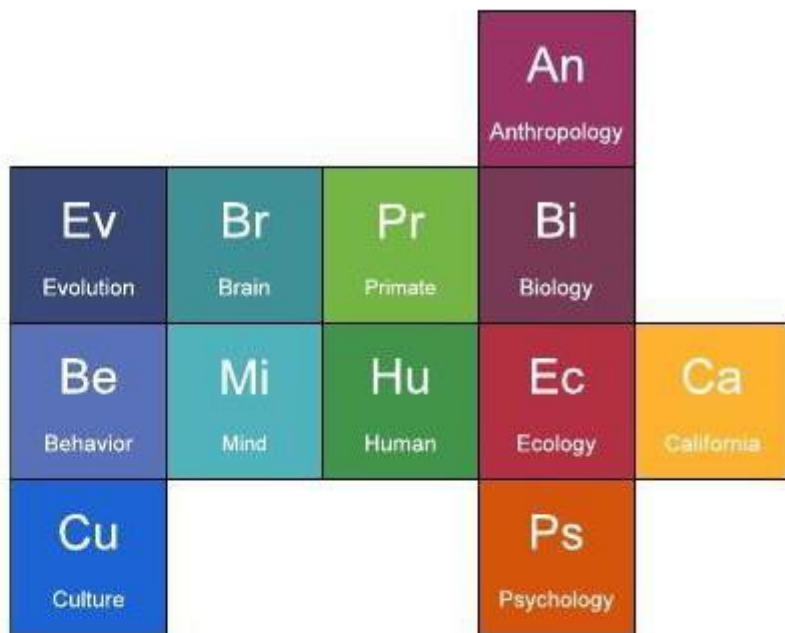


*14th Annual & 1st Virtual*  
**California Workshop**  
*on*  
**Evolutionary**  
**Social Science**  
*July 24-26, 2020*



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



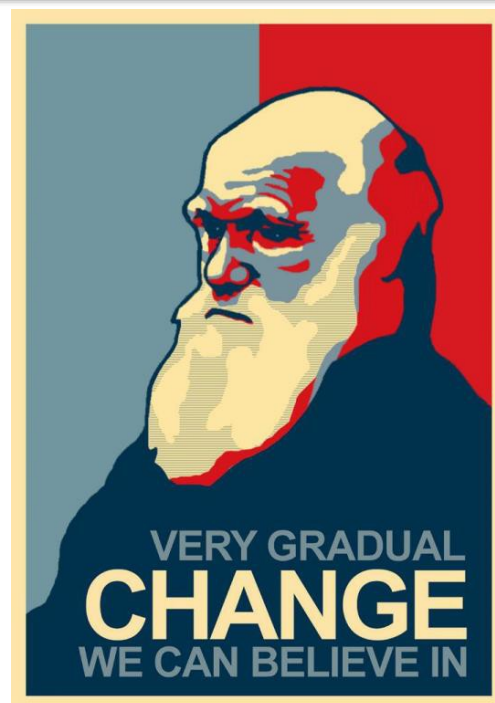
## Aims & Scope

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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, 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 2020 program includes talks and posters by faculty, postdocs, and students from various local as well as international institutions. We welcome both the familiar and new faces to the 2020 meeting!



# PROGRAM AT A GLANCE

## Friday, July 24, 2020

**1:00 pm – 2:00 pm** Welcome & Ice Breaker

**2:00 – 2:15 pm** Break

**2:15 – 3:45 pm** Alessandra Cassar  
*Finding the Femina Economica: A Trilogy*

**3:45 – 4:00 pm** Break

**4:00 pm- 4:20pm** Tadeg Quillien  
*When Do We Think That X Caused Y?*

**4:20 – 4:40pm** Patrick Durkee  
*Testing the Niche Diversity Hypothesis in 115 Nations*

**4:40 – 5:15pm** Michael E. McCullough  
*The Kindness of Strangers: How a Selfish Ape Invented a New Moral Code*

**5:15 pm -5:30 pm** Break

**5:30pm** Virtual Campfires

## Saturday, July 25, 2020

**10:30 am - 12:30 pm** Poster Session

**12:30 – 12:45 pm** Break

**12:45 – 1:00 pm** Welcome

**1:00 – 2:30 pm** Randolph M. Nesse  
*Sadness, Madness, and Natural Selection: How Evolution Makes Sense of Mental Disorders*

**2:30 – 2:45 pm** Break

**2:45 – 3:45 pm** Small Groups

**3:45 – 4:00 pm** Break

**4:00 – 4:20pm** Mei Mei  
*Body Odor Attractiveness and Ovarian Hormones in Women*

**4:20 – 4:40 pm** Spencer Mermelstein  
*I Have to Tell What She Said! Suspicious Claims Are Strategically Re-Transmitted in a Search for Information*

**4:40 – 5:15 pm** Adi Wiezel  
*Revisiting the Alpha Male Stereotype in Leadership*

**5:15 – 5:30 pm** Break

**5:30pm** Virtual Campfire

## Sunday, April 28, 2019

**10:45 am – 11:00 am** Welcome

**11:00 – 11:20 am** Denis Tatone  
*Human Infants Infer Distinct Social Relations from the Observation of Giving and Taking Actions*

**11:20 – 11:40 am** Asli Akdeniz  
*The Cancellation Effect at the Group Level*

**11:40 – 11:45 am** Break

**11:45 am – 12:05 pm** Christopher Graser  
*Sending Mixed Signals: How Signaling Dynamics Affect Selection for or Against Cooperation*

**12:05 – 12:25 pm** Mélusine B. Falleur  
*Temporal Discounting: A Missing Factor in Understanding Risk Taking*

**12:25 – 12:45 pm** Break

**12:45 – 1:45 pm** Small Groups

**1:45 pm – 2:15 pm** Break

**2:15 – 3:45 pm** Daniel M. T. Fessler  
*Evolutionary Psychological Observations, Conjectures, and Speculations on a Moment in History*

