

Target Article forthcoming in the *Journal of Consumer Psychology*

**Fundamental Motives for Why We Buy:
How Evolutionary Needs Influence Consumer Behavior**

Vladas Griskevicius

University of Minnesota

Douglas T. Kenrick

Arizona State University

Abstract

Do modern consumer behaviors reflect the operation of ancestral motivations? We consider the underlying motives for consumption from an evolutionary perspective using the fundamental motives framework. Emerging theory and evidence suggests that deep-seated ancestral social motives continue to influence much modern behavior, albeit not always in obvious or conscious ways. These fundamental motives include: (1) evading physical harm, (2) avoiding disease, (3) making friends, (4) attaining status, (5) acquiring a mate, (6) keeping a mate, and (7) caring for family. We discuss how, why, and when these motives shape consumer behavior, highlighting that many consumer choices ultimately function to help fulfill one or more of these evolutionary needs. An important implication of this framework is that a person's preferences, behaviors, and decision processes can change dramatically in predictable ways depending on which motive is currently active. A consideration of fundamental motives provides fertile ground for future consumer research, multiple managerial implications, and helps build bridges between consumer behavior, evolutionary biology, and other social sciences.

At first blush, the choices made by modern consumers seem to have everything to do with contemporary culture, and little to do with human nature. Our cave-dwelling hunter-gatherer ancestors did not shop at the Apple Store, Saks Fifth Avenue, or Walmart. They did not face decisions about whether to drive a green Prius or a red Porsche, which kind of children's car seat to put into their vehicle, or whether to use that car to commute to a McMansion in the suburbs or a bungalow near downtown. Neither did they have to worry about whether mouthwash A makes their breath smell medicinal, or whether detergent X might leave a ring around their collars, let alone if they are taking on too much or too little risk with the retirement package in their 401(k) account. But we will argue that the choices made by modern consumers are nevertheless strongly connected to the same motivations that drove our ancestors' choices about everyday decisions.

In fact, the study of consumer behavior presents an ideal avenue for gaining insight into underlying human motivations. How different people allocate their limited resources in different circumstances can tell us a great deal about which needs people prioritize. Conversely, an understanding of evolutionary motives can provide insight into consumer preferences and decision processes. Why, for example, some people happily spend their hard-earned money on ultra-expensive luxury goods with no survival benefit, or why people make seemingly irrational choices by seeking to avoid losses rather than acquire gains. More importantly, the framework we present offers a powerful new theory with a host of empirical implications for connecting basic psychological and behavioral processes – from attention to memory to cognition to choice – in ways that have direct implications for theory and research in consumer behavior.

Here we examine the motivational underpinnings of consumer behavior as viewed from the perspective of the evolutionarily-informed Fundamental Motives Framework (Kenrick, Griskevicius, Neuberg, & Schaller, 2010; Kenrick et al., 2010b). This framework maintains that

humans have inherited a set of psychological adaptations for solving a set of specific social challenges, which include: (1) evading physical harm, (2) avoiding disease, (3) making friends, (4) attaining status, (5) acquiring a mate, (6) keeping that mate, and (7) caring for family. This framework has been empirically fruitful in generating novel hypotheses about how fundamental motives influence basic psychological processes such as attention and memory as well as behaviors such as altruism and aggression (e.g., Ackerman et al., 2009; Becker et al., 2010; Griskevicius, Tybur et al., 2007, 2009; Maner et al., 2005, 2012; Mortensen et al., 2010). Initial forays into examining how fundamental motives influence consumer behavior and decision-making have also been fruitful (Griskevicius, Goldstein, et al., 2009; Li et al., 2012; Sundie et al., 2011), but most of the empirical implications have yet to be explored.

We will lay out the fundamental motives framework and its broader implications for consumption and choice. In particular, we will discuss how, why, and when these ancestral motives might shape consumer behavior, highlighting how many consumer choices may function to help fulfill one or more of these evolutionary needs, albeit not always in obvious or conscious ways. Before discussing the framework and each motive in greater detail, we briefly introduce core features of the evolutionary perspective on which it is based.

