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Fiona M. Jordan and Brad R. Huber  
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# Evolutionary Approaches to Cross-Cultural Anthropology

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## Abstract

This special issue “Evolutionary Approaches to Cross-Cultural Anthropology” brings together scholars from the fields of behavioral ecology, evolutionary psychology, and cultural evolution whose cross-cultural work draws on evolutionary theory and methods. The papers here are a subset of those presented at a symposium we organized for the 2011 meeting of the Society for Cross-Cultural Research held in Charleston, South Carolina. Collectively, our authors show how an engagement with cultural variation has enriched evolutionary anthropology, and these papers showcase how cross-cultural research can benefit from the theoretical and methodological contributions of an evolutionary approach.

## Keywords

evolutionary anthropology, cross-cultural, interdisciplinary

For nearly four decades, evolutionary anthropologists have been actively applying modern evolutionary theory to the analysis of human behavior, language, and culture. Their research appeals to a growing number of practitioners from across the social and behavioral sciences, whose work spans a broad spectrum of perspectives, from behavioral ecology to evolutionary psychology and cultural evolution (Dunbar & Barrett, 2007b; Laland & Brown, 2011; Sear, Lawson, & Dickins, 2007). Although their perspectives diverge, these scholars

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have stressed the message that cultural diversity must be taken seriously. When evolutionary researchers use cross-cultural samples, they avoid the perils of drawing inferences from the relatively homogeneous subject pools of Western-Educated Industrialized Rich Democratic (WEIRD) people (Henrich, Heine, & Norenzayan, 2010). They are able “to test a richer array of hypotheses about the processes by which both the reliable universal patterns and the diversity of psychological and behavioral variation emerge” (Henrich et al., 2010, p. 81).

Decades of comparative linguistic work surveyed by Evans and Levinson underscores the advantage of employing diverse samples to map the extent of human cultural capability. They conclude that there are few language universals in the sense that all languages exhibit them. Instead, diversity is found at almost every level of linguistic organization, from sound, meaning, and syntactic organization to the “core grammatical machinery” (Evans & Levinson, 2009, p. 429). From their perspective, evolutionary approaches can make sense of this diversity:

Linguistic diversity is structured very largely in phylogenetic (cultural-historical) and geographical patterns. Understanding these patterns basically involves the methods of population biology and cladistics, together with the principles that generate change and diversity. (Evans & Levinson, 2009, p. 446)

Human behavioral ecologists have a longstanding commitment to studying and understanding cultural diversity. They have traditionally gone to the field to test adaptive hypotheses (Hames, 2001; Winterhalder & Smith, 2000, p. 52). Many have focused on foraging populations as an approximation of the preagricultural human lifeway, but many behavioral ecologists study pastoralists, farmers, peasants, and urban populations as well. Similarly, evolutionary psychologists now routinely test their ideas in multiple populations (Gangestad, Haselton, & Buss, 2006; Shackelford, Schmitt, & Buss, 2005). Cultural evolution scholars have branched out too, from mathematical models of cultural transmission, to using cultural phylogenetic methods that make good use of the empirical data of our rich ethnographic record.

This special issue brings together scholars from these different subfields whose cross-cultural work draws on evolutionary theory and methods (see also M. B. Quinlan & R. J. Quinlan, 2008; R. J. Quinlan & M. B. Quinlan, 2007). Their works are a subset of those presented at a symposium we organized for the 2011 meeting of the Society for Cross-Cultural Research held in Charleston, South Carolina. Panel topics ranged from politics to parenting, gender to danger, and mate-preferences to altruism. From this successful symposium, we

selected four articles that not only exemplified the fields of behavioral ecology, evolutionary psychology, and cultural evolution but also spanned across them. Here we asked our authors to show how an engagement with cultural variation has enriched evolutionary anthropology, as well as to lay out their wares and showcase how cross-cultural scholars could benefit from the theoretical and methodological contributions of an evolutionary approach.

The topics of these four articles range from the evolution of Indo-European languages and Austronesian political complexity; institutionalized lifelong celibacy in Europe, Asia, Africa, and the Americas; the reproductive patterns of women in 177 nations; and mate preferences in societies spanning the globe. Despite these differences, the four articles generally provide explanations for human behaviors and cultural traits that refer to their “ultimate causes” rather than to their “proximate causes” (Mayr, 1961). Following the lead of the prominent Dutch ethologist, Niko Tinbergen (1963), ultimate cause refers to a behavioral or cultural trait’s: (a) survival value or adaptive function, and to its (b) evolutionary or phylogenetic history. Some behaviors are more likely to lead to the survival and reproduction of an individual than others. Customs and beliefs also change over time, and we can ask how and why that happens. Proximate cause refers to (c) the mechanisms directly underlying a behavior (e.g., the physiological, psychological, social, cultural, and environmental factors that influence behavior), and to (d) the developmental or ontological course of behaviors (e.g., how language skills are acquired over the life course of the individual). Both proximate and ultimate explanations of behaviors are interesting and important and should be regarded not as alternative or conflicting accounts but as complementary, and even conjoint, explanations (Laland & Brown, 2011; Laland, Sterelny, Odling-Smee, Hoppitt, & Uller, 2011).

