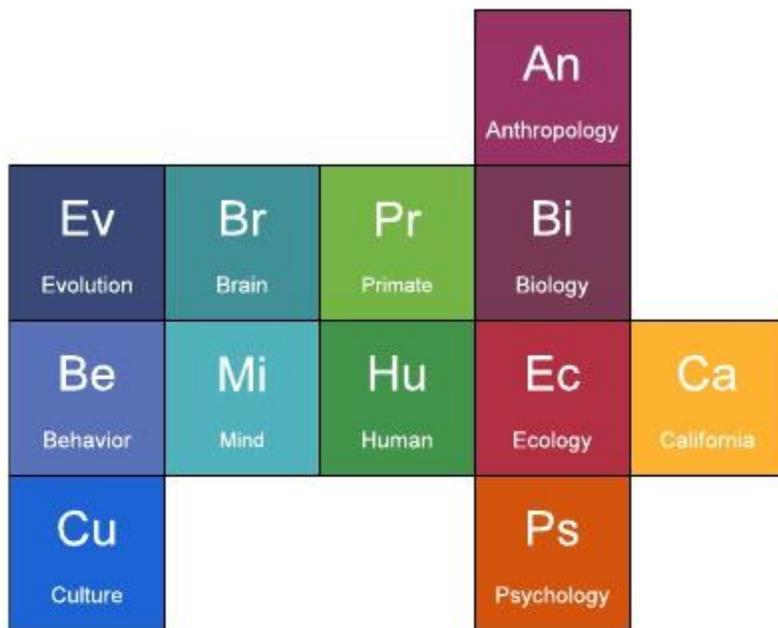


10th Annual
California Workshop
on
Evolutionary
Social Science
 May 5th-7th, 2016



- *Program at a Glance*
- *Organizational Team*
- *Conference Sponsors*

- *Registration*
- *Camping*
- *Abstracts*

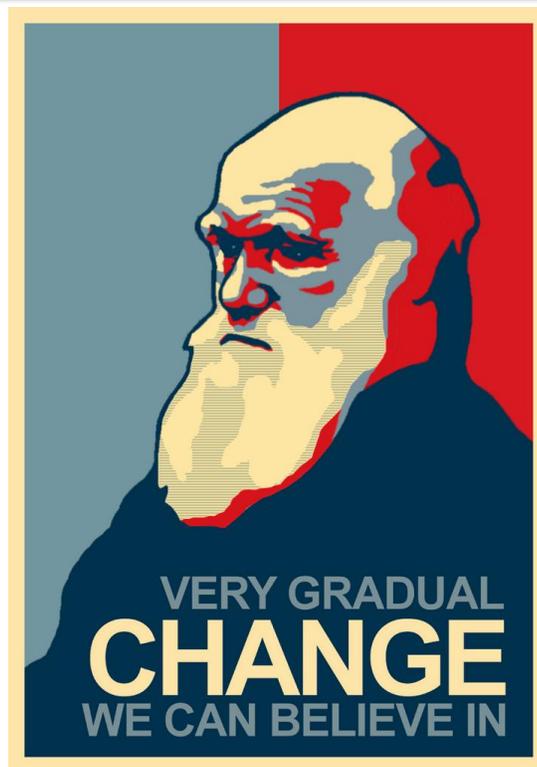


Aims & Scope

Since the inaugural meeting in 2007, this conference has been guided by a single, unifying goal; to maximize familiarity and opportunity for interaction among the greater California community investigating human behavior from an evolutionary perspective.

This small meeting emphasizes discussion and collegiality, and celebrates our points of convergence and divergence. Collectively, California is home to the largest community of scholars working in this area, and is characterized by a diversity of approaches and areas of expertise.

The program this year includes faculty, postdocs, and graduate students from ASU, Boise State, Cal Poly, Chapman, CSU Fullerton, UCD, UCLA, UCSB, UNM and Stanford. We welcome both the familiar and new faces to the 2016 meeting.



PROGRAM AT A GLANCE

Schedule of Events

Thursday, May 5th, 2016

Start at Cal Poly San Luis Obispo

6:00PM Katie Hinde public lecture
Bldg 8 Room 123

8:00-9:30PM Dinner (at Ludwick
Community Center)

8:45PM Welcome and Lightning
Round

Friday, May 6th, 2016

(Ludwick Community Center)

7:30-8:30AM BREAKFAST

8:30-9:45 AM EXPERT PANEL
Panel members: Katie Hinde, Katie
Demps, Aaron Blackwell.
Moderator: Dawn Neil

9:45-10:00AM BREAK

10:00-11:15AM John Tooby, UCSB
career talk

11:15-12:00PM Jeff Schank, UCD

12:00-1:00PM LUNCH

1:00-1:45PM Ben Trumble, ASU

1:45-2:30PM Colin Holbrook, UCLA

2:30-3:00PM COFFEE BREAK

Friday, May 6th, 2016 (cont.)

(Ludwick Community Center)

3:00-4:15PM Terry Jones, Cal Poly

4:15-5:00PM Eric Schniter, Chapman

5:15-7:15PM POSTER SESSION

7:30PM DINNER

Saturday, May 7th, 2016

(Ludwick Community Center)

8:00-9:00AM BREAKFAST

9:00-10:15AM Katie Demps, Boise State

10:15-11:00AM Aaron Blackwell, UCSB

11:00-11:30AM COFFEE BREAK

11:30-12:15PM Tom Flamsom, UCD

12:15-1:00PM David Pinsoff, UCLA

1:00-3:00PM LUNCH

3:00-4:15PM Alexandra Greenwald, UCD

4:15-5:30PM Steering meeting

5:30-7:30PM Dinner

Organizational Team

Local Host Extraordinaire!

Stacey Rucas, Cal Poly

Co-Lead Coordinators

Curtis Atkisson, UCD

Sarah Alami, UCSB

Consulting Lead

Justin Lynn, CSUF

Campus Reps

Eric Schniter, Chapman

Amanda Barnes, CSUF

Curtis Atkisson, UCD

Tran Dinh, UCLA

Sarah Alami, UCSB

Elsbeth Ready, Stanford

Conference Funding

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from our sponsors:*

- Human Behavior and Evolution Society (join now! www.hbes.com/join)
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- CSUF, College of Humanities and Social Sciences, Depts. of Anthropology and Psychology
- Stanford, Dept. of Anthropology
- Chapman, Economic Science Institute



By April 22nd, 2016

1) **Complete Registration Doodle Survey (includes camping reservation)**

2) **Put yourself in the program!** (Attendees, speakers, everyone!)