DISTINGUISHING PROXIMATE AND ULTIMATE MOTIVES

Evolutionary approaches to examining human behavior are based on foundational theories within modern biology. The central premise of this approach is that the same forces of natural selection that shaped morphological features, such as our hands and our hearts, have also shaped our brains and behaviors. Evolutionary biologists assert that all living organisms, including humans, evolved to behave in ways that gave those organisms an evolutionary

advantage. This implies that modern humans are endowed with a psychology that inclines them to process information and make decisions in ways that have enabled our ancestors to survive, thrive, and replicate (Buss, 2005; Cosmides & Tooby, 1992; Kenrick et al., 2010a; for a succinct and excellent overview of *Evolutionary Psychology*, see Confer et al., 2010).

From an evolutionary perspective, cognition, motivation, and behavior are inherently intertwined – they are parts of adaptive systems designed to solve recurrent ancestral problems. To understand how those systems work, it is essential to ask questions about their ultimate function: What problem might a given psychological system have helped human beings solve in order to survive and reproduce successfully? But when asking questions about a behavior's function and its causes, it is paramount to first recognize a critical distinction made by biologists between proximate causes and ultimate causes (Tinbergen, 1963). To understand this important distinction, consider a simple example. Let's say you have a colleague who just bought a luxurious sports car, so you ask him: "Why did you buy that car?" He may simply respond: "I really liked it!" If your friend is feeling more analytical, he may mention that he was drawn to the car's stunning design and superior performance, and that driving such a speedy roadster makes him feel good. This kind of explanation for behavior is known as a *proximate* explanation. The word proximate here is related to the word proximity – these causes refer to the relatively up-close and immediately present causes.

Proximate reasons are important, but they tell only part of the story. Proximate reasons don't address the deeper question of *why* people are drawn to luxury goods and *why* possessing luxury goods makes people feel good. Understanding these deeper reasons for behavior often requires an ultimate explanation. Unlike proximate causes, *ultimate causes focus on the*

evolutionary function of a behavior – the reason why a behavioral tendency and the psychological mechanism that produces it has persisted across many generations.

When considering the reasons for conspicuous consumption, for example, there are many possible proximate explanations. These include a desire for uniqueness, attention, or luxury – desires that may have been influenced by Western materialism, modern advertising, or the mass media. But, of course, ostentatious displays of wealth are not unique to modern times. They have been found in many corners of the globe for millennia (Veblen, 1899), including among traditional people living in the remote regions of Melanesia, Iceland, and Amazonia (Bird and Smith 2005; Godoy et al. 2007). The ubiquity of conspicuous consumption across history and human cultures suggests that humans may have inherited brain mechanisms wired to respond to luxurious possessions. If so, then conspicuous consumption has served some ultimate evolutionary function (Griskevicius et al., 2007; Miller, 2009; Saad, 2007; Sundie et al., 2011).

Sometimes the ultimate and proximate reason for a behavior might be closely connected. For example, if you asked a hungry person why he just purchased a brownie, she might say “I was starving!” In this case, the proximate reason (feeling hunger) is directly connected to the ultimate function of obtaining calories to survive. But most of the time, the connection between proximate and ultimate reasons will not be that clear. Consider, for example, why birds migrate each year. The proximate reason birds migrate is because days get shorter – day length is the immediate cue that triggers the motivation to begin the bird’s journey. But the ultimate reason for bird migration has nothing to do with day length. Instead, the ultimate reason birds migrate is because the locations of the best food sites and the best mating sites change with the seasons.

Like other animals, human beings do not need to consciously know the connections between the proximate triggers of their behavior and the ultimate reasons behind those behaviors.

In fact, not only are people often not aware of the actual proximate reasons for their behavior (Nisbett & Wilson, 1977), but they are especially poor at recognizing the ultimate reasons for their actions (Barrett & Kurzban, 2006; Tooby & Cosmides, 2005, Kenrick et al., 2010a). One does not need to think: “I am buying this luxurious sports car because it can increase my desirability as a potential mate and thereby enhance my reproductive fitness by increasing the odds that my genes will make it into future generations.”