**3:45 pm – 4:00 pm** Break

**4:00 – 4:20 pm** Diego G. Beltran  
*Positive Interdependence Attenuates the Empathy-Altruism Relationship*

**4:20 – 4:40 pm** Qiankun Zhong  
*Institutional Similarity Drives Cultural Similarity Among Online Communities*

**4:40 – 5:15 pm** Sarah Alami  
*Modeling Spread of Covid-19 in Indigenous Communities*

**5:15 – 5:20 pm** Break

**5:20 – 6:00pm** Closing & Awards

## Workshop Organizers

### *Student Organizers*

**Frank Reyes**, Senior Organizer, CSUF  
**Brianna Ruff**, Junior Organizer, CSUF  
**Angela Polito**, Supporting Organizer, CSUF  
**Amanda Golden-Eddy**, Supporting Organizer, CSUF

### *Faculty Organizer*

**Elizabeth Pillsworth**, CSUF

### *Supporting Organizers*

**Eric Schniter**, CSUF  
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**Joseph Manson**, UCLA  
**Aaron Goetz**, CSUF  
**Aaron Lukaszewski**, CSUF  
**John Patton**, CSUF  
**Samuel Levine**, CSUF

### *Campus Reps*

**Sarah Alami**, UCSB  
**Michael Barlev**, ASU  
**Cari Goetz**, CSUSB  
**Christina Moya**, UCD  
**Angela Polito**, CSUF  
**Stacey Rucas**, CalPoly  
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**Matt Zefferman**, NPS

*Because of the move to a virtual Conference, CWESS 2020 was produced with no funding. However, we would still like to thank the following institutions for their generous support over the years:*

Human Behavior and Evolution Society  
CSUF, Division of Anthropology  
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### **Conference Funding**

## Important Resources

Please refer to your email with the subject line “C-WESS Virtual Registration Packet” for the links and instructions to the attend talks, the poster session, the small group discussions, and the virtual campfires.

Or, click the following logo:



## Speaker Abstracts

*Friday, July 24th, 2020*

### **Finding the *Femina Economica*: A Trilogy**

*Alessandra Cassar, University of San Francisco*

Despite Darwin's recognition of the importance of intrasexual competition, the topic of female competition has been largely ignored or viewed through a male's metrics. Consistent with recent interdisciplinary advances that have highlighted the evolutionary significance of female competition, with the sexes pursuing different competitive strategies and women reserving their most intense competitive behaviors for the benefit of offspring, I present a series of experiments whose results show that women compete as much as men once we change the experiments to include factors that matter to women.

A first series of experiments (China, Kosovo, Togo and Colombia) shows that the competitiveness gap disappears when the traditional cash incentives are substituted with vouchers for the explicit benefit of one's children.

A second series of experiments (MTurk) shows a dwindling of the gap when top performers are allowed an opportunity to divide winnings with the losers, in line with an evolutionary theory framework for which the potential to repair post-competition conflicts may have afford women several benefits (avoidance of alienating potential mates and female allies).

Finally, some preliminary work is presented on maternal depression as effective strategy to elicit social support. Through the analysis of different types of support (emotional, instrumental, informational, financial) from a series of characters (partner, kin, in-laws, neighbors and friends) in the network of 275 women around the time of birth in Uganda, we find that higher depression seems to be effective at eliciting support from those linked to the mother, especially the offspring's father.

### **When Do We Think That X Caused Y?**

*Tadeg Quillien, University of California, Santa Barbara*

Everything that happens has a multitude of different causes. Therefore, the mind needs to solve the adaptive problem of identifying which causes are most relevant. I argue that one way to do that is to select the causes that are most highly correlated with the event, across counterfactual worlds. This simple theory parsimoniously explains many facts about human causal intuitions. As an illustration, I will present a re-analysis of a recent set of experiments on causal judgment, where a simple computational implementation of the theory has a better fit to the data than other models of causal cognition.

### **Testing the Niche Diversity Hypothesis in 115 Nations**

*Patrick Durkee, University of Texas, Austin*

The niche diversity hypothesis offers an explanation for population differences in personality trait structure. A recent computational model of the hypothesis predicts that more niche diversity should be associated with (1) less trait covariation and (2) more trait variance. These predictions are currently supported by a single empirical study, which found that a proxy of country-level niche diversity was associated with lower average intercorrelations between BFI personality traits and higher average trait variance across 55 nations. In the current study, we sought to replicate these findings using publicly-available IPIP-FFM data from respondents sampled from 115 nations (N = 685,949). We found that niche diversity was reliably inversely related to personality covariance, but only weakly related to personality variance across nations. These findings suggest that additional consideration of the socioecological realities in human societies is needed to further refine the model and our understanding of the nature of personality.

## **The Kindness of Strangers: How a Selfish Ape Invented a New Moral Code**

*Michael E. McCullough, University of San Diego*

Humans' generosity toward strangers cries out for a scientific explanation. Although evolutionary scientists are accustomed to viewing acts of generosity such as charitable giving, volunteerism, and coordinated relief efforts as the out workings of humans' evolved instincts for nepotism and reciprocity, history suggests that other instincts may be more important. In this talk, I trace the 10,000-year arc of human regard for the welfare of strangers, pointing to the instincts, ideas, innovations, and institutions that conspired to create the Golden Age of Compassion that earlier generations have bequeathed to us.