Email a photo* of yourself, affiliation, & several key words describing your research interests to Curtis (cjatkisson@ucdavis.edu), Sarah (sarah.alami.g@gmail.com), or Justin (jtylynn@gmail.com).

For example:



Jondalar Neanderman
Shanidar University
Paleoanthropology, archaeology, speciation

**Returning attendees:* if you submitted a photo and key words last year we will use these unless otherwise notified or updated.

3) **Poster session participants:**

Please submit a title and abstract (< 200 words) NO LATER THAN April 22nd for inclusion in the final program.

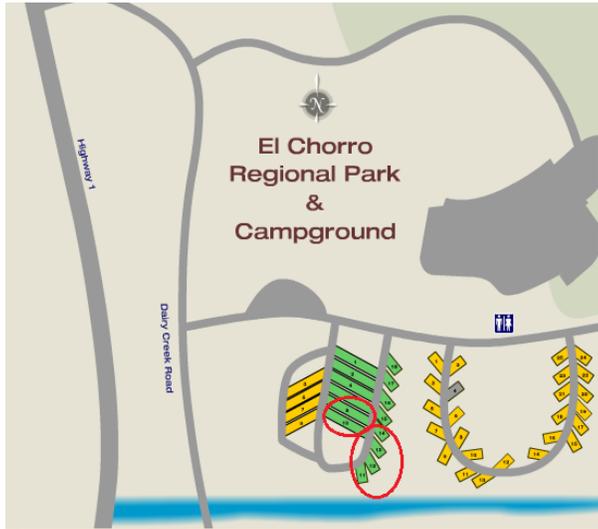
4) Submit questions for the panel discussing ‘Issues Important to Women in our Fields’: <http://doodle.com/poll/x92ndp5nwmtsa9gt>

5) **Register to support our workshop.** There are no passengers on this ship, everyone is crew. Please sign up to help out for a shift or two: <http://doodle.com/poll/e5nnessthvudamgd>

6) For students interested in mileage reimbursement, please register here: <http://doodle.com/poll/zqxqg4ythv74aiyu>

ACCOMODATIONS & DIRECTIONS

CAMPING:



This year we will be camping at El Chorro Regional Park again

(http://www.slocountyparks.com/activities/el_chorro.htm). Camping is FREE, though extra vehicle charges apply.

The El Chorro Regional Park is about an 11 minute drive from the conference site. We have reserved campsites to accommodate 48 people Friday and Saturday night. Campers: we are limited to 12 cars, i.e., there should be four people in each car parked at the campground. For each car we go over the limit, we will collectively owe \$13 to the Park.

If you wish to camp (again, FREE!), please let us know on the workshop registration website:

<http://doodle.com/poll/aag94562bmcxhkqt>. We will be spread across adjacent campsites: Bishop 7, 8, 9, 10, 11, 13, 14 (see red circle, above left). Check-in time on Thursday, May 5th is at 3pm.

Directions: *Heading South on 101:* Once you enter San Luis Obispo city limits take the Santa Rosa Street exit and turn left on Santa Rosa. Santa Rosa Street will turn into Highway 1. Follow Santa Rosa Street / Highway I for approximately 4 1/2 miles. El Chorro Regional Park will be located on the right side of the road. It is across the highway from Cuesta College. *Heading North on Highway 101:* Take the Highway 1 / Morro Bay Exit and follow signs to the stoplight at Santa Rosa Street. Turn right onto Santa Rosa Street. Santa Rosa Street will turn into Highway 1. Follow Santa Rosa Street / Highway 1 for approximately 5 miles. El Chorro Regional Park will be located on the right side of the road. It is across the highway from Cuesta College.

HOTEL ACCOMODATIONS:

Group rates are available at the Lexington Inn (formerly Days Inn) in San Luis Obispo. The hotel is located 0.9 miles (an 18 minute walk) from the conference.

Address: 2050 Garfield St., Garfield and Monterey St., San Luis Obispo, CA, 93401
www.lexingtonhotels.com/property.cfm?idp=22057

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Thursday, May 5th, 2016 (Cal Poly San Luis Obispo)

Food, Medicine, and Signal: Mother's Milk in Evolutionary, Cultural, and SocioPolitical Context

Katie Hinde, ASU, 6:00PM- 7:30PM

Natural selection has shaped milk to be food, medicine, and signal. By studying humans, monkeys, and other mammals she has found that just as individuals vary in their "mothering style," the fats, proteins, sugars, minerals, hormones, bacteria, and other constituents in mother's milk vary substantially. That variation shapes infant growth, health, and neurodevelopment. Importantly, milk not only builds the infant's body, but fuels the infant's behavioral activity. Most recently she has begun to explore the complex evolutionary dynamics among mother, microbes, and babies.

Research on breastfeeding and breast milk spanning the social and life sciences can translate into more personalized clinical recommendations and health optimization for mothers and their infants. Further, a better understanding of the composition and function of milk informs the composition of a more representative infant formula for those mothers facing obstacles to or contraindications for breastfeeding. Transdisciplinary approaches to mother's milk, along with public outreach and science communication, facilitate discoveries at the bench and their translation to applications at the bedside. Moreover Hinde emphasizes the role of socio-political institutions and cultural dynamics as essential considerations in approaching the science of motherhood.

Friday, May 6th, 2016 (Ludwick Community Center)

EXPERT PANEL: "Issues important to women in our fields"

Panel members: *Katie Hinde, Katie Demps, Aaron Blackwell*. Moderator: *Dawn Neil*, 8:30AM-9:45AM



Friday, May 6th, 2016 (cont.)