An important insight from an evolutionary perspective is that because the brain is a biological organ that evolved according to the principles of natural selection, any behavior produced by the brain has *both* proximate and ultimate reasons. This means that people often have multiple motives for a behavior, even if they are not always aware of the ultimate reasons for their choices. For example, a man can be consciously motivated to buy a sporty luxury car because its expensive leather interior and peppy acceleration makes him feel good (a proximate reason), *and at the same time* be nonconsciously motivated to buy a luxury car because owning such a car can increase his desirability as a potential mate and thereby enhances his reproductive fitness (an ultimate reason). Note that proximate and ultimate reasons are *not* competing explanations. Rather, each one explains a behavior at a different level of analysis, with both types of explanations being useful for understanding any given behavior.

Consumer researchers, like most social scientists, have typically been concerned with proximate reasons for behavior. In Paco Underhill’s (2000) popular book *Why We Buy*, for example, all of the reasons given for why we buy are proximate reasons, such as the location of a product on a shelf, the width of aisles in a store, or the wording used on signs. When asking why people behave in a certain way, proximate explanations tend to focus on what people want to feel or seek to avoid feeling. For instance, people might seek pleasure, happiness, or satisfaction,

while seeking to avoid pain, sadness, or frustration. Proximate explanations are often couched in terms such as preferences, values, incentives, or norms, and consumer scientists have identified a plethora of proximate consumer needs, such as such as novelty, value, entertainment, efficiency, variety, uniqueness, quality, simplicity, reliability, identity, convenience, familiarity, etc.

But an evolutionary perspective highlights that there is a deeper level of explanation rooted in the adaptive function of behavior. This is a useful lens through which to look at motivation because while there could be innumerable proximate motives for behavior, there is a much smaller set of ultimate evolutionary functions that this behavior might serve. Indeed, a key strength of an evolutionary approach is that it can generate a manageable taxonomy of universal ultimate motives for human behavior, which can provide a solid foundation to help organize the many proximate motives that drive everyday choices (Kenrick et al., 2010a). The key question, to which we turn to next, is what are the most common ultimate motives for behavior?

THE FUNDAMENTAL MOTIVES FRAMEWORK

When people think about “evolutionary success,” they may think only about survival and reproduction. Although these are important, there are a number of distinct evolutionary challenges that had to be surmounted to achieve reproductive success. Like all other animals, at a base level our ancestors needed nourishment and shelter. But because humans are intensely social animals, we also faced a set of significant and recurrent social challenges (Ackerman & Kenrick, 2008; Kenrick, Li, & Butner, 2003; Kenrick et al., 2010a). These different ancestral social challenges included: (1) evading physical harm, (2) avoiding disease, (3) making friends, (4) attaining status, (5) acquiring a mate, (6) keeping a mate, and (7) caring for family.

Those humans who became our ancestors were the ones who protected themselves from enemies and predators, avoided infection and disease, got along with the other people in their tribe, and gained the respect of those tribe-mates. They also successfully acquired a reproductive partner, probably established some type of bond with that person (perhaps for the rest of their lives), and if all went well, cooperated with their partner in caring for their needy and relatively helpless offspring. Those humans who were successful in solving these critical challenges enhanced their fitness and became our ancestors, whereas those who were less successful at these tasks failed to become anyone's ancestors. Although humans likely faced multiple evolutionary challenges, given the important implications that these seven social challenges have had for reproductive fitness and human evolution, they can be considered "fundamental" (Kenrick et al., 2010b).

