

The Limits of Evolutionary Psychology and the Open-endedness of Social Possibility

by Jeremy Freese

doi: 10.2383/28768

Introduction

In the 1990's, several books appeared touting the arrival of evolutionary psychology as a “new science” [Wright 1994; Pinker 1997; Buss 1999]. Where the sociobiology of two decades earlier had stalled, evolutionary psychology was supposedly poised to triumph. Finally, explicit consideration of evolutionary history would yield penetrating, unanticipated insights into human behavior and social arrangements. Moreover, this success would occur despite the politicized resistance to “biological” explanation among many social and behavioral scientists. One evolutionary psychologist referred to this resistance as a “confederacy of dunces,” Swift's term for the mediocre minds who invariably arise to try to thwart new appearances of genius [Kenrick 1995].

A decade later, however, the promissory notes of evolutionary psychology remain largely unpaid. Many psychology monographs still include a section relating phenomena they describe to an evolutionary past; indeed, this seems now an obligatory part of psychology trade-book writing [e.g., Cacioppo and Patrick 2008; Keltner 2009]. Yet, offering a speculative evolutionary backstory is not the same as using evolutionary reasoning to advance the science itself. While one can certainly point to examples of adaptive logic being used to synthesize findings into intriguing new hypotheses [e.g., Boyce and Ellis 2005], these make little use of the idea of detailed

analysis of Pleistocene environments as envisioned by key programmatic statements of evolutionary psychology [Tooby and Cosmides 1992].

Meanwhile, public enthusiasm for what evolutionary reasoning can tell us about ourselves as material entities has receded in favor of enthusiasm for the lessons about the self from molecular genetics. Moreover, while many social scientists still have kneejerk resistance to anything relating behavior to “biology,” the study of genetic variation has generated enthusiasm and momentum within mainstream social science that evolutionary psychological theory has never had. A tacit confederacy of dunces may well exist, but it is not stopping numerous initiatives to integrate genotypic data into major social science data collection efforts [Freese 2008b; Hernandez and Blazer 2006; Weinstein, Vaupel, and Wachter 2008].

Deduction and Induction in Evolutionary Explanation

Looking at the divergent trajectories of evolutionary psychology and behavioral genetics, it seems reasonable to suppose that the disappointing progress of evolutionary psychology reflects real and fundamental flaws in the idea of evolutionary psychology as a *generative* project of social and behavioral science. By generative project, I mean a project that teaches us things we do not know about social behavior today. Evolutionary psychology as a generative project proceeds first by using reasoning and data about the character of our evolutionary past to generate hypotheses about cognitive or other psychological adaptations present in the human mind. Then, these hypotheses are tested in studies of contemporary populations (see “function-to-form” reasoning in Tooby and Cosmides [1992]). Evolutionary psychology has always recognized that the generative project of evolutionary psychology exists in tandem with a reconstructive one, in which what we know about our psychologies and societies today is used to make inferences about the history of our species. But the common depiction has been to think of the generative and reconstructive projects as roughly equal partners, with much potential for back-and-forth synergy between them. Instead, the reconstructive project overwhelms the generative project – evolutionary psychology has much greater potential for teaching us about the history responsible for our psychology than about the particulars of our psychology. Consequently, evolutionary psychology is both undervalued by its critics as a historical enterprise and oversold by its enthusiasts as a means for discovering new things about ourselves today.

To illustrate, consider a favorite example that evolutionary psychologists themselves like to cite when discussing how their approach has led to the discovery of

“new facts:” Daly and Wilson’s research on child abuse. As Daly and Wilson [1999] have described it, they were part of a sociobiological seminar in 1976, when a discussion of the evolutionary logic of parental investment and male mating competition led a graduate student to ask “What about stepparents?” Despite child abuse research having been an academic growth industry for the previous decade-and-a-half, investigators had not specifically attended to whether being raised in a stepfamily increased a child’s risk of being a victim of abuse. Their own subsequent investigations revealed that, across numerous countries now studied, being raised in a family with a stepparent may be the largest known risk factor for being a victim of child abuse [Daly and Wilson 1988; 1999]. As Buss [1999, 203] writes of this predictive triumph, “[T]he fact remains that hundreds of previous studies of child abuse failed to identify stepparents as a risk factor for child abuse until Daly and Wilson approached the problem with an evolutionary lens.”