Things I have learned so far: Retrospective Career Talk

John Tooby, UCSB, 10:00AM-11:15AM

Well, since you asked, yes I do have some advice about how to produce useful theoretical and empirical research. Ever since I figured out what I was going to do with my life in 1970, I have made nonstop errors great and small, as well as finding a few things that do work. I'll cover (using examples) turning points, wrong turns, and useful principles that emerged during the development of the research program associated with our lab and fellow traveling research community. One key is appreciating the importance of constructing a scientific framework to work within that genuinely corresponds to the real causal outlines of the phenomena you wish to study—rather than just defaulting to inherited concepts and practices, however prestigious or widely accepted. Reality is self-consistent so contradictions between different scientific disciplines are signs of errors that need to be corrected. A second key is identifying and using the highest quality inferential tools (like natural selection, probability theory, information theory, entropy, complex adaptations as the product of deep time). These inferential tools amp up our humdrum intellects, endowing us with inferential superpowers. Still, the greatest scientific superpower is being relentlessly skeptical of your own work and conclusions.

Why Cooperative Game Theory Needs Agent-Based Modeling

Jeffrey C. Schank, UCD, 11:15AM-12:00PM

Cooperative theory has provided important insights into the nature of cooperation. For instance, the prisoner's dilemma game models cooperation in context of defection, the stag hunt game models cooperation in the context of coordinating cooperative behavior, and the dictator/ultimatum games model cooperation in the context of the fair distribution of resources. At this strategic level of analysis, however, prospects for explaining cooperative behavior are grim. For a wide range of payoff conditions, cooperative strategies are not rational or biologically fit. The power of game theoretical analyses derive from the disembodiment assumption in which strategies are abstracted away from the individuals that implement them. Agent-based modeling provides a theoretical tool for carefully re-embodiment agents with strategies to investigate the contributions of space, time, movement, and other generic biological properties to the evolution of cooperation. I will discuss several evolutionary simulation examples of re-embodiment strategies in cooperative contexts. I will conclude that cooperation is likely much easier to explain once we put strategies back into agents.

Friday, May 6th, 2016 (cont.)

The impact of a natural disaster on physical and mental health: Offspring morbidity and crop loss as mediators of paternal testosterone, cortisol, and depression among Bolivian forager-farmers.

Ben Trumble, ASU, 1:00PM- 1:45PM

Natural disasters impact all populations, yet impoverished indigenous populations may be more vulnerable and less able to recover. Here we examine impacts of catastrophic flooding on a subsistence population with limited support from formal institutions (e.g. government, NGOs, insurance). Immediately following a devastating 2014 flood that impacted >75% of Tsimane communities, we conducted structured interviews (n=655 households, 2327 individuals) examining material losses, morbidity, and mental health in 25 Tsimane villages. A subset of 421 individuals provided saliva specimens which were analyzed for cortisol and testosterone. More than 99% of households interviewed reported some degree of crop loss, and 70.6% reported injuries or illness. We hypothesized that males who do the majority of horticultural labor would experience greater psychological distress from crop losses, while women who do the majority of child care would experience greater distress from child illness. Men with more crop losses reported problems sleeping at night ($p=0.013$) compared to men reporting fewer losses; for women crop loss was not associated with depressive symptoms. Child morbidity was associated with paternal sadness ($p=0.033$); mothers reported the same depressive symptoms as fathers as well as nervousness, crying, and changes in sleep patterns (all $p\leq 0.05$). For males, lower levels of testosterone were associated with higher severity of crop loss ($p=0.038$) and child illnesses ($p=0.024$); cortisol was also lower in men with more severe child illness ($p=0.001$). Disasters eliminate crops, kill animals, and flood homes, and create intense psychosocial stress, thereby impacting health, sleep, and the ability to mobilize and recover from disaster.

Neural recycling of posterior medial frontal cortex for ideological threat-response

Colin Holbrook, UCLA, 1:45PM- 2:30PM

Cues of threat have been found to trigger numerous adaptive shifts, running the gamut from enhanced detection of physical hazards to ideological responses such as intensified coalitional bias. While highlighting the domain-specificity of proximate mechanisms is invaluable from an adaptationist perspective, evolutionary approaches equally anticipate extensive and efficient co-optation of neurocognitive systems to produce novel functions. In this talk, I will share emerging research on the role of the posterior medial frontal cortex (pmMFC), a neural complex broadly implicated in...

Holbrook, continued

...detecting and reacting to threats spanning domains, and which appears to have been co-opted to mediate ideological reactions to threat via processes of neural recycling operating at phylogenetic and ontogenetic scales. Utilizing an experimental neuromodulation paradigm, my collaborators and I found that downregulating pmMFC activity decreased both group prejudice in response to an out-group challenge and religious belief in the aftermath of a reminder of death. These results will be discussed as they pertain to phylogenetic co-optation of the pmMFC (e.g., to increase group chauvinism following out-group threat) as well as ontogenetically emergent by-products or exaptations of the pmMFC (e.g., that increase belief in God following a reminder of death).

Resources, Sociopolitical Organization, and Violence among Prehistoric Hunter-Gatherers in Central California

Terry L. Jones, Cal Poly, 3:00PM- 4:15PM

We evaluate spatial and temporal patterns in physical evidence for violence from a bioarchaeological database of 16,820 individual skeletons representing people who lived in central California between 3050 B.C. and A.D. 1899. Considering two primary forms of violence represented in skeletal remains—projectile wounds and blunt force cranial trauma—we consider possible correlations with population density, richness of the resource base, and traits of sociopolitical complexity, including reliance on storage, sedentism, and types of political leadership. Preliminary analyses suggest that blunt force trauma declines with increasing population densities and that the proportion of burials exhibiting sharp force trauma declines with environmental productivity, even when controlling for population density and political organization.

Experimental economic tests of the tolerated theft and risk-reduction theories of resource exchange

Eric Schniter, Chapman, 4:15PM- 5:00PM

Over the last three decades, anthropologists have contributed to producing an increasing rich body of cross-cultural empirical data on food transfers in small scale societies. In spite of our growing understanding of the factors associated with patterns of food transfer, the debate about whether people actively share food in reciprocal bonds to reduce risk or whether food transfers are largely due to tolerated theft has not been fully resolved. One problem that has hampered the resolution of the debate is that both theories predict that resource transfers will increase when there is non-synchronized variance in food acquisition. Definitive tests have been difficult to perform under naturalistic conditions. Here we report two sets of experiments...

