

NOTE: This is a pre-publication manuscript version of a published book chapter. It is not the copy of record and may not exactly replicate the contents of the chapter as it appears in the book.

[ (2006) In M. Schaller, J. A. Simpson, and D. T. Kenrick (Eds.),  
*Evolution and social psychology* (pp. 1-13). New York: Psychology Press. ]

## Chapter 1 **Evolution is the New Cognition**

Douglas T. Kenrick  
*Arizona State University*

Mark Schaller  
*University of British Columbia*

Jeffrey A. Simpson  
*University of Minnesota*

If there had been a *Frontiers in Social Psychology* series 30 years ago, it would surely have included a volume on the exciting new developments at the interface of cognitive and social psychology. In the mid-1970s, a growing number of social psychologists were exploring the subtle effects of cognitive processes on social behavior. At that time, many social psychologists viewed these developments with skepticism and concern. To some, the study of cognition seemed an arid exercise outside the disciplinary boundaries of social psychology. To others, it seemed plain unnecessary to posit invisible mental processes in order to predict and explain behaviors.

That latter form of skepticism echoed the behaviorist critiques of cognitive psychology that had dotted the psychological landscape for years (e.g., Skinner, 1950). Behaviorist warnings about the futility of the cognitive approach appeared in prominent places even into the mid-1970s. On the pages of *American Psychologist*, Ebel (1974) colorfully likened "attention, perception, memory, reasoning, will power, and the like" (p. 486) to dryads – fanciful nymphs that were once believed to animate the personalities of trees. Ebel dismissed these cognitive constructs as "ad hoc, imprecise, unverifiable" (p. 487), and concluded that these "dryads of the mind" are "useless...in our search for understanding of behavioral phenomena" (p. 491).

Today, these criticisms seem quaint. The ostensibly useless study of cognition has proven to be indispensable in the advancement of the psychological sciences in general and of social psychology in particular. The cognitive revolution in social psychology has been a huge success. By explicitly including this additional level of conceptual analysis in social psychological inquiry, our theories are more sophisticated, our empirical database is much richer, and we now have a much more coherent and integrative understanding of social behavior.

So what does all this have to do with a book on *Evolution and Social Psychology*? This: There are remarkable parallels between the status of cognitive social psychology thirty years ago and the status of evolutionary social psychology today. Indeed, there is an eerie similarity in the flavor of the critiques initially lodged against the cognitive perspective and those that are still commonly lodged against the evolutionary perspective today. And there is a striking resemblance in the scientific trajectories of these two perspectives as well – indicating, among other things, that those common criticisms are largely irrelevant to the scientific utility that these perspectives offer. Despite many reactionary critiques, the cognitive approach to social psychology revolutionized the field, and social psychologists who ignored these developments did so at their own intellectual peril. Today, the conceptual utility of the evolutionary perspective is just as un-ignorable. More and more social psychologists are drawing on an evolutionary

perspective to inform their research – with salutary effects on our collective understanding of social cognition and behavior.

### **Evolutionary Social Psychology is Everywhere**

Once upon a time, social cognition represented a relatively small and austere little niche in the study of social behavior. Today, it hardly makes sense to treat social cognition as a specialized domain of inquiry or to separate the study of social cognition from the study of social psychology more broadly. No longer is cognition relevant merely to, say, the study of person perception and impression formation; it is fundamental to our understanding of aggression, altruism, close relationships, intergroup prejudice, social influence, and every other form of interpersonal or group behavior discussed in any introductory social psychology textbook.

The same trajectory now characterizes the evolutionary perspective on social psychology. Although an evolutionary perspective had been lurking on the fringes of certain social psychological topics for several decades – during which time biological scientists of all kinds were embracing evolutionary analyses to elucidate the behavior of animal species (see Alcock, 2001) – the power of evolutionary models was not at first widely recognized by scientists who studied human beings. Early explorations in evolutionary social psychology focused on a few specific domains of behavior – especially altruism, aggression, and interpersonal attraction – for which the implications of evolutionary principles were most immediate and obvious (e.g., Buss, 1989; Daly & Wilson, 1988; Sadalla, Kenrick, & Vershure, 1987). Until quite recently, though, social psychologists working on most other topics found the evolutionary perspective easy to ignore. Well, things have changed. This book is a testament to how much has changed in a very short period of time: The logical tools of evolutionary psychology now inspire insights into myriad aspects of human social behavior.