A critic familiar with *Cinderella*, *Snow White*, or *David Copperfield* might complain that the wicked stepparent image existed as a strong commonsense clue to this finding well before evolutionary psychology came along. If so, it appears nonetheless to have been a clue that previous researchers in this area had either missed, ignored, or denied. More troubling is how much a vague supposition of greater risk in stepfamilies leaves unspecified about the character of the putative psychological mechanism involved. Daly and Wilson argue that the psychological mechanisms that encourage “nepotistic restraint” in dealing with one’s own children are not activated in interactions with children who are not one’s own. If this hypothesis is correct, it raises other questions. Why are so many step-parents fairly generous toward their step-children? Why do parents of adopted children not also have highly elevated rates of abuse? Why do some people adopt non-kin children at all? Why do some people exhibit overwhelming nurturing behavior toward pets? What should we expect from parents who discover later on they are not a child’s real parents? Why do so many people behave so amiably in occupational roles that bring them into contact with other people’s children?

Some think such questions point to intrinsic logical inconsistencies in evolutionary psychology, such that simply asking “what about adoption?” may drive a stake deep into the enterprise’s heart [Hamilton, Cheng, and Powell 2007]. More accurately, however, the questions reveal how quickly evolutionary explanation stops being amenable to deductive theorizing. Evolutionary psychology has (potentially multiple) answers to all of the above questions, but this is the reconstructive project, not the generative one. Roughly speaking, adoption is something that an evolutionary psychological perspective can explain, but not something that it would have predicted. Once the vague claim of their being something special about genetic kinship

for filial relations, one flounders toward figuring what an evolutionary perspective would predict about the details and limitations of this specialness. Again, no one has ever denied that evolutionary psychology was a back and forth between our understanding of the past and our understanding of the present. Yet evolutionary psychologists tend to depict progress in these two directions as balanced, when instead we have vastly more leverage for explaining the past by observing the present than we do for explaining the present by reasoning about the past [see Freese 2008a].

Indeed, some of the most successful work in recent human evolutionary biology has been directed toward scaling back the vision of how an evolutionary perspective might discipline our view of the possibilities of human psychology. Various scholars have argued that assertions about the altruism of human beings were mushy-headed unless they were based somehow on kin selection, reciprocity, or disguised self-interest [Trivers 1985; Alexander 1987]. As one early attempt to synthesize evolutionary biology and economics put it, “Scratch an altruist and watch a hypocrite bleed” [Ghiselin 1974, 247]. In response, considerable effort has gone into demonstrating how possibly basic prosocial dispositions could have evolved [Sober and Wilson 1998; Richerson and Boyd 2005; Keltner 2009]. Note that this work does not show *that* people are prosocial. Rather, it merely refutes any notion that only a tacit cognitive creationist can believe in the genuine kindness of strangers. More generally, the lack of information about our evolutionary past provides little warrant for any purely deductive argument to prompt substantive revision of any view of human nature gleaned from observation. In other words, a lesson to be drawn from evolutionary accounts of human altruism is that if we have trouble figuring out how we could have evolved to be what we empirically appear to be, the benefit of the doubt should go to our empirical sense rather than our sense of evolutionary possibility.

The Trouble with Leashes

In this vein, we have even less warrant to allow evolutionary theory to dictate ideas about the possibilities of human social arrangements. In *On Human Nature*, E.O. Wilson [1978] said famously that “genes keep culture on a leash.” While Wilson himself was ambiguous on the point, the statement is taken as part of a vision in which genes might be thought of as defining a bounds of cultural possibility and then the particularities of history yield what culture within those bounds is actually observed. As an example, Udry [2000, 454] writes: “If [societies] depart too far from the underlying sex-dimorphism of biological predispositions, they will generate social malaise and social pressures to drift back toward closer alignment with biology.”

Goldberg [1993, 40] claims that psychological sex differences “give direction to social systems and values and set limits of possibility on social variation.”