Schniter, continued

...specifically designed to test the two theories. In the first set of experiments, subjects could choose between high variance and low variance foraging patches and then consumed those resources in a common area with three other subjects. Subjects could share food but not take or ‘steel’ it. Those experiments showed that subjects shared much more food when they foraged in high variance patches and formed specific pair-wise reciprocal bonds. In the second set of experiments, subjects were assigned to medium- and high-variance patches and then consumed in a common area with two, four or six subjects in a repeated set of 29 rounds with the same subjects. In this second set of experiments, subjects could actively steal food and could defend food from theft. They could also voluntarily share food. In all group sizes and in both variance conditions, there was more theft and defense than active sharing, but as the experiment progressed active reciprocal sharing replaced theft and defense. Overall, the vast majority of groups converged on an active-sharing, no-theft and no-defense pattern by the end of the experiment. There was large variance among groups, however, in the gains they achieved through cooperation. We discuss these results in light of the evolution of food sharing in our species.

Saturday, May 7th, 2016 (Ludwick Community Center)

Behavioral Ecology, Missing Markets and the Evolutionary Influences on Barter and Trade in Non-Separable Household Economies

Katie Demps, Boise State, 9:00AM-10:15AM

The behavioral ecology of household decision-making regarding participation in exchange at markets is similar to central place foraging problems involving a round trip and a patch to be exploited with the intent of gaining utility. Households are constrained by production, travel, and transaction costs that affect whether they will participate in markets. We use concepts from optimal foraging theory and microeconomics to build a set of models that predict when households should increase or decrease production, and the costs they would be willing to pay to travel to market. Population density, heterogeneity of production, and currency are three factors that can make market participation more likely for non-separable households. We discuss outcomes in the context of household goals, gains at market external to exchange, and sociopolitical complexity.



Pathogen disgust is related to patterns of cellular immunity

Aaron Blackwell, UCSB, 10:15AM- 11:00AM

If disgust evolved to motivate pathogen avoidance, individuals with higher pathogen disgust should show less evidence of a history of immune activation. We collected capillary blood from 97 females and 36 males, age 18 to 42. Participants also completed a three-domain disgust scale, a revised sociosexual orientation inventory, and provided demographic and health information. We quantified immunity using flow cytometry to count granulocytes, helper T-cells (naïve, senescent, memory, Th1, Th2, Th17, and Treg), cytotoxic T-cells (naïve, memory, senescent), natural killer cells, and B cells (naïve, non-class switched, class-switched memory, plasma cells). Given many correlated variables, immunological parameters were reduced to five principal components. Consistent with predictions, the first component, constituting 34% of the variance and characterized by high naïve T-cells and low senescent and Th1 T-cells, was correlated with pathogen disgust (controlling for recent illness, ethnicity, sex, and age: $r = 0.30$, $p = 0.002$), suggesting that pathogen disgust may protect against immune activation. No immune component was associated with sexual disgust or sociosexuality, and only marginal correlations were found with moral disgust, suggesting that immunity is most directly related to the pathogen avoidance dimension of disgust.

Humor as a Covert Signal for Homophilic Assortment

Thomas Flamson, UCD, 11:30AM- 12:15PM

Humor is a ubiquitous feature of human communication, although precisely what it is communicating has long been a topic of debate. The Encryption Theory of Humor proposes that humor evolved as a means of signaling similarity in locally variable personal features in order to facilitate assortment with the most compatible peers within the local group. It claims that a necessary component of humorous production is the presence of multiple, divergent understandings of speaker meaning, some of which are dependent on access to implicit information. Because of this dependence, only those listeners with access to this background knowledge can “decrypt” the implicit understandings, which further entails the inference that the speaker shares that access. This provides a channel for the honest signaling of personal features, which enables within-group assortment for compatible long-term interaction partners such as friends or mates. This talk will focus first on the computational model of encryption as a unique kind of honest signal, depending on informational complexity instead of cost to maintain honesty. Focus will then turn to an analytic model of within-group covert signaling, to...

Saturday, May 7th, 2016 (cont.)

Flamson, continued

explore the kinds of social conditions that would select for this kind of signaling. Finally, results will be presented that test these models both with ethnographic and experimental data from an Assentamento (“collective farm”) in northeastern Brazil, where the combination of long-standing social relationships and an influx of new residents post-collectivization provide an ideal locale for exploring questions about the relationship between communication and assortment.

The Political Divide Over Same-Sex Marriage: Mating Strategies in Conflict?

David Pinsoff, UCLA, 12:15PM- 1:00PM

Although support for same-sex marriage has grown dramatically over the past decade, public opinion remains markedly divided. Here, we propose that the political divide over same-sex marriage represents a deeper divide between alternative mating strategies. Specifically, we propose that opposition to same-sex marriage can be explained in terms of (a) individual differences in short-term mating orientation and (b) mental associations between homosexuality and sexual promiscuity. We created a novel Implicit Association Test to measure mental associations between homosexuality and promiscuity. We found that mental associations between homosexuality and promiscuity, at both the implicit and the explicit levels, interacted with short-term mating orientation to predict opposition to same-sex marriage. Our model accounted for 42.3% of the variation in attitudes toward same-sex marriage and all predictors remained robust when we controlled for potential confounds. Our results reveal the centrality of mating psychology in attitudes toward same-sex marriage.

Parental Investment Strategies Among Hunter-Gatherers in Prehistoric California

Alexandra Greenwald, UCD, 3:00PM- 4:15PM

Human behavioral ecology predicts that individuals alter reproductive strategies in response to environmental and social conditions. Anthropologists interested in testing the quantity versus quality trade-off and explaining *Homo sapiens*' unique life histories have often studied reproductive and parental investment strategies in modern small-scale societies. Despite their value, these studies are unable to track change over an evolutionary time scale. I consider stable isotope measures ($\delta^{15}\text{N}$ and $\delta^{13}\text{C}$) of weaning age, parental provisioning, and child foraging derived from human tissues as proxies for the reproductive strategies employed by prehistoric hunter-gatherer populations from Central California over a 5,000 year period. Shifts in weaning age and childhood diet over time suggest reduced parental investment associated with the Medieval Climatic Anomaly (MCA) (1100-700 BP), a period noted for severe episodic droughts and general environmental and social disruption. This finding lends support to the hypothesized offspring quantity-quality trade-off, which predicts that individuals will invest less in each offspring during periods of environmental stress to maximize their number of offspring, and invest more resources in fewer offspring during periods of environmental stability.