As this book demonstrates, the evolutionary perspective has remarkably fecund implications for generating hypotheses about topics that cover the entire range of social psychology. There are, of course, chapters in this volume that revisit topics that have appealed to evolutionary theorists for years – aggression, prosocial behavior, and interpersonal relationships (see, for example, the chapters by Buss & Duntley; Fletcher, Simpson, & Boyes; Taylor & Gonzaga; and Van Vugt & Van Lange). Each of these chapters offers new insights on these traditional evolutionary psychological topics. Other chapters explore evolutionary insights into a whole range of basic intrapersonal processes, including emotional experiences and self-concept (e.g., the chapters by Keltner, Haidt & Shiota; Kurzban & Aktipis; and Sedikides, Skowronski, & Dunbar), as well as impression formation, stereotyping, and other classic topics in person perception (e.g., the chapters by Haselton & Funder; Neuberg & Cottrell; and Zebrowitz & Montpare.) There are additional chapters that creatively apply evolutionary theorizing to the study of interpersonal influence (Sundie, Cialdini, Griskevicius, & Kenrick), group processes (Brewer & Caporael; Kameda & Tindale), and human culture (Norenzayan, Schaller, & Heine). Just as no domain of social psychology has been untouched by the insights of cognitive science, these chapters demonstrate that the same is fast becoming true regarding the insights of evolutionary psychology.

### **Unverifiable, Unnecessary, and Undeniably Useful**

Evolutionary thinking may be increasingly ubiquitous across social psychological topic areas, but that doesn't mean that its ascendance is accepted uncritically. Of the many different kinds of criticisms that have been – and sometimes still are – leveled against evolutionary

explanations for social psychological phenomena, perhaps the two most common are exactly those that were lodged against cognitive explanations years ago – the hypothesized processes are unverifiable and unnecessary.

Whether applied to cognitive psychology or to evolutionary psychology, the charge of unverifiability is both logically valid and largely irrelevant to scientific progress. Cognitive constructs reside in an abstract conceptual space and cannot be observed directly; they must be inferred from more superficial forms of measurable data, such as verbal self-reports, reaction times, and blood-oxygen-levels assessed by fMRIs. Despite these limitations, the study of social cognition has been hugely successful, mainly because hypotheses about the nature of relations between constructs are eminently testable (and subject to falsifiability). The same is true of evolutionary psychology (see Conway & Schaller, 2002). Evolutionary processes – operating on whole populations, rather than mere individuals, over vast stretches of prehistoric time – are also inaccessible to direct observation. Their operation must also be inferred from other forms of data. And as with the cognitive perspective, evolutionary speculations can yield eminently falsifiable hypotheses and have resulted in numerous useful empirical strategies for testing their unique implications (see Ketelaar & Ellis, 2000; Ohman & Mineka, 2003; Schmitt & Pilcher, 2004; Simpson & Campbell, 2005).

Critiques based on explanatory necessity are also valid in a very limited sense, but they are also irrelevant to scientific progress. The case of cognitive psychology is again illustrative. If our goal is merely to predict outcomes in the most parsimonious manner, it may be subjectively unnecessary to consider additional or deeper cognitive levels of analysis. But this is a very timid goal. Science progresses not from the mere prediction of empirical facts, but from the deeper explanation of those facts, from the discovery of new facts, and from the development of richer theoretical structures that coherently link facts together (see Lakatos, 1970; Thagard, 1992). The cognitive perspective has proven indispensable to social psychological inquiry not because it offers satisfactory explanations for behavioral data, but because it offers a *deeper and richer understanding* of these findings and, most importantly, suggests vast new domains of scientific discovery.

The same is true of the evolutionary perspective. Social psychological data are almost always limited to observations in the here-and-now, and social psychologists in particular tend to be skeptical of explanations that go beyond the given data. But, as a science, the epistemic objective of social psychology is not to explain data in the most minimally satisfactory way. The objective is to explain social psychological phenomena as completely as possible and, in the process, to discover new phenomena. An evolutionary perspective thus serves as a powerful intellectual tool for prediction and discovery (see Buss, Haselton, Shackelford, Bleske, & Wakefield, 1998; Ketelaar & Ellis, 2000; Schaller, 2002), a fact that is highlighted by every chapter in this volume. If judged by its ability to stimulate new discoveries, an evolutionary approach to social psychology is much more than necessary; it's indispensable.

### **Here's Why**

That last point demands a bit of elaboration. Why is an evolutionary approach indispensable? Exactly what does an evolutionary perspective bring to the scientific discipline of social psychology? The chapters that follow articulate at least four partially overlapping answers to these questions. An evolutionary perspective offers: (1) a unique set of powerful logical tools for deducing social psychological theories and hypotheses, (2) unique hypotheses about both general processes and specific contents of social cognition, (3) clues about the

specific kinds of social situations that have especially important influences on human cognition and behavior, and (4) a unique, meta-theoretical framework within which many superficially different phenomena can be coherently integrated.