Note that each ancestral challenge is qualitatively different. The things a person must do to successfully charm a potential mate are different from the things one does to avoid a predator or care for a baby. In fact, sometimes a good solution to one evolutionary problem is directly incompatible with the solution to another problem. For example, the behavior of approaching a new person at a social gathering can help solve the challenge of making friends but increase the likelihood of catching an infectious disease. The qualitative differences between different evolutionary challenges are important, because they suggest that the brain has not evolved to simply "make choices that maximize the chances of eventually reproducing." In fact, a great deal of evidence suggests that the brain evolved to solve evolutionary challenges rather than evolving to be a general-purpose problem-solver (Barrett & Kurzban 2006; Tooby & Cosmides, 1992).

Decades of animal research show that animals possess different brain systems specialized for solving different adaptive challenges faced by a given species (Alcock, 2009). For example,

birds have one memory system for remembering food location, a different memory system for remembering mating songs, and yet a different system for remembering things that made them sick (Sherry & Shacter, 1987). Similarly, a large body of scientific evidence on humans – from anthropology, cognitive science, human development, neuroscience, and social psychology – finds that people possess different psychological systems for managing different evolutionary challenges (e.g., Barrett, 2012; Bugental, 2000; Fiske, 1992; Lieberman et al., 2007; Maner et al., 2012; Tybur et al., 2009; Saad, 2007). We have a specialized psychological system for avoiding infectious disease, a different system for evading physical danger, and yet different systems for solving other evolutionary challenges (Neuberg, Kenrick, & Schaller, 2011). This body of research on animals and humans suggests that the brain is not one all-purpose tool, but is instead more like a Swiss Army knife. Just as a Swiss Army knife has a set of different tools for solving different problems such as opening bottles or cutting rope, the mind has different psychological systems and sub-systems for solving different evolutionary challenges.

The fundamental motives framework maintains that the specific ancestral social challenges faced by humans map onto fundamental motivational systems that function to help solve each challenge. The implications of fundamental motives for consumer behavior can be summarized by three central features of the framework.

Feature #1: A Fundamental Motive Can Be Activated by External or Internal Cues

A fundamental motive can be activated or “primed” by external or internal cues indicating threats or opportunities related to a specific evolutionary challenge (Kenrick et al., 2010a). For example, the mate acquisition system can be activated by *context*, such as when a person is interacting with a desirable member of the opposite sex. The system can also be primed

by the context of being in the same room with such a person, merely imagining a desirable romantic encounter, or being exposed to an image or story involving such a person.

A fundamental motive can also be primed by the *content* of a choice. For example, the mate acquisition system can be activated by a real or hypothetical decision that concerns potential mates. As we discuss in more detail later, an important implication of an evolutionary perspective is that the evolutionary content of a decision – whether a choice pertains to family, status, disease, mating, affiliation, or danger – can drastically alter people’s decision-making processes. For example, whereas a choice concerning one evolutionary domain might reveal the classic framing effect (Tversky & Kahneman, 1981), a *mathematically identical* choice concerning a different evolutionary domain might not reveal any framing effects (Ermer, Cosmides, & Tooby, 2008; Wang, 1996).

A fundamental motive can also be triggered by internal cues, such as hormonal fluctuations. For example, women’s mate acquisition system can be triggered during the ovulatory phase of the monthly menstrual cycle (Gangestad & Thornhill, 2008). During the several-day period of peak fertility, women experience a stronger desire to acquire a mate, which leads women to pay more attention to men (Anderson et al., 2010), dress in sexier manner (Durante, Li, & Haselton, 2008), seek to purchase more alluring outfits and product accessories (Durante et al., 2011; Saad & Stenstrom, 2012), and even earn more in tips from male customers (Miller, Tybur, & Jordan, 2007).

Women are rarely aware that ovulation influences their behavior, and the women in these studies were not even aware that they were ovulating. However, ovulatory effects spotlight the critical distinction between proximate and ultimate reasons for behavior discussed earlier. While the *proximate reason* ovulating women seek to wear alluring outfits may be because ovulation

leads women to feel sexier or more confident, the *ultimate reason* ovulating women seek to wear alluring outfits is because such behavior functions to help acquire a mate. This highlights the more general point that people are often unaware of the ultimate reasons for their behavior.