*Saturday, July 25th, 2020*

## **Sadness, Madness, and Natural Selection: How Evolution Makes Sense of Mental Disorders**

*Randolph M. Nesse, Arizona State University*

Despite decades of research by thousands of scientists, the nature and causes of mental disorders remain intensely controversial. The expectation that we would find specific brain causes that define specific disorders has yet to succeed and all agree new approaches are needed. The evolutionary foundation that grounds studies of animal behavior offers opportunities to make psychiatry more like the rest of medicine. It recognizes emotions like anxiety and low mood as evolved defenses that are, like pain and cough, useful despite the costs and suffering they impose. Distinguishing emotional symptoms from diseases is fundamental and encourages looking for their causes by conducting a Review of Social Systems. However, such symptoms are often useless because of the Smoke Detector Principle, positive feedback in self-adjusting systems, and brain variations. Relationship problems and psychodynamic defenses can be understood in an evolutionary context. Out-of-control behavior—eating disorders, addiction, and sexual problems—are better understood by examining how novel environments send control systems into vicious cycles. Vulnerability to psychosis and other highly heritable severe mental disorders may be explained by selection shaping traits to a point near a fitness cliff that maximizes gene transmission despite the risk that stochastic variation will leave some “off the cliff” and vulnerable to system failures. Evolutionary psychiatry is not a method of treatment, but it offers a framework that helps to resolve controversies and to suggest new studies that will lead to new treatments.

## **Body Odor Attractiveness and Ovarian Hormones in Women**

*Mei Mei, University of California, Santa Barbara*

Women's odor samples during the fertile window are on average rated as more attractive than samples from the luteal phase. However, little research has examined relationships between women's odor attractiveness and their estradiol and progesterone concentrations. In this study, we examined the effects of estradiol and progesterone on women's odor attractiveness throughout the menstrual cycle. Forty-six women wore underarm pads overnight every five days for 30 days. They also provided daily luteinizing hormone tests, and saliva samples on the mornings of odor collection days. Sixty-six men rated the odor samples for pleasantness, sexiness and intensity. These ratings were regressed on the donors' estradiol and progesterone concentrations using multilevel modeling. Consistent with previous research, we found that odor samples during women's fertile window were rated as more attractive than samples collected outside the fertile window. In addition, there was a between-women effect whereby men rated the odors of women with higher mean estradiol concentrations as more attractive, which supports the position that men have evolved to attend to women's general reproductive condition. We found only null within-women effects of estradiol and progesterone on within-women changes in odor attractiveness, such that these hormones did not explain the fertile window shift in attractiveness.

## **I Have to Tell What She Said! Suspicious Claims Are Strategically Re-Transmitted in A Search for Information**

*Spencer Mermelstein, University of California, Santa Barbara*

A dilemma arises when someone tells us something that is inconsistent with our prior beliefs: perhaps we should update our beliefs to match, or perhaps we should reject the claim all together. We hypothesized that people are motivated to talk with others about claims that violate their existing beliefs as to learn more about them to help determine whether to accept them or not. In Exp. 1, participants (N = 320) reported wanting to learn more about and talk with others about concepts that violated prior beliefs (counterintuitive concepts) compared to ordinary concepts. Further, across two forced-choice tasks, participants (N = 194) were more likely to request additional information about counterintuitive versus ordinary concepts. In ongoing work, we investigate if people strategically report the source of the information they re-transmit to others. That is, when re-transmitting an epistemically uncertain claim, people are predicted to include the initial source of the claim when telling others about it, but not when the claim is consistent with prior beliefs. In this way, people may scope out the veracity of a claim, but do not suffer reputational costs of being associated with a message that is potentially false. Together, this line of work suggests the operation of mechanisms designed for evaluating communication while maintaining one's reputation.

## **Revisiting the Alpha Male Stereotype in Leadership**

*Adi Wiezel, Arizona State University*

"The notion of a commonality between dominant "alpha males" in other species and humans is widespread. But evolutionary social scientists have pointed out that human leadership can also be acquired by prestige, which operates in a very different manner than dominance (based on knowledge and skills versus physical formidability and aggression). We present data from a series of experiments, and show how this distinction can illuminate a theoretically important disjunction between stereotypes of leaders and people's leader preferences. With regard to stereotypes, people continue to spontaneously think of males when they think of leaders, whether dominant or prestigious leaders, and across a wide range of disciplines. But contrary to classical assumptions, those stereotypes do not seem to translate into leader preferences. Instead, people strongly prefer leaders who are prestigious rather than dominant, and when there is a sex bias in preference, it favors female leaders. We discuss implications for leadership preferences, and suggest it may be time to increase public awareness about modern evolutionary views of leadership.

*Sunday, July 26th, 2020*

## **Human Infants Infer Distinct Social Relations from The Observation of Giving And Taking Actions**

*Denis Tatone, Central European University*

Anthropological evidence suggests that particular sharing behaviors may predictably recur within specific relational contexts and may be thus exploited as relationally informative cues. Given their limited social experience, we expect cultural novices such as young children to be particularly likely to rely on such cues for discovering and differentiating social relations of the basis of sparse observations. The present study examines a specific hypothesis derived from this proposal, namely that infants interpret giving as indicative of social relations based on the principle of even balance. By systematically contrasting infants' representation of giving to that of superficially similar taking events, we showed that, despite being equally likely to infer dyadic transfer relations from either action (Exps. 1-4), 12-month-old infants encoded the direction of resource transfer (i.e., who gave to whom) only in the representation of giving (Exp. 5-6), and, conversely, transitively inferred novel relations only for social structures composed of taking relations

(Exp. 7-8). We argue that the distinct inferences primed by the two transferring actions reflect the different directive standards regulating the relations respectively inferred: one (for giving) based on a principle of even balance, which motivates the monitoring of changes in resource flow within the relation; the other (for taking), based on a principle of social equivalence, which licenses the attribution of transitivity properties to ensuing social structure. Taken together, these findings corroborate and extend to the domain of sharing the proposal that infants possess an abstract grammar of social relations and corresponding cues.