Not coincidentally, many of the most adamant voices against Wilson’s sociobiology were those who were eager for social changes that might stretch ideas about what was possible. The most famous book-length critique of sociobiology, Lewontin, Rose, and Kamin’s *Not In Our Genes* [1984], noted the authors’ commitments to socialism and the development of a dialectical biology in its introduction. Evolutionary psychologists have often depicted critics as mired in the “naturalistic fallacy” of mistaking what they want to be true for what actually is true. A fairer depiction of the issue would be whether some are mistaking what they want to be possible for what is actually possible. While it would be obscenely unfair to reduce evolutionary psychology to a motivation to justify or rule out alternatives to the status quo, it would be likewise naïve to deny that it appeals to some partly for this reason.

In the decade following the fall of the Berlin Wall, some popularizations of evolutionary psychology argued that socialist societies were doomed to fail because the very idea contradicted the basic free-riding selfishness of human nature [Wright 1994; Ridley 1996]. One need not be any kind of Marxist to regard this as a simplistic generalization to draw from the specific history of the Soviet Union, even if the ultimate conclusion may well be correct. The problem with saying that genes keep culture on a leash is that it can be taken as suggesting we have some way of knowing what the bounds of the leash are. History provides many cases in which claims of impossibility have been shown to be instead failures of imagination: flight, conquering smallpox, personal computers, republican government, men on the moon. History also provides many cases that are like perpetual motion, in which claims of impossibility may indeed be correct. The problem is that we have no principled way of telling the difference. We cannot be certain about what broad forms are possible for social arrangements for the same reason we cannot be certain about what is possible with material technologies.

Indeed, whatever leash our culture is on, we have already managed to stray quite far from our evolutionary home. Evolutionary psychology argues that our cognitive architecture is virtually the same as that of our hunter-gatherer ancestors; as Miller and Kanazawa [2007, 25] put it, “Human [genetic] evolution pretty much stopped ten thousand years ago.” We live in a very different world from the life on the savanna for which our lives were adapted, and yet nonetheless we are able to staff the social institutions of our lives. Richerson and Boyd [2005] offer perhaps the clearest and most cogent view of our intertwined inheritance of genes and culture. They argue that “The warm, moist, and stable climates of the last 11,500 years have made agriculture, and therefore larger, more complex societies, possible over much of the earth. Once

they were possible, the race was on” [Richerson and Boyd 2005, 230]. This race has involved the development of many new material technologies, but it has also involved the development of social technologies that have propagated because of their contribution to success in competition between societies or between groups within the same society. Richerson and Boyd cite particular kinds of nested hierarchies in organizations or particular methods of fostering solidarity among members of groups as broad examples of such social technologies. In their view, complex organizations are a kludge of successful “work-arounds” that achieve complex scale and scope by working with and finessing our dispositions adapted for small-scale societies. Rather than either an oversocialized individual or an overfunctional society, internal conflict caused by multiple imperatives and imperfect solutions characterize both individuals and society.

Genetic and Cultural Evolution

Part of what makes Richerson and Boyd’s perspective compelling is that culture and its transmission are recognized as indispensable parts of our everyday world, but people are not reduced to being simply taken as passive clay that can be modeled equally well in any shape by their experiences. Evolutionary psychology has tended to minimize culture, taking the valid point that people are “not infinitely malleable” to the extreme of claiming that human culture is everywhere “essentially the same” [see Miller and Kanazawa 2007, 37-40]. The more nuanced view is to recognize that cultural differences are real and vital to understanding human society, but humans have complicated minds with drives and biases that affect how we are influenced by our experiences. As an illustration, Richerson and Boyd argue that the structure in German military organization in World War II was better suited for some evolved instincts than that of its opponents, and they speculate that this explains part of the overall greater effectiveness (per soldier) of the German army. They write: “The irony is cruel but instructive. The criminal, reckless, totalitarian, Nazi regime managed to find the most successful formula of the period for meeting the conflicting demands of national command and control and the need to provide for the felt needs of individual soldiers.”