### **Tools for Theory-Building**

Social psychologists are trained to cherish and celebrate theories. But good theories are hard to come by. Indeed, there is growing concern about the state of theory in contemporary social psychology, and there have been concerted attempts to rededicate the discipline to serious theory-building (see Kruglanski, 2001; Kruglanski & Higgins, 2004).

When it comes to theory-building, there is nothing so practical as a rigorous meta-theoretical framework. Cognitive science provided one such framework. Evolutionary theory provides another (Brewer, 2004). The literature in evolutionary biology is replete with theoretical concepts that have been remarkably generative. For example, the concept of sexual selection (Darwin, 1859) has helped biologists understand the function of certain features of animals that exact a clear cost to survival (such as a peacock's feathers or an elk's antlers). Similarly, the concept of differential parental investment (Trivers, 1972) has helped biologists understand why such costly features are more likely to be found in males rather than females. When applied to human psychology, these same ideas have had tremendous heuristic value in generating novel theories that have predicted a wide variety of sex differences in cognition and behavior (see, for example, Archer, 1996; Buss & Schmitt, 1993; Geary, 1998; and Kenrick, Trost, & Sundie, 2004). Even more impressively, these same theories have generated dozens of novel hypotheses – and hosts of empirical discoveries – that specify the circumstances under which these effects are more or less likely to occur (e.g., Gangestad & Simpson, 2000; Li, Bailey, Kenrick, & Linsenmeier, 2002; Maner et al., 2005; Simpson & Gangestad, 1991). These concepts have contributed to the meta-theoretical framework within which new theories are being deduced – theories not only about sexual behavior, but also about many other forms of social behavior (for examples in this volume, see the chapters by Buss & Duntley, Fletcher et al., and Sundie et al.).

Similarly, the evolutionary concepts of inclusive fitness and kin selection have had enormous impact on biologists' understanding of animal behavior. These ideas have been imported into social psychology to derive novel theoretical perspectives, hypotheses, and discoveries, especially in the domains of helping behavior and aggression (e.g., Burnstein, Crandall, & Kitayama, 1994; Daly & Wilson, 1988; Laham, Gonsorkorale, & Von Hippel, 2005). Recent research has begun to apply these concepts to social cognition and person perception, with implications extending to interactions involving both strangers and kin (e.g., DeBruine, 2005; Park & Schaller, 2005). More generally, an evolutionary perspective brings into sharper focus the social importance of kin relations of all kinds – sibling relations, parent-child relations, etc. In this volume, for instance, Taylor and Gonzaga unravel several subtle implications of specific types of kin relations on social support, stress, and health. Sundie et al. identify a series of new and intriguing hypotheses about the ways in which kinship moderates social influence. The fact that many of these hypotheses still await empirical scrutiny attests to the heuristic value that evolutionary concepts offer in terms of novel theory-building and hypothesis-generation. Several years ago, Daly, Salmon, and Wilson (1997) referred to the psychology of kinship as a "conceptual hole" in our field. It is only through the rigorous application of evolutionary principles that this huge conceptual gap is now beginning to be filled with the development of new theories, new hypotheses, and new empirical findings.

In addition to these and other core concepts, an evolutionary framework brings with it a toolbox full of logical tools that can be applied profitably to social psychological theorizing. The assumption of functional modularity that is so central to evolutionary psychology (see Barrett, 2005; Tooby & Cosmides, 1992) has begun to lead to new models and insights into the complexities of social cognition, as illustrated in the chapter by Kurzban and Aktipis. An evolutionary cost-benefit analysis (in which the costs and benefits of thoughts, feelings, and actions are defined not by their immediate consequences on the resources of individual organisms, but by their long-term consequences on reproductive fitness) has emerged as an invaluable tool in the development of novel theories about human cognition and behavior (see, for example, Gangestad & Simpson, 2000; Nesse, 2005). The chapter by Haselton and Funder is especially illustrative of the heuristic power of this kind of cost-benefit analysis. An evolutionary perspective, which demands that one consider dynamic relations between individual-level and population-level processes, also provides a set of rigorous analytic tools – such as evolutionary game theory – for exploring those dynamic relations and their implications for social psychological outcomes (e.g., Axelrod, 1984, 1997; Kenrick, Li, & Butner, 2003). Several chapters in this volume, especially those by Van Vugt & Van Lange and by Kameda & Tindale, accentuate the productive application of these tools to topics such as prosocial behavior and group processes.