### **The Cancellation Effect at The Group Level**

*Asli Akdeniz, University of Amsterdam*

Group selection models combine selection pressure at the individual level with selection pressure at the group level. Cooperation can be costly for individuals, but beneficial for the group, and therefore, if individuals are sufficiently much assorted, and cooperators find themselves in groups with disproportionately many other cooperators, cooperation can evolve. The existing literature on group selection generally assumes that competition between groups takes place in a well-mixed population of groups, where any group competes with any other group equally intensely. Competition between groups however might very well occur locally; groups may compete more intensely with nearby than with far-away groups. We show that if competition between groups is indeed local, then the evolution of cooperation can be hindered significantly by the fact that groups with many cooperators will mostly compete against neighbouring groups that are also highly cooperative, and therefore harder to outcompete. The existing empirical method for determining how conducive a group structured population is to the evolution of cooperation also implicitly assumes global between-group competition, and therefore gives (possibly very) biased estimates.

### **Sending Mixed Signals: how signaling dynamics affect selection for or against cooperation**

*Christopher Graser, Universiteit van Amsterdam*

In evolutionary game theory, the handicap principle, i.e. the display of costly ornaments as signals for some unobserved quality, has been used to explain diverse phenomena, ranging from peacocks' tails to human altruism. Yet, signaling so far has only been modeled in a static context, assuming some exogenous distribution of unobserved quality levels. In this paper we make the unobserved characteristics endogenous, and examine how signaling affects their equilibrium distribution, assuming that these unobserved characteristics are heritable. In order to do that, we develop a model of partner choice with signaling, and apply it to a multilevel selection setting. Individuals interact in groups, and their unobserved quality is whether or not they will cooperate by contributing to a public good. We show that (1) signaling can substantially increase the equilibrium share of cooperators; and that (2) different signaling equilibria can exist for one and the same parameter configuration, with different equilibrium shares of co-operators. Moreover, (3) we find a new type of signaling equilibrium, in which both co-operators and defectors express the signal ("Pooling Signaling Equilibrium"). This equilibrium is stable, even though the signal holds no information in equilibrium. Further, we show that the level of cooperation in Pooling Signaling Equilibria is dependent on the difference in signaling costs of the different quality types.

### **Temporal Discounting: a Missing Factor in Understanding Risk Taking**

*Mélusine Boon Falleur, Institut Jean Nicod Ecole Normale Supérieure*

Individual observations of risky behaviors present a paradox: individuals who take the most risks in terms of hazards (smoking, speeding, risky sexual behaviors) are also less likely to take risks when it comes to innovation, financial investments or entrepreneurship. This observation has led researchers to argue that risk preferences could be domain specific, or that they could have both a stable and an unstable

component similarly to other psychological traits. In this article, we offer a radically different explanation for the heterogeneity of risk preferences. We propose that hazardous behaviors that harm an individual's capital (e.g., health, reputation) do not reflect a preference for a higher variance in outcome, but a preference for sooner rather than later benefits. Building on insights from evolutionary biology, we show that the marginal cost of such capital degradation depends on the relative importance of the future in the fitness of the individual. Individuals with short time horizons will thus neglect the costs of hazards (e.g. physical injury). Our approach accounts for the observed typology of risks taken by individuals in different socioeconomic groups, and explains why individual preferences over the variance of outcome, as measured in economic and psychology tasks, poorly correlate with real life hazardous behaviors. Our approach also suggests that public health policies that take into account the temporal dimension of risk taking will be more effective in deterring hazardous behaviors.

## **Evolutionary Psychological Observations, Conjectures, and Speculations on a Moment in History**

*Keynote Speaker, Daniel M.T. Fessler, University of California, Los Angeles*

We are living in a period of historic upheaval. In the spirit of fostering discussion and collaboration, rather than trotting out slides depicting past research, I will instead offer interpretations of a variety of current events using (admittedly speculative) applications of evolutionary approaches to human behavior. I will first address a possible mismatch between mechanisms of COVID-19 transmission and evolved disease-avoidance mechanisms; discuss trade-offs between disease avoidance and the maintenance of close relationships; and consider possible host-pathogen dynamics in near-term COVID-19 evolution. I will then discuss partisan differences in COVID-19 prophylactic behavior in light of negatively-biased credulity and the salience of proximal versus distal threats. Turning to politics more broadly, I will consider how an understanding of coalitional psychology may shed light on populist movements, including both their capacity for expansive inclusion and the potential consequences of the under-determined nature of conceptualized opponents – a characteristic that can imperil scientific solutions to current and future crises.

## **Positive Interdependence Attenuates the Empathy-Altruism Relationship**

*Diego Guevara Beltran, Arizona State University*

Attending to the needs of others often elicits empathic concern, another-oriented response congruent with the target's emotions that increases helping motivation. Empathizing facilitates the formation of interdependent relationships which can be called upon at later times of need. However, an over-reactive empathy system is physiologically taxing, potentially making oneself vulnerable to disease. Empathizing is also costly when deployed towards unreciprocating others. An effective empathy system should therefore down-regulate attunement towards distant others, while up-regulating attunement towards interdependent relationships. Due to costs of deployment—interdependence—rather than empathy, may guide helping motivation. Across four studies (N=1076) we find evidence that a) perceived-interdependence was a better predictor of target-specific empathy than closeness or relatedness, b) perceived-interdependence attenuated the effect of dispositional-empathy on helping, c) perceived-interdependence attenuated the effect of an empathic concern manipulation on helping, d) empathic concern only predicted helping in an independent (vs. interdependent) manipulation, and e) people made faster allocations of help when made to feel interdependent. Our results suggest that, when available, interdependence—rather than empathy—guide helping motivation. In follow-up work we seek to address why people who experience high levels of empathy are highly motivated to help others even in the absence of positive interdependence.



## **Institutional Similarity Drives Cultural Similarity Among Online Communities**

*Qiankun Zhong, University of California, Davis*

"How do institutions and culture interact in online communities? Using data on the membership and governance styles of 5,000 small-scale amateur-run online community web servers, we construct empirical measures for cross-server similarities in governance institutions and culture. These measures allow us to explore the emergence and evolution of each community's institutional framework along two key dimensions: 1) the influence of its institutional environment on its culture, and 2) the influence of its culture on its institutional environment.