Stress, Social Support and Fertility

Alla Liubinscaia and Stacey Rucas, Cal Poly

That stress negatively affects reproductive success through a variety of pathways has been well documented in mammals and humans. In the US, sperm parameters have been declining over decades and many couples are waiting to conceive, thereby increasing the chances of experiencing infertility and subfertility within their lifecourse. While stress may increase the probability of adverse fertility outcomes, subfertility itself can produce unique anxieties that may further interfere with fertility goals, though these stressors may be buffered by forms of social support. In this online pilot study of 219 women recruited through “trying to conceive” and “infertility” forums and blogs, we investigated, via empirical and qualitative data, women’s perceptions of stress, social support, and fertility outcomes. Data confirms the correlation that women who experience more stress have more adverse fertility outcomes, and that social support may help reduce the anxieties and tensions of subfertility. It was also found that many women expressed considerable concern due to inadequacy of medical care or medical negligence from clinics experienced throughout their fertility journey. Support from partners, family and online fertility communities might be especially helpful in reducing stress caused by clinics and infertility diagnoses. In particular, many women explained how online communities provide substantial sources of medical information, whereby women freely exchange strategy and health advice about highly sensitive topics that are generally considered too taboo to discuss in sufficient detail with outsiders to the community.

Men’s and Women’s Mating Strategies as a Function of Ovulatory Status

Gordon Aldaco, Citlally Contreras, Bianca Figueras, Macy Ragole, Amanda Barnes-Kennedy, Elizabeth G. Pillsworth, and Justin Lynn, CSUF

According to the “ovulatory shift hypothesis” (Thornhill & Gangestad, 1996), women are predicted to experience systematic shifts in mating-related behaviors and desires at mid-cycle, when conception is most likely, in order to increase the likelihood of reproducing with partners of high genetic quality. Multiple studies have confirmed such shifts, showing that women express greater extra-pair desires and engage in more flirtatious behaviors at ovulation relative to other times in the cycle, and that this pattern is particularly evident in women who have rated their primary partners as less sexually attractive (see Gildersleeve, Haselton, & Fales, 2014, for review and Pillsworth & Haselton, 2006, Haselton & Gangestad, 2006 as examples). A corollary of this hypothesis is that men should exhibit counter-adaptations to reproductive threats posed by women’s dual mating, such as engaging in increased mate retention behaviors (for example, vigilance and self-assertiveness) when their partners are in the ovulatory phase of their cycles (Gangestad, et al., 2014). This study aims to further our understanding of men’s perceptions of and responses to their female partner’s...

Aldaco et al., continued

mating-related behaviors. We report findings regarding the correlation between women’s self-reports of sexual desire and motivations and their male partner’s perceptions of these.

Can we be best friends now? Exploring cooperative aspects of the coordinated condemnation model

Jessica Ayers, Patrick Durkee, & Aaron T. Goetz, CSUF

Through two separate studies, we have documented that the coordinated condemnation model of female intrasexual competition provides a framework for explaining some of women’s competitive interactions in the absence of immediate mating outcomes. However, one of the core assumptions of the coordination condemnation model of competition is that third party competitive interactions are actually cooperative opportunities based on women’s unconscious collusion to keep the price of sexual access high within a given environment. To test this, we will present two study ideas assessing the hypothesis that women will feel closer, friendlier, more helpful, and more cooperative towards those women in their environment who signal that they also want to keep the cost of sex high. In study one, we will use behavioral observations of women’s responses to a provocative and a non-provocative woman in order to document coordinated condemnation and women’s reactions to potential cooperative opportunities. Additionally, we will be exploring the extent to which women have positive feelings towards potential cooperators. Study two will build off the results of the behavioral observations, with the aim of further assessing how positive feelings towards cooperative allies manifest themselves in women’s psychology and subsequently influence women’s willingness to incur costs for allies.

Trolley Problems: An important limitation to consequentialist intuitions triggered by Hamiltonian mechanisms

Patrick Durkee, Jessica Ayers, & Aaron T. Goetz, CSUF

Variations of the famous Trolley Problem have been used to assess moral intuitions and judgments for decades. More recently, researchers have begun to study the ways in which evolutionary mechanisms designed for altruism and kin selection influence moral intuitions. Hamilton’s (1964) inclusive fitness theory predicts that moral intuitions would be trumped by mechanisms designed to maximize inclusive fitness; however, these mechanisms might instead act to bolster moral intuitions in some cases. If so, the moral rule “do not kill” may actually be enhanced, rather than undermined, by altruistic mechanisms in more emotionally aversive personal dilemmas. To examine this possibility, we presented participants with either the lever or the footbridge version of the Trolley Problem and, within each condition, systematically varied the relatedness of the three people on the tracks, as well as the person who would need to be...

Durkee, Ayers, & Goetz, continued

sacrificed (i.e., strangers, friends, siblings, or their children). While notable past research has demonstrated that people tend to be more consequentialist in trolley problems featuring kin, our results suggest that consequentialist decisions involving the sacrifice of kin may only apply to impersonal dilemmas, not personal dilemmas. These findings highlight yet another potential nuance of the interaction between Kantian and Hamiltonian mechanisms.

Cooperation, Competition, and Physical Attractiveness among women.

Holly Pittaway, CSUF

Women face a conundrum when evaluating other women as social partners. Empirical data shows that people generally perceive physically attractive others to be more intelligent, more trustworthy, and more socially desirable, suggesting that women should prefer more attractive female friends. Empirical data using an evolutionary framework shows that women may perceive attractive women as potential mate threats, and should therefore be less inclined to prefer attractive women as friends. This study was designed to directly examine how reputational information and physical attractiveness may interact to predict perceptions of women's desirability as social partners. 281 women were shown images of women's faces that had been pre-rated for attractiveness, along with vignettes that presented the pictured woman as either more or less cooperative with other female friends or associates. Participants were then asked to rate each pictured woman in terms of her physical attractiveness, and her desirability as a potential friend. We predict that physical attractiveness and reputation will interact, such that more attractive (i.e. more threatening) women who are also reputed to be less cooperative will be seen more negatively than less attractive women, and that more attractive women who are also reputed to be cooperative will be viewed more positively than less attractive women.