Feature #2: The Currently Active Fundamental Motive Shapes Preferences

When a fundamental motivational system has been activated, it produces a specific set of consequences for attention, memory, cognition, and behavior (Kenrick et al., 2010b; Neuberg, Kenrick, & Schaller, 2010). This coordinated cascade of responses functions to solve the ultimate problem associated with the currently active system. For example, the activation of the mate acquisition system leads a person to prefer and seek products that facilitate achieving the ultimate need of acquiring a mate, as in the case of ovulating women.

An important implication of the fundamental motives framework is that a person's preferences can change quite dramatically depending on which motivational system is currently active. This is because what constitutes adaptive behavior to further one ultimate need may be very different from – and sometimes even completely opposing to – what is adaptive to further another. For example, activating the self-protection system leads people to conform and follow the masses (Griskevicius, Goldstein, et al., 2006). When this motive is active (such as when watching a crime-filled television program), people are more attracted to products advertised as best-selling and popular, while being less attracted to the *same products* when they are advertised as unique and different (Griskevicius, Goldstein et al., 2009). Like wildebeests in the presence of a leopard, cues of physical threat motivate people to be part of a larger group.

In stark contrast, activating the mate acquisition system leads people to want to stand out from the crowd. When this motive is active (such as when watching a romantic or sexy

program), people more attracted to products advertised as unique and different, while being repulsed when the same products are advertised as popular or best-selling (Griskevicius, Goldstein et al., 2009). Like animals on the prowl for a mate, cues of the opposite sex motivate people to stand out. The important implication of the fundamental motives framework is that the same person might make different – and sometimes entirely inconsistent – choices depending on which fundamental motive is currently active.

Feature #3: The Currently Active Motive Guides Decision Processes

Just as fundamental motives can alter preferences, they can also alter decision-making processes – how one goes about maximizing his or her preferences. This has important ramifications not only for seemingly “irrational” behavior, but also for understanding the nature of human decision biases. Consider the well-documented bias of loss aversion – the tendency for people to weigh losses more heavily than equivalent gains (Kahneman & Tversky, 1979). From a traditional economic perspective, decision biases such as loss aversion tend to be viewed as irrational quirks in the human mind. But from an evolutionary perspective, many of our decision biases and judgment errors may instead reflect *intentional features* of a deeply rational ancestral decision-making system (Kenrick et al., 2009; Haselton & Nettle, 2006). Although such biases might inhibit making decisions in an economically rational manner in modern contexts, they often lead people to behave in ways that would have been adaptive throughout human evolutionary history (Kenrick & Griskevicius, in press). Loss aversion, for instance, is believed to be an adaptive bias that helped humans solve survival-related ancestral challenges (Li, Kenrick, Griskevicius, & Neuberg, 2012). When in danger, it may have been especially beneficial for our ancestors to avoid losses so as not to lose their life or limbs.

Consideration of the evolutionary functions of specific biases has important implications. Decision biases such as loss aversion have been traditionally viewed as relatively constant phenomena (Kahneman & Tversky, 1979). Some have given a precise number to this bias, suggesting that people experience a loss as 2.75 times more psychologically impactful as a gain of the same magnitude (Thaler, Tversky, Kahneman, & Schwartz, 1997). But if a particular bias evolved to help solve a specific evolutionary challenge, this bias should ebb and flow depending on the adaptive context, being particularly strong in situations pertaining to the relevant evolutionary challenge, but perhaps non-existent when confronting other ancestral challenges.

Consistent with the idea that loss aversion may have been adaptive for solving survival-related ancestral challenges, activating the self-protection system makes people particularly loss averse (Li, Kenrick, Griskevicius, & Neuberg, 2012). When motivated to protect themselves from danger, people are especially concerned about losses, while experiencing more modest boosts in happiness from gains of the same size. But activating a different fundamental motive—the mate-acquisition system—leads loss aversion to vanish. In fact, a motive to acquire a mate doesn't just make loss aversion disappear; it leads this bias to *reverse* for men, making them gain-seeking (Li et al., 2012). This male-specific finding fits with biological principles of sexual selection and differential parental investment, which explain why male animals compete more vigorously for mates than females. If a mammalian male failed to prove to a female that he had sufficient desirable traits or resources, this put him at critical risk of not being able to pass on his genes. In a mating context, gains may loom larger than losses because males who were loss averse when attracting a mate may have failed the most critical step in evolution.