We study the joint effects of common culture (as proxied by common membership) and common institutions upon each other, using a large population of communities that provide the game Minecraft as a web service. To establish the relative importance of culture and institutions on each other, we construct multiplex networks of user migration patterns and rule similarity communities, linking communities that are more similar either in their members or governance. We then use recent network analysis techniques to assess the causal relationships between shared culture and governance choices. We first identify a faster-timescale trend of servers developing from different institutions and culture to similar in both. We then disentangle the directionality of these effects to show that, while effects in both directions are evident, there is a much stronger role for institutions on culture than culture on institutions. Looking within the rule types that constitute a governance regime, we find that these processes are evident only within administrative and informational type rules, with no effect among communication or transaction rules.

## **Modeling the Dynamics Of COVID-19 Spread In Small-Scale Subsistence Communities**

*Sarah Alami, University of California, Santa Barbara*

Indigenous communities worldwide are especially vulnerable to COVID-19 complications and mortality due to common comorbidities, higher rates of extreme poverty, and poor access to healthcare compared to their non-indigenous counterparts. Many indigenous communities also have unique cultural practices, patterns of social organization, and social network structures that could influence the spread of infectious diseases. One way governments could help prevent or restrict outbreaks in these communities is through interventions informed by epidemiological projections. However, no models have been developed that predict the spread of the virus among indigenous groups by accounting for specific features of these populations.

The proposed project aims at modeling the spread of the coronavirus among the Tsimane, an indigenous population living in the Bolivian Amazon. Using secondary data collected by the Tsimane Health and Life History Project (THLHP), we characterize transmission pathways and social contact networks in Tsimane communities. We then use stochastic network models to simulate viral transmission across these networks, and assess key parameters of disease spread and the dynamics of transmission under different case scenarios, including the presence or absence of potential preventative and containment measures. The goal of these models is to predict: 1) likely routes of introduction into Tsimane communities, 2) how COVID-19 is expected to spread within and between communities, and 3) effective strategies for mitigation given local constraints. The novel prediction that an idealistic attitude, which indexes others' expected degree of prosociality, moderates the relationship between exposure to prosocial cues and experiencing elevation. Our findings potentially inform both basic theorizing in the affective sciences and translational efforts to engineer a more harmonious world.

## Poster Abstracts

### **It Happened to a Friend of a Friend: Inaccurate Source Reporting in Rumor Diffusion**

*Sacha Altay, Jean Nicod Institute, Nicolas Claidière, Aix Marseille Univ, & Hugo Mercier, Jean Nicod Institute.*

Culturally successful rumors are commonly attributed to a credible friend of a friend, but little is known about how this sourcing can boost rumors' propagation. In four online experiments (N = 2024) we found that attribution to a credible friend of a friend increased a rumor's perceived plausibility, and participants' willingness to share it. Moreover, the credible friend of a friend attribution remained stable across multiple transmissions, instead of the number of friends mentioned increasing with each transmission. The main alternative was to only mention a friend (without credibility attribution). Even though this latter alternative dominated linear transmission chains, introducing a degree of redundancy allows the credible friend of a friend to persist or dominate. We suggest that the preference for attributing rumors to a credible friend of a friend reflects reputation management considerations.

### **Anger Closely Tracks Apparent Undervaluation: Testing the Recalibrational Theory Of Anger Using An Act-Nomination Procedure.**

*Sonali Bargotra, CSUF, Brianna Diamond, CSUF, Heidi Duarte, CSUF, Patrick Durkee, UT Austin, Aaron Lukaszewski, CSUF*

The recalibrational theory of anger (RTA) suggests that anger is an evolved output of a complex computational system that functions to bargain for better treatment. This system operates through welfare tradeoff ratios (WTRs) that serve as the internal regulatory variable used to determine levels of investment allocated to another individual. Theoretically, anger functions to recalibrate, or raise, the WTR of an offending individual in an attempt to stipulate better treatment from them. To test the RTA, we hypothesized that there would be a significant positive relationship between reported anger and undervaluation. To evaluate this, undergraduate students (N=92) were asked to think of instances in which they felt slightly, moderately, or significantly undervalued. Responses to these prompts were compiled to create a list of 55 items. Participants were presented with the 55 randomised scenarios and asked how angry and undervalued it would make them feel. A simple linear regression was conducted on anger and undervaluation responses to see if reported undervaluation would predict reported anger. The regression analyses demonstrated that anger closely tracked undervaluation within the overall sample and specific individuals. Moreover, the slope of the individual subjects' anger on undervaluation explained variance in overall anger proneness, beyond subjects' average anger. These findings support our hypothesis and further supports that anger is regulated by feelings of undervaluation as a means of assessing another individual's WTR. Additional future analyses will examine the moderating effects of physical attractiveness and formidability in predicting the contingency of subjects anger on undervaluation.

### **Associations Between Self-Perceived Social Rank and Facets of Machiavellianism**

*Lucas Bowen, University of Texas at Austin, & Patrick Durkee, University of Texas at Austin*

Machiavellianism describes a person's tendency to pursue social rank through cynical, self-serving, and potentially amoral tactics. Previous research has found inconsistent relationships between machiavellian tendencies and perceived social rank. In this study (N = 582 college students; 385 women), we investigated whether and how facets of machiavellian traits are differentially related to self-perceptions of two dimensions of social rank: dominance and prestige. Our results reveal interesting divergent and convergent associations between specific machiavellian facets and both dimensions of social rank across men and women. Discussion focuses on how future research could investigate why the use of machiavellian tactics to attain social rank may differentially relate to perceptions of dominance and prestige.