In many cases, cultural evolution can amplify the products of genetic evolution. To take a possibly glib example, the tagline for the television show *Sex and the City* was “Can a woman have sex like a man?” The main ways in which the show was interested in this question concerned the autonomousness of sexual desire, the seeming shallowness of the emphasis on physical characteristics, and the

separability of sexual partnership from meaningful romantic relationships. All these, of course, have been the subject of much debate among evolutionary psychologists and their feminist critics [Symons 1979; Angier 1999]. There are evolutionary and empirical reasons to think natural differences in these basic aspects of sexual habitus differ between men and women, and yet we can also observe many cultural institutions that encourage the same bifurcation. This is not coincidental: the same animating fact that leads to an evolutionary psychological prediction of greater sexual reticence among females (i.e., greater cost of unwanted pregnancy) can also be used to generate predictions about what interested socialization agents would also historically have encouraged. Evolutionary psychology predicts inertia after when animating conditions no longer hold – e.g., the development of easily obtained female contraceptives – but the self-reinforcing dynamics of social norms predict the same thing.

As a result, once we get beyond the extremes of thinking either that no evolved sex differences exist or that cultural institutions are ineffectual epiphenomena, we are left with a broad range of middle positions that allow for the possibility of change toward (or away from) men and woman being more alike, while remaining agnostic about the possibility of full inequality. *Sex and the City*'s own answer to its question was, roughly, "Not really." Yet the show was simultaneously widely understood as emblematic of the considerable "masculinization" of female sexuality in recent decades. Indeed, it seems plausible that if the principles of evolutionary psychology had been developed a half century ago, some would have thought the sexual world depicted in *Sex and the City* as evolutionarily impossible. Even when we agree with a basic proposition about human nature, such as that evolved differences play an important role in why women and men typically approach sex differently, it affords surprisingly little insight either into how that nature is reflected in the world we actually observe or into what kinds of change are possible.

As for what kinds of broad change are not just possible but *likely*, the logic of cultural evolution may be ultimately more important than the results of genetic evolution insofar as cultural evolution moves toward finding some means of realizing its imperatives. Richerson and Boyd's own efforts at articulating cultural work-arounds has focused on those that are effective when societies are competing with one another for survival, as in military conflict. In contemporary developed societies, superorganic efforts to maximize the possibilities of human achievement seem presently less centered on competition among militaries or among states as it is competition among corporations. Obviously, many lessons from military organization, like the benefits of segmented hierarchies for maintaining effective coordination and morale, transfer directly from military to business organizations. Perspectives on organizational

ecology make a broad range of predictions about the competition among these organizations that work well without needing to resort to complicated models of the evolved psychology of its actors [Carroll and Hannan 2000]. Instead, perhaps, the organization often can be counted upon to devise ways to structure and discipline its members so that relatively simple optimization models work well, at least in competitive environments [Satz and Ferejohn 1994]. Cultural evolution differs greatly from genetic innovation in that genetic innovation is random and cultural innovations are intentionally pursued. Part of human cultural evolution has been advanced understanding of how to generate and test new cultural innovations, as manifested especially by the rise of more quantitative and otherwise scientific forms of knowledge production. Corporations have powerful epistemic technologies at their disposal to figure out how to increase their productivity.

That said, the relative fitness of corporations in many areas is not just a matter of generating or adopting cultural innovations that increase the productivity of workers, but also those that increase the receptivity of consumers. To give an example, Schüll [2005] provides an ethnographic discussion of the design of slot machines. The machines have undergone extensive refinements toward maximizing the profit extracted from players by increasing the amount wagered each play, the number of players in a given interval of time, and the amount of time an individual plays. The payoffs are exquisitely tuned to provide a maximally reinforcing experience for players, and a variety of devices are used to keep players engrossed and to decouple the subjective experience of reward from the actual monetary loss. To account for the heterogeneity of individual tastes, casinos offer machines with a wide variety of themes, wager sizes, and payoff schedules, and, for that matter, casinos offer many gambling alternatives to slots. In sum, casinos are a superorganic actor that has evolved an array of different technologies toward the basic end of extracting the most money it can from casinos, and it is in competition with other superorganic actors emerging and evolving with the same imperative.