The multitude and diversity of useful evolutionary tools mirrors the multitude and diversity of the tools provided by cognition science. The adoption of a cognitive perspective in social psychology has never implied commitment not to any one particular social cognitive theory or hypothesis, but rather to a broad set of meta-theoretical assumptions that sometimes lead to very different and competing derivations. The same is true of an evolutionary perspective (see Ketelaar & Ellis, 2000). Many of the chapters in this book demonstrate this point very nicely. Buss and Duntley, for example, postulate a particular “homicide module” and contrast their theory to other evolutionary views that view homicide as an incidental byproduct of other mechanisms. Zebrowitz and Montepare discuss two very different evolutionary explanations purported to explain psychological responses to physically attractive people. And Brewer and Caporael distinguish between evolutionary processes that focus on the fitness consequences of intergroup conflict versus those that focus on the consequences of within-group coordination. In doing so, they re-engage the controversial topic of group selection, a concept that is currently discounted by many evolutionary theorists, but has recently been reconsidered in various forms of multi-level selection (see Richerson & Boyd, 2005; Sidanius & Kurzban, 2003). As these and other viewpoints illustrate, an evolutionary approach to social psychology offers a fertile framework for the deduction of many new, conceptually distinct, and sometimes competing hypotheses.

### **Emphasis on Both Process and Content**

Social psychology addresses not only questions about the processes through which thoughts, feelings, and actions are produced, but also questions about the specific contents of those thoughts, feelings, and actions. One side effect of the cognitive revolution was a de-emphasis on content. Indeed, it is often considered an appealing aspect of many cognitive models that they apply universally across different domains of social and non-social thought (Markus & Zajonc, 1985). In social life, however, content matters. As important as it is to understand the processes through which attitudes, impressions and other knowledge structures are acquired, encoded, modified, activated, and associated, it is just as important to understand

the actual contents of those knowledge structures – because different contents have different consequences. For example, two qualitatively different trait concepts (e.g., "ignorant," "hostile") may be methodologically interchangeable as stimuli in an experiment studying impression-formation processes, and may even be equivalent in their overall evaluative tenor; but when actually encoded into an actual personality impression or group stereotype, those two traits have very different implications for subsequent interpersonal behavior (see the chapter by Neuberg & Cottrell). In recent years, there has been a resurgence of interest in the actual contents of attitudes, impressions, stereotypes, and social norms. It has become clear that certain kinds of knowledge structures (e.g., fearful attitudes toward ethnic outgroups) are especially likely to be acquired, activated, and to comprise the collective beliefs of most human populations (e.g., Olsson, Ebert, Banaji, & Phelps, 2005; Schaller, Faulkner, Park, Neuberg, & Kenrick, 2004). It is important to understand why this is so and to explore the implications for social cognition and behavior. It is toward this goal that an evolutionary approach to theorizing is uniquely valuable.

One of the most fundamental tenets of an evolutionary approach is that thinking (and feeling) is for doing: The specific thoughts and feelings experienced in a given social context are likely to be those that, during evolutionary history, facilitated specific kinds of behaviors that typically enhanced (or at least did not diminish) reproductive fitness. What one feels or does in a social situation depends critically on what the goal is. Accordingly, the specific contents of affective states and cognitive knowledge structures really do matter – the same feelings and behaviors that will facilitate finding a mate will not facilitate taking care of a child or protecting oneself from a mugger. The common social psychological tendency to lump emotional states into broad categories of negative and positive affect misses the fact that there are evolutionarily-important differences between different kinds of negative and positive states, with very different implications for contemporary social behavior (see the chapter by Keltner, Haidt, & Shiota). The same logic applies to the contents of attitudes, impressions, stereotypes, and other social knowledge structures. Specific, fitness-relevant kinds of social information are particularly likely to draw our attention (Maner, Kenrick, Becker, Delton, Hofer, Wilbur, & Neuberg, 2003). Specific, fitness-relevant kinds of knowledge structures are also learned with special efficiency, and tend to be activated in specific, fitness-relevant kinds of social situations (see Ohman & Mineka, 2001; Schaller, Park, & Faulkner, 2003). An evolutionary approach – with its focus on reproductive and inclusive fitness – has been instrumental in discovering and fully explicating these and many other phenomena. The evolutionary tools that Keltner et al. apply to comprehend the specific nature of social emotions can be extended to develop novel hypotheses about the specific contents of self-concepts, social impressions, intergroup attitudes, and other important social knowledge structures (see the chapters by Haselton & Funder, Neuberg & Cottrell, Sedikides et al., and Zebrowitz & Montepare). And as the chapter by Norenzayan, Heine, and Schaller highlights, these tools can also be used to predict the contents and practices of specific human cultures.