In the first article, Thomas Currie showcases the cultural phylogenetic approach and its application to questions concerning cultural change and evolution. He presents four case studies: the construction of Indo-European linguistic phylogenies in order to test scenarios about prehistory, the use of Austronesian phylogenies to investigate land tenure evolution, warfare and interpersonal violence in Polynesian and Micronesian societies, and regularities in the evolution of sociopolitical complexity. Like other researchers using cultural phylogenetic methods, Currie is interested in cross-cultural correlations and evolutionary trajectories or regularities that characterize important aspects of culture, for example, marriage transfers, inheritance, subsistence, and residence patterns (Fortunato, Holden, & Mace, 2006; Holden & Mace, 2003; Jordan, Gray, Greenhill, & Mace, 2009)

Currie’s article demonstrates how an evolutionary perspective can enhance the methodology of traditional cross-cultural analyses by introducing the

phylogenetic toolkit from evolutionary biology. This is a set of computational and statistical techniques that were originally developed to deal with the nested relatedness of species (Harvey & Pagel, 1991; Mace & Pagel, 1994). There are two major advantages to using cultural phylogenetic methods. They guarantee a certain level of emic compatibility in the cultural features under comparison by focusing analyses at the language-family level, and they allow cross-cultural researchers to use data from even closely related groups. Previously, cross-cultural researchers have (often in these pages) developed novel sampling methods to address the relatedness of ethnolinguistic groups (Dow, 2007; Dow, Burton, White, & Reitz, 1984; Naroll, 1961). Unfortunately, sampling itself reduces the amount of cultural diversity that is analyzed. Cultural phylogenetic methods are an appealing solution to Galton's Problem (Tylor, 1889, p. 272) because they preserve the totality of the ethnographic record.

Researchers using cultural phylogenetic methods can do "virtual archeology" because they are able to infer earlier cultural states. Currie does this in his case study of Austronesian land tenure, finding a descent-based system to be ancestral. Furthermore, correlations between traits, rates of cultural change, and directional models of evolutionary processes can be tested. Currie's analyses suggest a cultural-evolutionary model in which social classes first develop, followed by hereditary leadership, and then a widening of political authority. Currie ends his article by addressing an important question: In cultural evolution, how appropriate is it to borrow models and techniques wholesale from biology? Many cross-cultural anthropologists and linguists are still skeptical about the heavily computational, and language-family-focused aspects of the phylogenetic approach, and there is much bridging work still to be done (see also Jordan, 2011, in press).

While Currie's article examines the phylogenetic histories of cultural traits, Hector Qirko's article looks at cross-cultural expressions of extremely costly altruism within a framework that acknowledges both the importance of evolutionarily shaped cognition, and developmental factors, such as enculturation and social learning (see also Laland & Brown, 2011). Qirko's thesis is that costly altruism such as lifelong celibacy and combat sacrifice often takes place in pseudokinship organizational contexts that foster family ideologies, use kinship language, and enculturate young recruits, which suggests a cross-cultural reinforcement through the manipulation of our evolved psychology of kin recognition. Qirko's thorough examination of the literature finds strong support for the kin-cue-manipulation hypothesis. His arguments about kin-cue manipulation are attractive because they are motivated from an independent body of evolutionary theory, not just interpreted through its lens. This is a constructive aspect of modern evolutionary anthropology often underappreciated by anthropologists.

From a Darwinian perspective, altruistic behavior exists when organisms provide benefits to others at a cost to themselves. Ongoing debates concern the utility of various explanatory models of altruism such as inclusive fitness, reciprocity, costly signaling or commitment theory, cultural transmission, and multilevel selection models (see, for example, Nowak, 2006; Okasha, 2006; West, El Mouden, & Gardner, 2011). The evolution of cooperation and altruism is a key and current issue in both evolutionary biology and anthropology (Axelrod & Hamilton, 1981; Boyd, Gintis, Bowles, & Richerson, 2003; Nowak, 2006), but much of this work rests heavily on mathematical modeling and game-theoretical approaches that are difficult to tie directly to the ethnographic record. Cooperation per se has had little systematic attention in the cross-cultural literature—although a recent important exception is Henrich et al.'s (2010) public-goods games paradigm—and we need more directed, empirical research on altruism like Qirko's.