Cooperation and Coalitional Competition: An Economic Experiment in an Amazonian Tribal Community

James Zerbe, CSUF

One instance of a cooperation dilemma common to humans is inter-coalitional competition and conflict. Here, results are reported from a series of five one-shot anonymous public goods games designed to elicit varying coalitional and competition motivations into game structure. Specifically, the relative influence of group composition, either random or coalitional, and the level of competition at which conflict occurs, either none, intra-group, or inter-group, is examined for influencing contributions in group cooperation...

Zerbe, continued

The data were collected from Conambo, a bi-ethnic tribal community of Achuar and Zapara peoples in the Ecuadorian Amazon. Currently, comparisons of PGG treatments reveal a significant increase in offers due to the varying of group composition (either coalitional or a random group) in the context of between-group competition.

Additionally, preliminary analysis shows that offers by individuals in the highest social status category similarly increased by playing in a coalitional group treatment (in comparison to a random group condition) in both competition and non-competition contexts. Subsequent analysis is focused on testing predictions concerning the influence of social capital on cooperation in the PGG.

Sour grapes or fishy results? Choice-induced preference change and the free-choice paradigm.

Steven Gjerstad, Robert Roussel, Eric Schniter, Chapman

The validity crisis in psychology goes beyond replication problems; some findings generated by poor research designs have been replicated for decades -effectively propagating Type I errors. For example, "Free choice paradigm" studies of choice-induced preference change (using a rank-choice-rank method), have claimed that the mental discomfort of cognitive dissonance (caused by simultaneously holding contradictory values) motivates individuals to change their values in an effort to reduce their discomfort. These studies claim that when participants are forced to make a choice between two items they have closely ranked (X and Y), their choice of Y must be reconciled with the fact that there were aspects of the rejected option (X) that they found appealing. According to these studies, choosers subsequently devalue the rejected item (X) and/or inflate the chosen item's (X) value - effectively changing their revealed "preferences". Six decades of research (since Brehm, 1956) have used data-censoring technique that we demonstrate with simulations to be capable of producing the spurious results misinterpreted as choice-induced preference change. Using an improved methodology, we are able to avoid major design and interpretation problems of past research including the use of tasks that are not incentive compatible and data censoring.

Information transmission and the oral tradition: is storytelling a complimentary or supplementary late-life service niche for Tsimane Amerindians.

Eric Schniter, Chapman

Storytelling facilitates the transmission of information that can affect well-being and ultimately fitness. Despite their potential importance, the development, timing, and transmission of complementary services such as storytelling have received comparably little attention in studies of...

Schniter, continued

subsistence societies that more often focus on food production skills. Here we examine the life course trajectory of storytelling and patterns of information transfer among Tsimane forager-horticulturalists. We find that storytelling skills are most developed among older adults who demonstrate superior knowledge of traditional stories and tell them most. We find that the important information transmitted via storytelling typically flows from older to younger generations, and stories are primarily learned from older same-sex relatives, especially grandparents. Our findings suggest that the oral tradition provides a complementary late-life service niche for Tsimane adults who have accumulated important experience and knowledge relevant to foraging and sociality. These findings may help extend our understanding of the evolved human life history by illustrating how changes in embodied capital predict the development of information transmission services in a forager-horticulturalist economy.

The Use of Replicative Studies in Understanding Material Selection Strategies for Fishhook Production on San Nicolas Island, CA

Lauren Duckworth, Trisha McNeill, Sam Dunham, Liu Chang, and Nicholas Radkey, UCD

Single piece shell fish hooks revolutionized the late Holocene fishery of coastal and insular Southern California. Over the past 30 years of archaeological research on the Channel Islands it has been noted that assemblages from the northern islands are dominated by hooks produced from California mussel, while assemblages from the southern islands are dominated by hooks made from red abalone. Conventional approaches aimed at addressing these differences typically site cultural preferences, ecology, and resource depression to explain this variation. Sea surface temperature data indicate differences in innertidal and subtidal productivity between the northern and southern islands which may help explain why red abalone hooks appear less frequently on the northern chain. However, California mussel is vastly more abundant than red abalone on the northern and southern chain of the Channel Islands and previous research fails to adequately explain the relative dearth of mussel fishhooks on the southern islands, especially San Nicolas Island. This poster uses a technological approach and experimentally derived data to further address why Chumash and Gabrielino craftspeople produced fishhooks from disparate shellfish species. Special attention is paid to methods of production, efficiency, and lithic raw material constraints.

With God on our side: Religious primes reduce the envisioned physical formidability of a menacing adversary

C Holbrook, Dan Fessler, and J Pollack, UCLA

The imagined support of benevolent supernatural agents attenuates anxiety and risk perception. Here, we extend these findings to judgments of the threat posed by a potentially violent adversary. Conceptual representations of bodily size and strength summarize factors that determine the relative threat posed by foes. The proximity of allies moderates the envisioned physical formidability of adversaries, suggesting that cues of access to supernatural allies will reduce the envisioned physical formidability of a threatening target. Across two studies, subtle cues of both supernatural and earthly social support reduced the envisioned physical formidability of a violent criminal. These manipulations had no effect on the perceived likelihood of encountering non-conflictual physical danger, raising the possibility that imagined supernatural support leads participants to view themselves not as shielded from encountering perilous situations, but as protected should perils arise.

Elevation as an emotion of prosocial contagion

Adam Sparks, Colin Holbrook, and Dan Fessler, UCLA

Prosocial and antisocial behavior appear to be contagious; numerous studies show that those who witness such acts (or their consequences) tend to behave in kind. An adaptive explanation of such contagion is straightforward. Cues that one is in a prosocial environment suggest that cooperators can be rewarded and exploiters may be punished; cues of an antisocial environment suggest cooperators may not be rewarded and exploiters are unlikely to be punished. At the proximate level, simple imitation or positive/negative mood are inadequate explanations, implicating specialized affective mechanisms. Emotions dubbed elevation and declination may be mechanistic causes of pro- and antisocial contagion, respectively, but supportive evidence is limited. In preliminary research, elevation has been measured with crude scales that potentially conflate the emotion and its behavioral consequences. Very little work has investigated declination. Here we report efforts to develop improved elevation and declination measures and to situate the investigation of these emotions within a broader theoretical model of affect. We find elevation to be a more reliable construct than declination, perhaps because antisocial contagion can emerge in the absence of elevation, rather requiring a separate declination mechanism.