### **Social Situations That Really Matter**

Social psychology is a science that emphasizes social situations and the power of those situations to govern the thoughts, feelings, and actions of individuals. To folks who are naïve about the implications of evolution (and who mistakenly assume that evolution implies inflexibly "hardwired" behavior), the context-dependent malleability of social behavior is sometimes thought to be at odds with an evolutionary analysis. Nothing could be farther from the truth. An evolutionary approach to social psychology not only allows the potential for variability across

situations; it provides us with tools to identify the types of situations that should matter most, leading to novel hypotheses about specific social situations that ought to trigger specific kinds of thoughts, feelings, and actions.

What kinds of social situations matter most? Evolutionary inquiries in social psychology focus on mental processes that have been "designed" to solve particular kinds of problems posed by certain social environments. Some problems are more directly relevant to reproductive fitness than others, including problems of self-protection, group affiliation, mate acquisition and retention, and care for one's kin (see Bugental, 2000; Kenrick, Li, & Butner, 2003). Situations bearing on these sorts of problems have particularly powerful and wide-ranging consequences on social perception, cognition, and behavior. For instance, some physical features of people may have historically signaled opportunities that might have enhanced reproductive fitness (e.g., morphological symmetries that convey the attractiveness or "viability" of a potential mate) or threats that might impair it (e.g., morphological oddities that connote the possible presence of parasitic infection). The perception of such features may trigger a cascade of psychological events – specific emotions, specific thoughts, and specific goal-states – that facilitate behavioral responses that, on average, enhanced the likelihood of availing oneself of those opportunities or avoiding them during evolutionary history. The potential fitness benefits of any such psychological response, however, must be weighed against the potential costs associated with those responses. These costs and benefits are likely to vary from situation to situation. And so, evolved psychological responses to other people are further calibrated to the particular contextual cues that signal whether those responses are likely to lead to costs or benefits.

A wide variety of novel hypotheses and discoveries have emerged from applications of this logical template, as revealed in every chapter in this volume. For example, Fletcher et al. apply this sort of evolutionary cost-benefit analysis to make predictions about context-specific variation in bias and accuracy within close relationships. Sedikides et al. consider how an evolved predisposition toward self-enhancement might be functionally flexible across different kinds of social contexts. Buss and Duntley's evolutionary analysis of aggressive behavior leads to the specification of qualitatively different kinds of aggression, each of which is linked to a conceptually-distinct influence on reproductive fitness, and each of which should be triggered by a distinct set of contextual cues. Similarly, Neuberg and Cottrell develop an evolutionary model of prejudice that not only predicts different forms of enmity toward different kinds of groups, but also predicts specific situations in which each specific prejudice is likely to be exacerbated or mitigated. In sum, these chapters showcase how and why an evolutionary approach to social psychology can help social psychologists improve what they do best: Discover the subtle influences of situations on social cognition and behavior.

### **Conceptual Integration**

One of the classic complaints about social psychology is that it appears to consist of a list of interesting, but largely unrelated, empirical phenomena, each explained by a different ad-hoc mini-theory (e.g., Hogan & Emler, 1978). The cognitive revolution helped to change that perception. With the tools of cognitive science in hand, it became clear that a consistent set of underlying cognitive processes influenced assorted social psychological phenomena. An even more comprehensive conceptual integration can be achieved by combining cognitive science insights about how the mind works with evolutionary insights into what the mind has been designed to work on and why (see Kenrick et al., 2003). An evolutionary perspective can bring greater conceptual unity to diverse phenomena within a topic area. It can reveal many subtle

points of conceptual contact between ostensibly dissimilar social psychological topics. And it can help build important conceptual bridges between social psychology and other disciplines within the social and biological sciences.

This first point – conceptual unity within a topic area – has been most amply demonstrated in applications of differential parental investment theory to the study of interpersonal attraction and romantic relationships. This single theoretical structure provides a means of conceptually connecting a wide range of physiological phenomena (e.g., predictable variability in the development of secondary sexual characteristics, and in hormone levels across the female ovulatory cycle), affective phenomena (e.g., predictable variability in sexual arousal, and in sexual jealousy), perceptual and cognitive phenomena (e.g., predictable variability in attention to specific kinds of morphological features, and in inferences drawn from those features), behavioral phenomena (e.g., predictable variability in strategies used to find romantic partners, and in exchange patterns in ongoing relationships), and societal-level phenomena (e.g., predictable variability in cultural norms promoting specific forms of marital arrangements, and preventing specific forms of sexual harassment). Similar kinds of conceptual unification are currently being discovered in other social psychological topic areas. In this volume, for instance, one can discern how specific aspects of an evolutionary approach can illuminate connections between very different kinds of phenomena within the literature on the self (see, for example, the chapters by Kuzban & Aktipis and by Sedikides et al.). Many other chapters also highlight integrative utility within specific topic areas.