Here, the phenomenon of addiction may be especially important for understanding how the direction of superorganic cultural evolution may intersect with the lived experience of individuals. The addiction of a consumer is a superorganic triumph. Whether slots or cigarettes or World of Warcraft, individuals experience addiction as consumptive urge that compromises the will even in the face of negative long-term consequences [see Ainslie 2001]. If we are developing increased knowledge about how to foster addictions and increased technology to enact that knowledge, then we might expect the continued direction of cultural evolution to result in an increased experience of the self as a nexus of competing addictions, or a nexus of opposing addictions and therapeutics. Schüll [2006] points out that existing

alongside the Las Vegas casinos is an elaborate therapeutic system for those who become addicted to gambling, and many feel like they are “caught in an intractable play between technologies of harm and technologies of care.”

Especially since the completion of the human genome project, there has been speculation that humans may be on the verge of a new threshold of “transhumanism,” in which the technology to intervene in ourselves as an organism will allow us to considerably expand our physical and mental capacities [Stock 2003; Naam 2005; Hacking 2006]. For much of its history, the discussion of “biology” with respect to human behavior was regarded by commentators from all sides as pertinent to the question of the human capacity, with a more biological orientation to behavior being equated with a more pessimistic view of the possibility for change. Now, some of those most strongly oriented to our character as organisms hold some of the most bullish views of human possibility, as biological knowledge is taken as the precursor to the development of technologies that will allow us to transcend current limitations. At the same time, whatever is made of new technologies is not a matter of the exercise of individual agency, but instead is mediated by the superorganic entities responsible for their development and dissemination. The logic of gene-culture co-evolution going forward will not be like the long, equal co-development of a gene for lactose tolerance and the practice of dairying. Instead, it will be matter of cultural evolution manifested through increasingly powerful technologies to intervene upon our genomes.

References

- Ainslie, G.
2001 *Breakdown of Will*. Cambridge: Cambridge University Press.
- Alexander, R.D.
1987 *The Biology of Moral Systems*. Hawthorne, NY: Aldine de Gruyter.
- Angier, N.
1999 *Woman: An Intimate Geography*. New York: Houghton Mifflin.
- Boyce, W.T., and Ellis, B.J.
2005 “Biological sensitivity to context: I. An evolutionary-developmental theory of the origins and functions of stress reactivity.” *Development & Psychopathology* 17:271-301.
- Boyd, R., and Richerson, P.J.
2005 *The Origin and Evolution of Cultures*. Oxford: Oxford University Press.

Freese, *The Limits of Evolutionary Psychology and the Open-endedness of Social Possibility*

Buss, D.M.

1999 *Evolutionary Psychology: The New Science of the Mind*. Needham Heights, MA: Allyn and Bacon.

Cacioppo, J.T., and Patrick, W.

2008 *Loneliness: Human Nature and the Need for Social Connection*. New York: Norton.

Daly, M., and Wilson, M.

1988 *Homicide*. New York: Aldine de Gruyter.

1999 *The Truth about Cinderella: A Darwinian View of Parental Love*. New Haven, CT: Yale University Press.

Freese, J.

2008a "The Problem of Predictive Promiscuity in Deductive Applications of Evolutionary Reasoning to Intergenerational Transfers: Three Cautionary Tales." Pp. 45-78 in *Caring and Exchange Within and Across Generations*, edited by A. Booth, A.C. Crouter, S. Bianchi, and J.A. Seltzer. Washington, DC: Urban Institute Press.

2008b "Genetics and the Social Science Explanation of Individual Outcomes." *American Journal of Sociology* 114: S1-S35.

Goldberg, S.

1993 *Why Men Rule: A Theory of Male Dominance*. Chicago: Open Court.

Ghiselin, M.T.

1974 *The Economy of Nature and the Evolution of Sex*. Berkeley: University of California Press.

Hacking, I.

2006 "Genetics, Biosocial Groups, and the Future of Identity." *Daedalus*: 81-95.

Hamilton, L., Cheng, S., and Powell, B.

2007 "Adoptive Parents, Adaptive Parents: Evaluating the Importance of Biological Ties for Parental Investment." *American Sociological Review* 72: 95-116.

Hernandez, L.M., and Blazer, D.G.