In summary, the fundamental motives framework highlights that the activation of a fundamental motive shapes consumer preferences and decision-making processes. But predicting

which preferences and which specific array of biases a person will exhibit in a given situation requires understanding of the workings of each motivational system. We turn to this issue next.

FUNDAMENTAL MOTIVES DRIVING CONSUMER BEHAVIOR

In this section we discuss the seven fundamental motives. We consider how each motive is triggered, review findings pertaining to consumer behavior, and discuss some of the rich possibilities for future research. This information is summarized in Table 1, which also highlights theories from evolutionary biology and psychology used to generate specific predictions regarding the workings of each system. Although detailing every evolutionary-relevant theory is beyond the scope of this paper, it is important to note that the study of the evolutionary functions of behavior is rooted in a rich inter-disciplinary network of theories (for more on the history of evolutionary theories in the social sciences, see Saad, current issue, or Kenrick & Cohen, 2012).

---Insert Table 1 here---

1. Self-Protection

Although our human ancestors faced many dangerous predators, fellow humans have been perhaps the most dangerous threat throughout most of history. Criminologists examining skull fragments from earlier human societies, and anthropologists studying other human groups, have found that homicide was quite prevalent in ancestral societies. Indeed, our ancestors lived in groups with homicide rates that would make modern inner-city Detroit or Los Angeles look tame by comparison (Pinker, 2011). And even when human predators weren't out to kill our ancestors, they often tried to steal their belongings or burn down their villages. These threats

continue in the modern world. In 2010, there were 14,748 homicides and 778,901 violent assaults reported to law enforcement officials in the United States alone (U.S. Dept. of Justice Crime in the United States, 2011). And during the 20th century, wars and genocide resulted in an average of more than 2 million deaths per year.

Our ancestors were those that survived, and to do so they relied on a well-developed self-protection system that persists in modern humans (Neuberg, Kenrick, & Schaller, 2011). Our self-protection system is activated by cues indicating physical danger, such as angry expressions, snakes and spiders, scary movies or news reports, strange men, or simply being in the dark (Ackerman et al., 2006; Becker et al., 2007; Schaller, Park, & Mueller, 2003; Ohman & Mineka, 2001). Activation of this system attunes people to information suggesting they might be in danger, making people more vigilant and paranoid. For example, when Americans see an Arab man with a perfectly neutral facial expression, a self-protection motive leads them to see that man as being angry and therefore more threatening (Maner et al., 2005).

A self-protection motive spurs people to seek safety and make safe choices. Activating this motive leads people to take fewer risks (Lerner & Keltner, 2000), prefer the status quo (Jost & Hunyady, 2005), and, as mentioned earlier, be particularly averse to losses (Li et al., 2012). It also promotes a “strength in numbers” response, motivating people to band together with similar others, both physically and in their tastes and choices (Griskevicius, Goldstein, et al., 2009; Kugihara, 2005; Van Vugt, De Cremer, & Janssen, 2007). When asked to indicate whether people prefer Mercedes-Benz or BMW cars, for example, a self-protection motive leads people to choose the same brand that the majority of others prefer, regardless of which brand it is (Griskevicius, Goldstein, et al., 2006). Similarly, when evaluating works of art in an online chat room, people in a self-protective state are particularly swayed by the opinions of others.

There are large markets in consumer goods designed to appease people's concerns about physical threat, including fences, door locks, alarm systems, motion detectors, and guard dogs. Whereas some individuals pay extra to live in gated communities, others take a more active role in their self-defense, buying firearms that range from the smaller scale Glock 17C pistol with night sites (which sells for \$542) to an AK47 machine gun (\$14,500 for a slightly used model). As citizens, people also pay taxes for local police services and national military. The 2011 U.S. budget included \$60 billion for "protection," and another \$964 billion for "defense," which translates to roughly \$3,294.60 for every man, woman, and child in the country.