Even more impressive is the way in which an evolutionary perspective can conceptually connect phenomena across seemingly disparate areas and domains. These lines of conceptual integration go well beyond the obvious observation that modern human beings and our social groups are ultimately the products of natural selection. Although this may be true, it doesn't tell us much. Far more informative is the fact that the evolutionary consequences of differential parental investment have predictable implications not only for sexual attraction and close relationships, but also (and less obviously) for aggression and other forms of interpersonal influence, including a range of phenomena in the realm of social cognition. Novel conceptual connections also emerge from the fact that an evolutionary cost-benefit analysis can be fruitfully applied to such varied topics as person perception, aggression, prosocial behavior, group dynamics, and inter-group prejudice, to name just a few. These and other cross-topic conceptual commonalities reveal a fundamental set of common processes underlying diverse social psychological phenomena that, at a superficial level, appear to be conceptual unrelated.

Finally, the evolutionary perspective provides the unique service of connecting social psychological phenomena with phenomena in other disciplines. Social psychologists – and the scholarly community more broadly – have benefited enormously from the fact that the cognitive revolution provided novel links to computer science, linguistics, and other cognitive sciences. Similar benefits will accrue from the fact that an evolutionary perspective provides a lattice of connections to theoretical biology, behavioral ecology, physical anthropology, and other life sciences. Research within these disciplines can inspire creative exercises in social psychological theorizing. Furthermore, the empirical findings documented within those literatures are likely to be essential to develop more complete and more detailed explanations of important social psychological phenomena. Years ago, some of Sigmund Freud's erroneous assertions about incest motivations and group psychology resulted from misinformation about evolutionary prehistory and its contemporary consequences. Freud can hardly be blamed, of course, given the limited knowledge of the biological sciences at that time. That excuse doesn't hold anymore,

despite the fact that many psychologists remain fairly ignorant of basic biological facts and findings. Such ignorance – and the mistaken assumptions that accompany it – can lead to erroneous conclusions about the bases of social psychological phenomena (see Kenrick & Simpson, 1997). Just as it behooves us to be familiar with work in the other cognitive sciences, it also behooves us to keep abreast of recent developments in fields such as behavioral ecology, developmental biology, comparative neuroscience, and other evolutionary sciences. Indeed, if we are to develop a truly coherent science of social psychology, such an approach may not be a mere intellectual luxury; it may be a necessity.

### **The Un-Ignorability of Evolutionary Social Psychology**

The cognitive revolution didn't occur overnight; it just seems so today. But still, given the passion and prevalence of early objections, it is striking how quickly the cognitive perspective moved into the mainstream of social psychology. The pace of progress in evolutionary social psychology is proving to be just as swift. No longer does it lurk at the outer fringes of social psychological inquiry. Increasingly, evolutionarily-informed inquiries are found in the front and center of our field.

The evolutionary approach is still young, of course, and it is still raw, rough, and adolescent in many respects. A host of complicated issues still need to be resolved, and many perplexing questions must still be addressed. There is much that we still don't know about exactly how evolutionary pressures that operated on ancestral populations might have been translated into the cognitive and behavioral tendencies we observe in people today. What are the complex genetic substrates that underlie these psychological processes? What are the specific neurological structures that affect social cognition and interpersonal relationships? What are the developmental processes through which evolved genotypes gave rise to these neurological structures? How is this all influenced by the developing individual's local environment, local culture, and local opportunities for and constraints on learning? Conversely, how does our evolved psychology affect the very cultures we construct? Answers to these and other pressing questions are yet to be discovered. The fact that we don't yet know these answers does not diminish the increasing importance of evolutionary social psychology. If anything, it makes this approach all the more scientifically stimulating. It is only by asking such big questions that big answers will emerge. When they do, those answers will depend upon discoveries in other disciplines (e.g., human genomics, developmental biology, cognitive neuroscience, and cultural psychology) that, like evolutionary social psychology, still represent an exciting scientific frontier. And, just as those other domains of inquiry are increasingly un-ignorable features of our scientific future, so too is evolutionary social psychology.