## **Are Perceptions of Behavioral Phenotypes and Social Value Influenced by Perceptual Cues to Mortality Risk?**

*Vanessa Bruno, CSUF, Nina Rodriguez, CSUF, Kristine Chua, UCLA, Joseph Manson, UCLA & Aaron Lukaszewski, CSUF*

Formal theoretical models predict that variation in behavioral strategy is calibrated in response to an individual's mortality risk. For instance, individuals with greater mortality risk are expected to be more present-oriented (e.g., high impulsivity, high short-term mating orientation) than individuals with lower mortality risk. Pilot data lend support for these theoretical models regarding variation in behavioral strategies via individual mortality risk. Participants with reported life insurance policies from Amazon MTurk (N = 272) completed the Life History Rating Form (LHRF; = 0.88), to assess various indicators of present- vs. future-orientation, and items from the Socio-sexual Orientation Inventory (SOI; = 0.77), to assess mating strategy. Mortality risk rating was correlated with expected age of death ( $r = -.13$ ,  $p = .038$ ), SOI ( $r = .16$ ,  $p = 0.001$ ), and the LHRF ( $r = -.18$ ,  $p = .004$ ). These results suggest that people with higher mortality risk are expected to die younger, are more likely to pursue uncommitted mating strategies, and exhibit a range of present-oriented behavioral indicators. The current study's primary goal is to test whether mortality risk estimates taken from individual life insurance policies predict behavioral indicators of present- vs. future-orientation and whether observers can detect other individuals' mortality risk based on visual cues (i.e., standardized photos and videos). If predictions are supported, this would not only help develop a new method for the empirical assessment of mortality risk, but it would also suggest that cues to mortality risk are essential factors in how we perceive others.

## **Sex Differences in Sexual Disgust: A Cross-cultural Analysis**

*Courtney Crosby, David Buss, Carlota Batres, Harrison Kitema, Illia Yahiiaiev, Karine Malysheva, Andrii Trofimov, Adil Samekin, Tatyana Rezvushkina, Telman Seisembekov, Artyom Dontsov, Symbat Abdramanova, Egor Burtsev, Sergei Vykhodtcev, Kseniya Mikhailchenko, Cezar Giosan, Adrian Gorbanescu, Cornel Mincu, Violeta Rotarescu, Zeno Cretu*

Sexual disgust is an emotion hypothesized to aid in mate selection, deterring individuals from selecting suboptimal mates or from engaging in risky sexual activities. Sexual disgust thresholds tend to be higher for men than women, and these differences are large and robust. Varying types of context-specific input might result in cross-cultural differences in sexual disgust activation, which may have important implications for understanding these sex differences. In this study, we examined the universality and cultural specificity of six factors of sexual disgust, as well as sex differences among these factors in seven different nations (N = 4,771). Results reveal significant sex differences and moderate effect sizes for levels of disgust towards Same-sex sexual activities between men and Promiscuity in five of the seven cultures examined. Discussion focuses on interesting variation between and within cultures in levels of sexual disgust and how these results can inform future research testing sex differences in this emotion.

## **Have Gender Differences in Desires for Casual Sex Disappeared? Methods and Moderators Matter.**

*David Frederick, Chapman University*

Have gender differences in desire for casual sex disappeared? Recent studies suggest men and women are largely similar in their desire for short-term mating, especially after controlling for social stigma and other proximate factors (Conley et al., 2011, 2013). Across five national and college student samples (total N = 59180), we examined how methodological approach and personal characteristics of potential sex partners strongly moderate the size of gender differences in interest in casual sex. Looking at partner characteristics, sex differences were partially attenuated when potential partners had high athleticism, social status, and resources. Looking at methodological approach, gender differences varied substantially across the “ideal,” “minimum,” and “maximum” number of partners desired. The findings also highlight, however, substantial variability within each sex and also constraints on men's openness to having many sex partners. These findings have implications for gender researchers who emphasize a “minimizer” versus “maximizer” approach to framing the size and

nature of sex differences, as well as to evolutionary and sociocultural perspectives on sexuality.

### **Attitudes Toward Third Party Casual Sex Predict Rape Myth Acceptance: A Test of The Reproductive Morality Model**

*Rebecka Hahnel-Peeters, CSUF & Aaron Goetz, CSUF*

Humans are a highly moralizing species. Traditional models of morality propose that moral attitudes are an output of political orientation and religiosity; however, research is beginning to suggest that political orientation and religiosity are better understood as outputs of a self-interested model of morality. The Reproductive Morality Model understands moral judgments toward social issues, religiosity, and political ideology through individual differences in mating strategies. We proposed that individual differences in rape myth acceptance (RMA) are driven by attitudes toward others' casual sex—associating rape victims with promiscuity to keep the “price of sex high”. We examined the relationship between political ideology, attitudes toward others having casual sex, and RMA. We hypothesized that individuals who condemned others engaging in casual sex would accept more rape myths compared to individuals who did not condemn others' casual sex. Our hypothesis was supported for men, ( $b = -0.26$ ,  $t(159) = -2.73$ ,  $p = .007$ ,  $F(3,159) = 18.36$ ,  $p = 2.8E-10$ ) but not women, ( $b = .11$ ,  $t(129) = 1.13$ ,  $p = .26$ ,  $F(3, 129) = 23.66$ ,  $p = 2.9E-12$ ). Men who condemned others' casual sex were statistically more likely to accept rape myths; however, the model did not predict the same for women. We call for considering morality from the perspective of a self-serving strategy to create an environment in which an individual's goals are upheld.