While some products and services function to directly fulfill a self-protection need, fundamental motives such as self-protection may influence many aspects of consumer behavior. For instance, activating a self-protection motive might lead people to value brands and product features associated with safety. Such activation might lead consumers to prefer familiar and safe-minded brands such as Volvo cars or Allstate insurance ("You're in good hands with Allstate") over less familiar brands, or over brands associated with features unrelated to safety, such as value, variety, novelty, efficiency, luxury, or excitement. A self-protection motive might also influence willingness to pay – not only for preferred brands, but also for product features that enhance safety such as all-side airbags and emergency roadside assistance service. The precise nature of such effects, and how they interact with features of the person, product, and the situation raise numerous empirical questions yet to be answered.

More broadly, each of the fundamental motives might have even more general implications for consumer behavior, such as by altering price sensitivity. A self-protection motive, for instance, might make people less price sensitive to products that can enhance safety, while making them more price sensitive to other goods. Another interesting question is whether

activating a specific motive leads consumers to maximize or satisfice – to choose the best option versus one that is good enough. This has important consequences for understanding consumer search. For example, making self-protection more important might actually decrease product search for product that can enhance safety, leading people to take the first option above threshold. Overall, each of the fundamental motives might influence many important aspects of consumer behavior and decision-making, with most of the empirical implications yet to be explored.

2. Disease Avoidance

Biologists estimate that infectious diseases have been an important selection pressure on the human species (Gangestad & Buss, 1993). For example, large portions of the European population were wiped out by the Bubonic Plague, and up to 75% of the native North American population was wiped out by diseases brought over by Europeans (Dobson & Carter, 1996). The more recent “Spanish flu” in 1918 killed between 40 and 100 million people worldwide (Olson et al., 2005), and the World Health Organization estimates that 15 million humans currently die each year from infectious diseases such as influenza, tuberculosis, and AIDS. Although humans have developed technologies to control many diseases and to limit their spread, virulent and contagious microorganisms still lurk on and within the people we encounter every day, awaiting any moment of contact that might provide an opportunity for them to jump onto us.

One result of this ever-present pathogen threat has been the evolution of a biological immune system to fight off infection. A second has been the evolution of a psychological “behavioral immune system” that helps us avoid infection in the first through our behaviors (Schaller & Park, 2011). This psychological disease-avoidance system is activated by cues

suggesting the presence of pathogens, such as sneezing and coughing, foul odors, or skin lesions or abnormalities (Ackerman et al., 2009; Miller & Maner, 2012). The system can also be triggered by merely thinking about people from exotic and faraway places such as Sri Lanka and Ethiopia. In fact, merely seeing someone who might be sick can trigger our biological immune system and increase inflammation (Schaller, Miller, Gervais, Yager, & Chen, 2010).

A disease avoidance motive spurs people to behave in ways designed to thwart pathogen transmission. For example, people exposed to a bacterial odor increase their intentions to purchase and use condoms to avoid sexually transmitted disease (Tybur et al., 2011). Similarly, hearing people cough or seeing others wear face masks increases hand washing behavior (Fleischman et al., 2011). When the disease system has been primed, people become more socially avoidant, including becoming more introverted and less tolerant of foreigners (Mortensen et al., 2010; Schaller & Park, 2011). On the other side of the coin, prejudices against foreigners can be reduced by reminding people of a recent flu shot, or having them clean their hands with an antiseptic wipe (Huang, Sedlovskaya, Ackerman & Bargh, 2011).

Activating the disease system doesn't simply produce general avoidance, however. Women primed with pathogen concerns are actually *faster to approach* highly attractive and symmetrical men – features that have been historically associated with lower pathogen loads and increased resistance to disease (Cantu, Beal, Griskevicius, Simpson, & Schaller, 2012).