We now turn to Pisanski and Feinberg's article on cross-cultural variation in mate preferences. Like other evolutionary psychologists, they view mate preferences, in large part, as evolved adaptations—that is, the functional products of natural selection or sexual selection. However, their work differs considerably from earlier work undertaken by evolutionary psychologists in that they show how an evolutionary framework of fitness costs and benefits delivers the best results when tested across heterogeneous, culturally diverse populations. Early and influential conceptions of the evolutionary psychology paradigm (Tooby & Cosmides, 1990a, 1990b, 1992) argued for gradually evolved, universal, information-processing modules of the brain that were specialized for solving particular adaptive challenges in an idealized environment of evolutionary adaptedness. The focus was on adaptation and psychological mechanisms involved in mate choice (Buss, 1989; Singh & Luis, 1993), social exchange and cheater detection (Cosmides & Tooby, 1989), or sexual jealousy and homicide (Daly & Wilson, 1985), rather than on the behaviors themselves (for a summary, and recent revisioning, see Bolhuis, Brown, Richardson, & Laland, 2011). However, this work was either ignored or variably received in mainstream anthropology (McKinnon & Silverman, 2005). Critics questioned the assumption of universality in psychological mechanisms, thought evolutionary psychologists were essentially genetic determinists, and had reservations about dividing cultural phenomena into evoked versus transmitted traits (Nettle, 2007; Samuels, 1998). Mature evolutionary psychology is now a less constrained enterprise, with a variable commitment to universality, more context flexibility in the theoretical models employed by scholars, and an increasing amount of cross-cultural work (Dunbar & Barrett, 2007a; Sear et al., 2007).

One of the most productive areas of research in evolutionary psychology has been that of physical appearance and sexual selection, especially areas

such as mate choice, facial attractiveness, symmetry and informational cues such as emotions, and even whole-body representations, dance, and vocal perception (Hugill, Fink, & Neave, 2010; Kenrick, Neuberg, Griskevicius, Becker, & Schaller, 2010; Puts, 2010; Rhodes, 2006; Wade, 2010). Following initial critiques of the WEIRD nature of their study populations and failures to replicate so-called universals in non-Western populations (Sugiyama, 2004; Swami & Tovee, 2007), evolutionary psychologists began to initiate and replicate studies cross-culturally. They have now amassed a body of work that highlights both the similarities and differences in the psychology of social assessment and perceptions of physical appearance. Pisanski and Feinberg's article explores this existing comparative literature and highlights the variation and context specificity of human mate preferences for physical characteristics, covering the effects of facial averageness and symmetry on attractiveness, masculinity in faces and voices, body shape and mass, and stature. Their comprehensive review will be of interest to scholars wanting to know how this classic concern of evolutionary psychologists has fared cross-culturally.

Pisanski and Feinberg consider potential explanations for cross-cultural variability that go beyond classic adaptationist evolutionary psychology, an extension we hope will be welcome to more traditional cross-cultural scholars. For example, stature (tallness) preferences of each sex for the other seem to be dependent on cultural-ecological factors such as the mortality rate, and this dovetails with cultural phylogenetic work by Holden and Mace (1999), who found that sexual dimorphism itself covaried with subsistence and women's contribution to labor. Pisanski and Feinberg, following Little, Apicella, and Marlowe (2007), suggest that the *degree* of preference for facial symmetry covaries in interesting ways with societal affluence and the amount of pathogens to which individuals are exposed. The contextual flexibility explored in Pisanski and Feinberg's contribution is also a key feature of the final article in this issue, from Low, Parker, Hazel, and Welch, representing human behavioral ecology.

Human behavioral ecologists examine the adaptive design of traits, behaviors, and life histories of humans in an ecological context. Here, Low and her colleagues test predictions from life-history theory regarding the relationship between life expectancy at birth, age at first birth, total fertility rate, HIV prevalence, and child mortality. Human behavioral ecologists usually examine one specific cultural situation, often a small-scale or forager population (Mace, 2000; Smith, 2000); Low et al.'s work is exciting because their data come from a cross-national sample composed of 177 countries.

Life-history theory is used to understand the functional trade-offs made by individuals in the timing and duration of key organismal events in order to maximize their reproductive outcomes. Key events include parental investment, growth periods, sexual maturation, and number of offspring. Its inherent context flexibility makes it an excellent theoretical framework for understanding biosocial variability across cultures (Low, Hazel, Parker, & Welch, 2008). In general, strong relationships exist among life expectancy, age at first birth, the total fertility rate, HIV prevalence, and child mortality. However, Low et al. show that the relationships among these variables can and do become “mismatched” if any one of the variables is changing rapidly. They find considerable evidence for mismatches in the least affluent nations of their sample where, for example, the proportion of births attended by professions is unrelated to life expectancy and age at first birth. In addition, Low and colleagues raise the point that we can neither assume that any one human population is “species-typical” nor that any populations are at equilibrium with respect to their biodemographic profiles. This then raises interesting questions about assuming cross-cultural equilibria in social norms, behavior, and ways of thinking, an issue we hope to see addressed by further evolutionary and cross-cultural work.

All of the authors in this special issue have crafted interesting, high-quality articles, and we would like to express our appreciation to them. They were a pleasure to work with, and we are honored to be associated with them in this special issue. We share with them a belief that the application of evolutionary thinking to human behavior and culture must be comparative, and we hope that the articles in this volume showcase how useful the broad church of evolutionary approaches can be. We also wish to express thanks to the peer reviewers of these articles for their insightful comments, and to Carol Ember for extending an invitation to edit this special issue and for her sound advice.

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The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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**Brad R. Huber** is a professor of anthropology. He received his PhD from the University of Pittsburgh in 1985. His research interests are in evolution and human behavior, medical anthropology, marriage, and comparative social organization. In addition to cross-cultural research, he has undertaken ethnographic research in Mexico, Costa Rica, and the United States.