Evaluating the effects of parental social status on child health in Amazonian Bolivia

Sarah Alami, Christopher von Rueden, Aaron Blackwell, Michael Gurven, UCSB

In humans and other social animals, health is both a determinant and an outcome of social status. Few studies have investigated the linkages between status and health in small-scale societies, where status hierarchies tend to be muted and informal, and fewer still have investigated women's status. Recent studies of Tsimane forager-horticulturalists found that men with more political influence have lower urinary cortisol and lower rates of respiratory infection, and their children may experience lower mortality. It remains unclear whether the latter result is driven directly by male status, or mediated by the status of their wives. We examine associations between women's status and child nutritional and infectious status, and compare fathers and mothers in terms of their influence on their children's health. We use anthropometric and hemoglobin measurements to assess the nutritional status of 122 children aged 1-15 years; white blood cell counts and clinical diagnoses as proxies for infectious status. Our estimates show no relationship between maternal status and child nutritional status. We find, however, the effect of maternal status to be significant for the infectious status of male children. Our results include one of the first quantitative analyses of women's status in a small-scale society, and are discussed with respect to parental investment theories within the Tsimane context.

Predictors of microcytic and macrocytic anemia in the Bolivian Amazon

A Anderson, B Trumble, H Kaplan, M Gurven, AD Blackwell, UCSB

Amazonian populations are noted for high anemia prevalence, generally attributed to high infection loads and food insecurity. As a major contributor to morbidity in the developing world, the dynamics of anemia risk and associated health outcomes merit further examination. This study assesses data from the Tsimane of lowland Bolivia (n = 5,905) between 2006 and 2015 to identify predictors of anemia and of anemia type. Factors accounted for in the regression models included hookworm infection, white blood cell count (WBC), reproductive status (pregnant or lactating), age and sex. Hookworm infection was found to be a significant predictor for hemoglobin levels for males, females, and children older than two (p=0.021; 0.037, <0.032), while WBC was a predictor for males and children older than two (p = 0.003 and p<0.007), but not females. Reproductive status associated with hemoglobin for females (pregnant $\beta = -0.658$ g/dL, p<0.001; lactating $\beta = -0.029$, p = 0.002). Among those with anemia, mean corpuscular hemoglobin concentration (MCHC) was used to differentiate macrocytic and microcytic anemias. Microcytic...

Anderson, Trumble, Kaplan, Gurven, & Blackwell continued

anemias accounted for 73.2% of total cases and 99.2% of severe cases. For all groups, WBC was a significant predictor of microcytic anemia, while hookworm infection was a predictor for adults, but not children. Future efforts will assess iron levels directly using ferritin and serum transferrin receptor to further determine anemia type and associated health risks.

Evolved psychology distinctly tracks willingness and ability to protect

Arai, S., Barlev, M., Cosmides, L., Tooby, J., UCSB

Parental investment theory (Trivers, 1972) predicts that females will prefer males with willingness and ability to provide resources such as food and physical protection to her and her offspring. However, surprisingly little research has focused on willingness as a variable distinct from ability, despite the fact that even the most resource-rich male is not a desirable mate unless he shows willingness to offer his resources to his mate.

The present study teased apart willingness and ability in mate preferences for physical protection, one of the most survival-critical resources men can offer. In a between-subjects design, women rated a man's attractiveness after reading vignettes in which he showed high vs. low willingness to protect them. In contrast to men demonstrating high willingness to protect their mates, men who displayed low willingness were rated as significantly less attractive both as short-term and long-term mates, regardless of their ability to physically protect, as suggested by information about their physical strength. As a predicted sex difference in mate preferences, the effect sizes of willingness were significantly larger in women rating men ($\eta^2 = .50$ to $.68$) than in men rating women ($\eta^2 = .06$ to $.20$)

Bit by bit: Assessing Olivella Bead Production on Santa Cruz Island

Brian Barbier, UCSB

Beads made from Olivella shells were produced in large numbers by the Chumash living in the Santa Barbara Channel region, and were the most prolific shell bead type for much of California prehistory. During the Early, Middle, and Late Periods, Olivella beads were made from different portions of the shell and conformed to specific shapes and sizes. Previous researchers have compared bead-making debris from the Middle and Late Periods on Santa Cruz Island to demonstrate a shift to intensive, specialized production. This is cited as evidence of increasing sociopolitical complexity and the emergence of chiefs. Using experimental bead production data, I assess production debris at a site on Santa Cruz Island that spans the Early, Middle, and Late Periods to show that...

Barbier, continued

production intensity did not increase as drastically as thought, and that similar production levels may have occurred earlier than realized.

One concern regarding the use of phylogenetic methods to study transmitted culture

M Barlev, B Grillot, UCSB

The present study highlights one concern regarding the use of phylogenetic methods to study transmitted culture, defined here as chains of mental to public to mental representations that exist in two or more minds (Sperber, 1996). A classic serial reproduction method (Bartlett, 1932) was used to yield 10 generations of drawings from a known ancestral state. A reversible-jump MCMC analysis, when provided with information from the most recent (“living”) generation, wrongly inferred the ancestral state; the analysis could not predict rapid trending away from the ancestral state toward cognitive attractor points (Sperber, 1996). We argue that domain-specific but not domain-general or “blank slate” views of the mind are able to predict biases in the contents of transmitted representations; furthermore, domain-specific views can be used to delimit the conditions in which the use of phylogenetic methods to study transmitted culture is likely to lead to reliable inferences including, but not limited to, about ancestral states.

A matter of perception: Subjective and objective socioeconomic status and the shape of diurnal cortisol on the island of Utila, Honduras.

A Garcia, Michael Gurven, and Aaron Blackwell, UCSB

Numerous studies link socioeconomic status (SES) and inequality to health outcomes, with stress and HPA axis function posited as intermediaries. However, less research has focused on what particular aspect of SES most directly affects the HPA axis. Subjective SES has been suggested as an important measure because of its potential to capture the dynamic of economic and social resource-holding potential that extends beyond objective socioeconomic disparities. Here, we examine three avenues between SES and stress, capturing objective and subjective experiences of SES: direct resource access, measured by objective SES, the discrepancy between objective wealth and perceived need, and perceived social position relative to others in one’s community, measured on a MacArthur scale. We examine the relationship between these measures and diurnal cortisol, as measured by diurnal slope and area under the curve (AUC), among inhabitants on the island of Utila, Honduras. Two days of 3x daily saliva samples were collected from 60 adults age 18-79, with cortisol measured by ELISA. We find that discrepancy between objective wealth and...