### **References**

- Alcock, J. (2001). *The Triumph of Sociobiology*. New York: Oxford University Press.
- Archer, J. (1996). Sex differences in social behavior: Are social role and evolutionary explanations compatible? *American Psychologist*, *51*, 909-917.
- Axelrod, R. (1984). *The evolution of cooperation*. New York: Basic Books.
- Axelrod, R. (1997). *The complexity of cooperation*. Princeton NJ: Princeton University Press.
- Barrett, H. C. (2005). Enzymatic computation and cognitive modularity. *Mind and Language*, *20*, 259-287.
- Brewer, M. B. (2004). Taking the social origins of human nature seriously: Toward a more imperialist social psychology. *Personality and Social Psychology Review*, *8*, 107-113.

- Bugental, D. B. (2000). Acquisition of the algorithms of social life: A domain-based approach. *Psychological Bulletin*, 126, 187-219.
- Burnstein, E., Crandall, C., & Kitayama, S. (1994). Some neo-Darwinian rules for altruism: Weighing cues for inclusive fitness as a function of the biological importance of the decision. *Journal of Personality & Social Psychology*, 67, 773-789.
- Buss, D.M. (1989) Sex differences in human mate preferences: evolutionary hypotheses tested in 37 cultures, *Behavioral and Brain Sciences*, 12: 1-49.
- Buss, D. M., Haselton, M. G., Shackelford, T. K., Bleske A. L., & Wakefield, J. C. (1998). Adaptations, exaptations, and spandrels. *American Psychologist*, 53, 533-548.
- Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review*, 100, 204-232.
- Conway, L. G., III, & Schaller, M. (2002). On the verifiability of evolutionary psychological theories: An analysis of the psychology of scientific persuasion. *Personality and Social Psychology Review*, 6, 152-166.
- Daly, M., & Wilson, M. (1988). *Homicide*. Hawthorne, NY: Aldine de Gruyter.
- Daly, M., Salmon, C., & Wilson, M. (1997). Kinship: The conceptual hole in psychological studies of social cognition and close relationships. In J. A. Simpson & D.T. Kenrick (Eds.) *Evolutionary Social Psychology* (pp. 265-296). Mahwah, NJ: Lawrence Erlbaum Associates.
- Darwin, C. (1859). *On the origin of species*. London: Murray.
- DeBruine L. M. (2005). Trustworthy but not lust-worthy: Context-specific effects of facial resemblance. *Proceedings of the Royal Society of London, B*, 272, 919-922.
- Ebel, R. L. (1974). And still the dryads linger. *American Psychologist*, 29, 485-492.
- Gangestad, S.W., & Simpson, J.A. (2000). The evolution of human mating: Trade-offs and strategic pluralism. *Behavioral & Brain Sciences*.
- Geary, D. C. (1998). *Male, Female: The evolution of human sex differences*. Washington, DC: American Psychological Association.
- Hogan, R. T., & Emler, N. P. (1978). The biases in contemporary social psychology. *Social Research*, 45, 478-534.
- Kenrick, D.T., Becker, D.V., Butner, J., Li, N.P., & Maner, J.K. (2003). Evolutionary cognitive science: Adding what and why to how the mind works. In K. Sterelney & J. Fitness & (Eds). *From mating to mentality: Evaluating evolutionary psychology* (pp. 13-38). New York: Psychology Press.
- Kenrick, D. T., Li, N. P., & Butner, J. (2003). Dynamical evolutionary psychology: Individual decision-rules and emergent social norms. *Psychological Review*, 110, 3-28.
- Kenrick, D. T., & Simpson, J. A. (1997). Why social psychology and evolutionary psychology need one another. In J. A. Simpson & D. T. Kenrick (Eds.) *Evolutionary social psychology* (pp. 1-20). Mahwah, NJ: Lawrence Erlbaum Associates.
- Kenrick, D.T., Trost, M.R., & Sundie, J.M. (2004). Sex-roles as adaptations: An evolutionary perspective on gender differences and similarities. In A. H. Eagly, A. Beall, & R. Sternberg (Eds.), *Psychology of Gender*. New York: Guilford.
- Ketelaar, T., & Ellis, B. J. (2000). Are evolutionary explanations unfalsifiable? Evolutionary psychology and the Lakatosian philosophy of science. *Psychological Inquiry*, 11, 1-21.
- Kruglanski, A. W. (2001). That "vision thing": The state of theory in social and personality psychology at the edge of the new millennium. *Journal of Personality and Social Psychology*, 80, 871-875.
- Kruglanski, A. W., & Higgins, E. T. (2004). Theory construction in social personality psychology: Personal experiences and lessons learned. *Personality and Social Psychology Review*, 8, 96-97.
- Laham, S. M., Gonsalkorale, K., & von Hippel, W. (2005). Darwinian grandparenting: Preferential investment in more certain kin. *Personality & Social Psychology Bulletin*, 31, 63-72.
- Lakatos, I. (1970). Falsification and the methodology of scientific research programs. In I. Lakatos & A. Musgrave (Eds.), *Criticism and the growth of knowledge* (pp. 91-196). Cambridge UK: Cambridge University Press.