### **Back to Nature: Does Exploitation Of Our Evolved Landscape Preferences Influence Perceived Housing Value?**

*Rebecka Hahnel-Peeters, CSUF, Samuel Levine, CSUF, & Aaron Goetz, CSUF*

Environments varied throughout history, and some offered more fitness benefits than others did. Evolved landscape preferences may influence how we manipulate our urban environment. In Study 1, we explored the naming conventions of apartment buildings and residential neighborhoods. A content analysis of 2,981 names of apartment buildings and neighborhoods was conducted using a program that employs Google Maps to gather names from each of the 48 contiguous states of the U.S. Each development name was coded as having nature words (e.g. valley), nature analogous words (e.g. west), or non-nature words (e.g. 1st street). Results strongly supported our hypothesis that more apartments and neighborhoods would contain nature words than not. 1,876 of 2,980 names (63%) were named after nature-inspired names. 1,104 of 2980 names (37%) were rated as not-at-all nature. These proportions were statistically different,  $\chi^2(1) = 199.99$ ,  $p = 2.09-45$ ,  $\phi = 0.26$ . Study 2 consisted of an experimental design using manipulated images of apartments and neighborhoods to contain either nature names or non-nature names. We hypothesized that residential spaces containing nature names would be valued higher compared to their non-nature named counterparts. Our hypotheses for Study 2 obtained mixed support. Residential spaces with nature titles ( $M = \$305,569$ ,  $SD = \$77,747$ ) were, on average, estimated as 11.6 percent more expensive than residential spaces without nature titles ( $M = \$294,611$ ,  $SD = \$71,417$ ),  $t(108)=1.94$ ,  $p = .055$ . While not significant, residential spaces with nature titles ( $M = 5.34\%$ ,  $SD = 4.28\%$ ) were, on average, estimated to contain a lower vacancy rate compared to residential spaces without nature titles ( $M = 5.45\%$ ,  $SD = 4.33\%$ ),  $t(110)=-0.55$ ,  $p = .586$ .

### **The Effect of Cultural, Social, And Physical Closeness in Grandmaternal-Maternal Relationships on Mental Health During Pregnancy**

*Delaney Knorr, UCLA, Dr. Molly Fox, UCLA*

We examined how a woman's mental health during pregnancy is influenced by key individuals in her social network among a cohort of Latinas living in Southern California. This work is motivated by the theoretical importance of grandmothers on childrearing in evolutionary biology and the mental health disparity of Latinas during pregnancy. Through multiple linear regression models, we examined if social support from certain

individuals and, separately, if certain relationship qualities (i.e., cultural, physical, and social proximity) are associated with psychological distress (i.e., depression, state anxiety, and pregnancy-related anxiety). In comparing the social support from the woman's mother and mother-in-law figure (her as-yet unborn baby's maternal grandmother and paternal grandmother) to her unborn baby's father figure, we found that social support from her mother was statistically associated with less depression ( $\beta$ : -1.307, SE: 0.458, p-value: 0.005), which warrants further exploration of a "grandmaternal effect" during pregnancy. Additionally, communicating with ones' mother during pregnancy was statistically associated with less depression ( $\beta$ : -0.68, SE: 0.30, p-value: 0.024), while seeing her in person was insignificant. Thus, her mother may not even need to be geographically near-by to provide benefits. We found that cultural proximity to her mother-in-law figure was statistically associated with more state-anxiety ( $\beta$ : 3.98, SE: 0.173, p-value: 0.025), but less depression ( $\beta$ : -2.72, SE: 1.26, p-value: 0.034), indicating that there may be many complicated emotions tied to being culturally distant from mother-in-law figure more than from mother figures.

### **Physiological Arousal Elicited by Physical Risk-Taking Predicts Subjective Time Dilation**

*Xianzhi Li, UC Merced, Dr. Jennifer Hahn Holbrook, UC Merced, Dr. Colin Holbrook, UC Merced*

Under arousing conditions of imminent peril, organisms appear to adaptively up-regulate attention, improving information-gathering by as well as facilitating richer memory consolidation and subsequent long-term recall (Roosendaal & Hermans, 2016). At the proximate level, this shift has been associated with subjective time dilation, the phenomenon by which encoding of greater information is qualitatively experienced as time moving at a slower rate (Stetson, Fiesta & Eagleman, 2007). Here, we hypothesized that anxiously arousing physical risk-taking might slow recollections of temporal duration. We measured 90 novice skydivers' perceptions of stimulus durations of three lengths (short: 2s, medium: 5s, and long: 6s), both before and after skydiving. The degree of risk-related physiological arousal was assessed according to average heart rate measured before and after jumping. Additionally, self-reported measures of fear, excitement, and pleasure were collected. As predicted, multi-variable growth curve models revealed that skydivers with faster heart rates experienced greater time dilation; consistent with prior work indicating that these effects are most pronounced when target stimuli are of longer duration (Fayolle, Gil & Droit-Volet, 2015), time dilation was only observed for the long stimulus duration in the present study. No time dilation effects obtained with regard to self-reported emotion. Although our design cannot distinguish whether the results reflect slower temporal perception while viewing the stimuli, subsequent recollection of the stimuli as having remained present for longer intervals, or both, the results are consistent with an adaptive capacity to encode richer information during contexts of threat-salient arousal.

### **Does Masculinity Really Matter? A Meta-Analysis of the Relationships Between Sexually Dimorphic Traits in Men And Mating/Reproductive Outcomes**

*Linda H. Lidborg, Durham University, Catharine P. Cross, University of St Andrews, & Lynda G. Boothroyd, Durham University*

Humans are sexually dimorphic: on average men significantly differ from women in body build and composition, craniofacial structure, and voice pitch, likely mediated in part by developmental testosterone exposure. Hypotheses which attempt to explain the evolution of dimorphism in humans assume that more masculine men have historically achieved greater biological fitness. This may be because: more masculine men out-compete other men for mates; women preferentially select masculine men (e.g. due to their greater competitiveness and/or heritable immunocompetence); masculine men expend more energy on mating effort; and/or masculine men father more viable offspring. Thus far, however, evidence for an association between masculinity and mating/reproductive outcomes is unclear. We conducted the most comprehensive meta-analysis to date on the relationship between six types of masculine traits and mating/reproductive outcomes, comprising 474 effect sizes from 96 studies (total N = 177,044). Body masculinity, i.e. strength/muscularity, was the strongest and only consistent predictor of both mating and reproduction. Voice pitch, height, digit ratios, and testosterone levels all predicted mating; height and digit ratios also predicted some reproductive measures in

some samples. Facial masculinity did not significantly predict either mating or reproduction. There was insufficient evidence for any effects on offspring mortality. Our findings support arguments that strength/muscularity can be considered sexually selected in humans, but raise concerns over other forms of masculinity. We are also constrained by lack of reproductive data, particularly from naturally fertile populations. Our data thus highlight the need to increase tests of evolutionary hypotheses outside of industrialised populations.