2006 *Genes, Behavior, and the Social Environment: Moving Beyond the Nature/Nurture Debate*. Washington, DC: National Academies Press.

Keltner, D.

2009 *Born to be Good: The Science of a Meaningful Life*. New York: Norton.

Kenrick, D.T.

1995 "Evolutionary Theory Versus the Confederacy of Dunces." *Psychological Inquiry* 6: 56-62.

Lewontin, R.C., Rose, S., and Kamin, L.J.

1984 *Not in Our Genes*. New York: Pantheon.

Miller, A.S., and Kanazawa, S.

2007 *Why Beautiful People Have More Daughters*. New York: Penguin.

Naam, R.

2005 *More than Human: Embracing the Promise of Biological Enhancement*. New York: Broadway.

Pinker, S.

1997 *How the Mind Works*. New York: Norton.

- Richerson, P.J., and Boyd, R.
1999 "Complex Societies: The Evolutionary Dynamics of a Crude Superorganism." *Human Nature* 10: 253-289.
2005 *Not By Genes Alone: How Culture Transformed Human Evolution*. Chicago: University of Chicago Press.
- Ridley, M.
1996 *The Origins of Virtue: Human Instincts and the Evolution of Cooperation*. New York: Viking Penguin.
- Satz, D., and Ferejohn, J.
1994 "Rational Choice and Social Theory." *The Journal of Philosophy* 91: 71-87.
- Schüll, N.D.
2005 "Digital Gambling: The Coincidence of Desire and Design." *Annals, American Academy of Political and Social Science* 597: 65-81.
2006 "Machines, Medication, Modulation: Circuits of Dependency and Self-Care in Las Vegas." *Culture, Medicine and Psychiatry* 30: 223-247.
- Stock, G.
2003 *Redesigning Humans*. New York: Mariner.
- Symons, D.
1979 *The Evolution of Human Sexuality*. Oxford: Oxford University Press.
- Sober, E., and Wilson, D.S.
1998 *Unto Others: The Evolution and Psychology of Unselfish Behavior*. Cambridge, MA: Harvard University Press.
- Tooby, J., and Cosmides, L.
1992 "The Psychological Foundations of Culture." Pp. 19-136 in *The Adapted Mind: Evolutionary Psychology and the Generation of Culture*, edited by J.H. Barkow, L. Cosmides, and J. Tooby. Oxford: Oxford University Press.
- Trivers, R.L.
1985 *Social Evolution*. Menlo Park, CA: Benjamin/Cummings.
- Udry, J.R.
2000 "Biological Limits of Gender Construction." *American Sociological Review* 65: 443-457.
- Weinstein, M.A., Vaupel, J.W., and Wachter, K.W.
2008 *Biosocial Surveys*. Washington, DC: National Research Council.
- Wilson, E.O.
1978 *On Human Nature*. Cambridge, MA: Harvard University Press.
- Wright, R.
1994 *The Moral Animal: Evolutionary Psychology and Everyday Life*. New York: Vintage Books.

The Limits of Evolutionary Psychology and the Open-endedness of Social Possibility

Abstract: Ten years ago there was much enthusiasm for evolutionary psychology as a “new science;” now much of this enthusiasm appears to have moved on to behavioral genetics. Evolutionary psychology has suffered perhaps from being oversold by enthusiasts as a predictive enterprise, while being underappreciated by critics for its contribution to reconstructing our species history. Claims about the deductive strength of evolutionary psychology have been used to make assertions about what are possible human psychologies or social arrangements. The sketchiness of our knowledge of our evolutionary past and the open-endedness of cultural evolution renders suspect any specific claims about human possibility. Cultural evolutionary processes often involve selection dynamics among macrosocial actors like states and organizations; this selection favors increased capacity to effectively discipline and harness human instincts for macrosocial ends.

Keywords: evolutionary psychology, behavioral genetics, cultural evolution, transhumanism.

Jeremy Freese is a Professor of Sociology and Fellow of the Institute for Policy Research at the Northwestern University, USA. He is interested in causal inference across biological, psychological, and social levels of analysis, especially in the context of technological or social innovation.