- Li, N.P., Bailey, J. M., Kenrick, D.T., & Linsenmeier, J.A. (2002). The necessities and luxuries of mate preferences: Testing the trade-offs. *Journal of Personality and Social Psychology*, 82,947-955.
- Maner, J. K., Kenrick, D. T., & Becker, D. V., Delton, A. W., Hofer, B., Wilbur, C. J., & Neuberg, S. L. (2003). Sexually selective cognition: Beauty captures the mind of the beholder. *Journal of Personality and Social Psychology*, 6, 1107-1120.
- Maner, J.K., Kenrick, D. T., Becker, D.V., Robertson, T.E., Hofer, B., Neuberg, S.L., Delton, A.W., Butner, J., & Schaller, M. (2005). Functional projection: How fundamental social motives can bias interpersonal perception. *Journal of Personality & Social Psychology*, 88, 63-78.
- Markus, H., & Zajonc, R.B. (1985). The cognitive perspective in social psychology. In G. Lindzey & E. Aronson (Eds.) *Handbook of Social Psychology*, (Vol. 1, pp. 137-230). New York: Random House.
- Nesse, R. M. (2005). Natural selection and the regulation of defenses: A signal detection analysis of the smoke detector principle. *Evolution and Human Behavior*, 26, 88-105.
- Öhman, A., & Mineka, S. (2001). Fears, phobias, and preparedness: Toward an evolved module of fear and fear learning. *Psychological Review*, 108, 483-522.
- Öhman, A., & Mineka, S. (2003). The malicious serpent: Snakes as a prototypical stimulus for an evolved module of fear. *Current Directions in Psychological Science*, 12, 5-9.
- Olsson, A., Ebert, J. P., Banaji, M. R., & Phelps, E. A. (2005). The role of social groups in the persistence of learned fear. *Science*, 309, 785-787.
- Park, J.H., & Schaller, M. (2005). Does attitude similarity serve as a heuristic cue for kinship? Evidence of an implicit cognitive association. *Evolution and Human Behavior*, 26, 158-170.
- Richerson, P. J., & Boyd, R. (2005). *Not by genes alone: How culture transformed human evolution*. Chicago: University of Chicago Press.
- Sadalla, E. K., Kenrick, D. T., & Vershure, B. (1987). *Journal of Personality and Social Psychology*, 52, 730-738.
- Schaller, M. (2002). The evidentiary standard of special design is a little bit like heaven. *Behavioral and Brain Sciences*, 25, 526-527.
- Schaller, M., Faulkner, J., Park, J. H., Neuberg, S. L., & Kenrick, D. T. (2004). Impressions of danger influence impressions of people: An evolutionary perspective on individual and collective cognition. *Journal of Cultural and Evolutionary Psychology*, 2, 231-247.
- Schaller, M., Park, J. H., & Faulkner, J. (2003). Prehistoric dangers and contemporary prejudices. *European Review of Social Psychology*, 14, 105-137.
- Schmitt, D. P., & Pilcher, J. J. (2004). Evaluating evidence of psychological adaptation: How do we know one when we see one? *Psychological Science*, 15, 643-649.
- Sidanius, J., & Kurzban, R. (2003). Evolutionary approaches to political psychology. Pp. 146-181 in D.O. Sears, L. Huddy, & R. Jervis (Eds.) *Oxford Handbook of Political Psychology*. New York: Oxford University Press.
- Simpson, J.A., & Campbell, L. (2005). Methods of evolutionary sciences. In D. M. Buss (Ed.), *The Handbook of Evolutionary Psychology* (pp. 119-144). New York: Wiley.
- Simpson, J.A., & Gangestad, S.W. (1991). Individual differences in sociosexuality: Evidence for convergent and discriminant validity. *Journal of Personality & Social Psychology*, 67, 870-883.
- Skinner, B. F. (1950). Are theories of learning necessary? *Psychological Review*, 57, 193-216.
- Thagard, P. (1992). *Conceptual revolutions*. Princeton NJ: Princeton University Press.
- Tooby, J., & Cosmides, L. (1992). The psychological foundations of culture. In J. H. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind* (pp. 19-136). New York: Oxford University Press.
- Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man 1871-1971* (pp. 136-179). Chicago: Aldine.