### **The Structure of the Mini-K and K-SF-42: A Psychological Network Approach**

*Joseph H. Manson, UCLA, Kristine J. Chua, UCLA & Aaron W. Lukaszewski, CSUF*

Disagreement persists regarding the usefulness of instruments that purport to tap a unidimensional human life history (LH) factor based on a set of self-reported personality, social, and attitudinal variables. Here, we take a novel approach to analyzing the psychometrics of two variants of the Arizona Life History Battery: the Mini-K and the K-SF-42. Psychological network analysis generates models in which psychological variables (thoughts, feelings, or behaviors) comprise the nodes of a network, while partial correlation coefficients between these variables comprise its edges. Centrality indices (strength, closeness, and betweenness) operationalize each node's importance, based on the pattern of the connections in which that node plays a role. Because childhood environments are hypothesized to influence adult LH, we tested the hypothesis that among the Mini-K items, and the K-SF-42 scales, those that tap relationships with parents are central to the networks (pairwise Markov random fields) constructed from these instruments. In an MTurk sample and a student sample that completed the Mini-K, and an MTurk sample that completed the K-SF-42, this hypothesis was falsified. Indeed, the relationships with parents items were among the most peripheral in all three networks. We propose that network analysis, as an alternative to latent variable modeling, offers considerable potential to test hypotheses about the input-output mappings of specific evolved psychological mechanisms.

### **Twin Study of Tacit Coordination: A Semi-Naturalistic Context**

*Francisca J. Niculae, CSUF, Nancy L. Segal, CSUF, & William D. Marelich, CSUF*

Schelling (1960) defined Tacit Coordination (TC), as circumstances in which “two parties have identical interests and face the problem not of reconciling interests but only of coordinating their actions for their mutual benefit when communication is impossible.” The distinction between cooperation and coordination is that coordination involves behavior by both interactants, while cooperation involves behavior by an actor leading to benefits for both partners. Hamilton's inclusive fitness theory suggests that coordinated actions should occur more frequently between individuals sharing relatively higher proportion of genes than those sharing fewer (1964). Support for this hypothesis comes from twin studies showing greater cooperation between monozygotic (MZ) twins than dizygotic (DZ) twins. The current report is the third in an ongoing twin study of TC, at California State University, Fullerton. The sample included 67 MZ twin pairs and 45 DZ twin pairs, between 12-72 years of age. Zygosity was assessed by a physical resemblance questionnaire or DNA analysis. Following Tacit Coordination research by Mehta (1994), twins independently answered a series of questions (e.g., name a book, name a color), then repeated this task with the instruction to produce the same answer as their co-twin. Previous analyses from 2008 and 2014 found significant effects from zygosity (twin type) and condition (self vs. pair) effects. That is, MZ twins outperformed DZ twins, and greater coordination was expressed in the coordination than individual condition. The present findings will be compared with the earlier ones, thereby refining theories concerning genetic contributions to coordination and partner success.

### **Cultural Evolution of Human Communication Technologies (300,000 B.C. to 2020 A.D.):**

#### **Exploring Innovation Patterns**

*Mateo Peñaherrera-Aguirre, University of Arizona, and Eric Schniter, California State University Fullerton*

We explore the cultural evolution of human communication technologies, studying patterns of innovation. We construct a timeline of 92 communication technology innovations sampled over a span of 300,000 years ago

until present. We coded attributes describing functional features of these technologies along with the time and place(s) of their innovation. We use multiple approaches to explore and measure the patterns of attribute covariation within our dataset and across space and time. We discuss the results of our findings and how they contribute to a broader research program exploring cultural evolution of communication technologies.

### **Are You in Control?**

*Rucas, S. L., Green, M. W., Klitgaard, S. E., Papile, F. and da Costa Pinto, S.*

Locus of control (LOC) is a psychological trait measuring the degree to which someone believes that the causes of events or outcomes are self-controlled (internal), or instead under the influence of external forces. Evolutionary ecological theory predicts that environments marked by instability, resource poverty, social, physical and productive stress including high morbidity & mortality will cause individuals to become more external in their Locus of Control personality trait, since predicting outcomes in such ecologies would prove uncertain and therefore costly. We randomly surveyed 96 college students in 28 states via email to assess whether their LOC using two different metrics (Nowicki & Duke vs. Levenson) was impacted by ecological factors of current and past home stress. We also primed them with photos of either a serene landscape vs. pandemic news to assess for a potential effect on LOC. We found that household stress, adverse childhood experiences (ACES), and gender significantly impact Nowicki LOC measures. But only gender significantly impacted all three portions of the Levenson LOC; those being internality/externality, Powerful Others, and Chance with ACES marginally impacting the later two constructs. In this data, men were more external and felt more outcomes were under the control of powerful others and chance events. While priming participants with photos only marginally affected their Levenson LOC, we found that individuals primed with serene photos were more certain about the future and were more likely to purchase half-off tickets to a favorite performer/festival occurring 8 months from now than those primed with Covid-19 news images. Qualitative data highlighted a significant degree of personal uncertainty and sense of lack of control during the current pandemic. Overall, these data indicate that, first there may be different psychological constructs to Locus of Control captured by different metrics, and second, ecological stress, both in the past and now, may shift individuals toward a more external locus of control, and cause them to discount the future in a world of unpredictability or resource poverty.