Garcia, Gurven, & Blackwell, continued

perceived need is the most significant predictor of diurnal slope and AUC, even after controlling for objective SES. The effect is primarily due to elevated evening cortisol. Our results suggest that perceptions of unmet need outweigh other social and economic status factors in predicting HPA axis disruption.

Immune Modulation during Pregnancy for Women in a High Pathogen Environment

Carmen M. Hové, Aaron D. Blackwell, Benjamin C. Trumble, Ivan Maldonado Suarez, Jonathan Stieglitz, Bret Beheim, J. Josh Snodgrass, Michael Gurven, & Hillard Kaplan, UCSB & UCLA

Female immune function varies depending on reproductive state, presumably to negotiate trade-offs between immunity, energy balance, conception, and fetal tolerance. These shifts have mostly been documented in industrialized populations. To determine whether changes during pregnancy are comparable in a population with chronic immune activation we collected data from the Tsimane, a natural fertility, forager-horticulturalist population living in lowland Bolivia. Pregnant and non-pregnant Tsimane women ages 18 to 50 (n=948) provided blood samples so as to determine total leukocytes, lymphocytes, neutrophils, basophils, eosinophils, and monocytes. For a subset (n=149), counts of total CD4+, naïve CD4+, non-naïve CD4+, total CD8+, naïve CD8+, non-naïve CD8+, CD4+:CD8+, NK cells, B cells, immunoglobulins, and indicators of inflammation were measured. Mixed effect models controlling for repeated measures were used for analysis. Compared to cycling women and controlling for age, pregnant women displayed elevated CRP (p=0.019), ESR (p<0.001), and neutrophils (p<0.001), and lower total lymphocytes (p<0.001), CD8+ cells (p=0.036), eosinophils (p=0.004), monocytes (p=0.02) and total IgE (p=0.019). These results echo studies in industrial populations indicating that pregnancy is characterized by elevated inflammation and repressed cellular immunity, suggesting that even under high pathogen stress pregnancy is associated with shifts in immunity that may alter parasite and pathogen susceptibility.

Entitlements in the market: a closer look

Tadeg Quillien, UCSB

Assuming that judgments of economic fairness are the output of a system designed to maximize payoffs from social interactions in a context of competition for partner choice, they should be strategically calibrated to the specifics of each transaction. A basic operation of such a system should be to ensure that the payoff to the potential partner is at least more than zero. We show that, if we also assume people to know that firms in market economies typically make a...

Quillien, continued

low marginal profit, this explains a robust finding in behavioral economics: common sense norms of fairness allow a firm to transfer the full extent of an increase in production costs to the customer, as if firms were entitled to their usual profit. We provide evidence for three predictions following from the model. First, the symmetrical situation, in which a firm keeps the entirety of a reduction in production costs for itself, is judged to be considerably less fair. Second, fairness judgments are sensitive to information about the firm's initial marginal profit, but only in situations of cost increase. Finally, in a different kind of transaction, that between a firm and its employees, the entitlement principle simply ceases to apply.

Observing Human Fecundity Effects from DDT Using Soil Characteristics in Azerbaijan

Maximilian Stiefel, UCSB

Studies on the “demographic-economic paradox”, a mismatch between demographic and evolutionary fertility theories, usually address fertility behavior. However, biological effects from foreign chemical exposure influence fecundity, the actual reproductive rate. One such foreign chemical with potential fecundity effects in women is DDT, a pesticide used historically in Azerbaijan and currently for disease vector control in many countries. Research shows inconclusive evidence that DDT exposure negatively affects human reproductive health. An end to DDT use and fertility rate oscillations in Azerbaijan over the past 20 years provide a naturalistic study opportunity. To fill gaps in our understanding of the demographic-economic paradox and approach more conclusive evidence on how DDT affects reproductive health, I use differences in soil characteristics as a novel way to observe fecundity impacts in human populations exposed to DDT. I hypothesize that DDT exposure depressed fecundity in Azerbaijan during the Soviet era, and a near-elimination of DDT use led to increased fertility levels. Expected results will include calculating independent and dependent variables, respectively soil efficiencies for chemical exposure¹ and household-level differences in actual vs. predicted fertility outcomes², to statistically explore whether DDT exposure depressed fecundity in Azerbaijan.

Complexity drop explains the detection of supernatural agency: Investigating the evolutionary origins of religion

Martin Fortier, Stanford

Two important lines of research have been explored by the cognitive science of religion. The first studies how supernatural concepts minimally violating intuitive ontologies are more memorable than other concepts (Boyer 1994; Boyer 2001; Atran 2002). One obvious limitation of this theory is that it tells why people remember supernatural concepts, but remains silent as to why they are committed to the existence of supernatural entities. The second line of research proposes that ontological commitments to non-existent entities result from the hyperactivity of agency detection devices (Guthrie 1993; Barrett 2004). This approach is not satisfactory either, for explaining the over-detection of natural agents still leaves unexplained why people detect supernatural ones. It will be suggested that, unlike the two previous models, a probabilistic model of supernatural thinking can account for: (1) the higher memorability of supernatural concepts, (2) the ontological commitments to non-existent entities; (3) the supernatural character of these entities (i.e., their other-worldliness and invisibility). According to this model, supernatural thinking is underlain by three key cognitive mechanisms: first, a probabilistic reasoning faculty (Denison, Reed, and Xu 2013; Fontanari et al. 2014); second, a device linking order and agency (Ma and Xu 2013; Keil and Newman 2015); and third, specific causal models of the world (Krynski and Tenenbaum 2007; Bender and Beller 2016). I will then proceed to examining the claims each of the three aforementioned models is making as regards the universality (or relativity) domain-specificity (or domain-generality) and evolutionary origins (or lack thereof) of the basic cognitive mechanisms said to underlie supernatural thinking.