A disease avoidance motive also spurs people to seek familiar foods and avoid those of foreign origin, unless those foods are sealed in airtight packaging (Li, Ackerman, White, Neuberg, & Kenrick, 2012). Merely seeing an ad for a pharmacy can activate this motive, increasing people's willingness to pay for products that are brand new rather than used (Huang & Ackerman, 2012). And this motive can also be triggered by exposure to products that elicit some

level of disgust, such as feminine products, which can cause consumers to avoid the seemingly “contaminated” products sitting nearby on a store shelf (Morales & Fitzsimons, 2007).

Just as the mate acquisition system can be activated through internal cues such as ovulatory hormones, the disease avoidance system can also be activated through pregnancy hormones. Activation is highest during the first trimester of pregnancy, when the developing fetus is particularly susceptible to serious developmental problems if the mother gets sick. It is precisely during this time when women not only avoid novel foods that might contain pathogens, but they also become more xenophobic (Navarrete, Fessler, & Eng, 2007).

Many consumer purchases function to directly fulfill a disease avoidance need. People aim to limit the spread of disease by buying various tissues, soaps, sanitary wipes, and bug sprays, and entire supermarket aisles carry endless remedies and pills for preventing disease. Yearly sales of pharmaceutical drugs totaled \$307 billion in the U.S alone. Whereas in 1929 the average American received less than two prescriptions per year, by 2006 each child got 4, each adult got 11, and each senior citizen got 28. In 2011, the cost of employee-provided health care was \$15,073 for a family, plus additional out-of-pocket costs.

Like a self-protection motive, a disease avoidance motive is likely to have a variety of motive-specific influences on brand preferences, valued product attributes, willingness to pay, price sensitivity, and product search. These effects are unlikely to be limited to product categories directly related to disease and health. For example, consider expenditures on travel and vacations. Each of the fundamental motives is likely to alter how consumers spend money on travel, such as by influencing where they vacation, which airline they fly on (or whether they drive instead), and which hotel they stay. Whereas a self-protection motive might lead people to place special value on safety (e.g., going abroad to a safe destination, flying on the safest airline,

and staying in the most well-lit and reputable hotel), a disease avoidance motive might lead people to place special value on cleanliness, such as by going to non-exotic and nearby locations (Americans choosing to visit Canada versus Peru, for example), and perhaps driving rather than flying to avoid contagious diseases that could be picked up in airports. Indeed, one study found that concerns about swine flu led to noticeable decreases in air travel, particularly among populations most concerned about disease (Hamamura & Park, 2010). Furthermore, a disease avoidance motive might not only lead people to take vacations domestically, but perhaps even pay premiums for domestic products or products that were made more “naturally.”

3. Affiliation

Although some animals spend most of their lives as hermits, humans have always lived in groups. To survive successfully, our ancestors needed to form coalitions and get along with other people (Hill & Hurtado, 1996; Lancaster, 1976). Having allies and friends provided a natural insurance policy against starvation, enabling people to pool their risk to make it through tough times. Friends also teach one another valuable skills, can team up to achieve tasks too big for an individual, and they provide safety in numbers when the bad guys come around.

The affiliation system continues to be valuable today, and we invest heavily in building and maintaining our friendships (Baumeister & Leary, 1995). The affiliation system is activated by cues of old friends, potential new friends, or being part of a group. For example, this motive is primed when an old college roommate sends you a Christmas card, when you're thinking about inviting a neighbor for dinner, or when your coworker picks up the tab for lunch. The affiliation system is also triggered when friendships are threatened, such as when a person is socially rejected. The affiliation system attunes people to information about acquaintances who might

make good friends, whether we are being accepted, rejected, or cheated by those people, and whether we are getting along with the friends we do have.

An affiliation motive promotes the reinforcement of existing friendships and spurs behaviors to make new friends (Maner et al., 2007). In contrast to a disease avoidance motive that leads people to become more introverted and treat social contact as a cost, an affiliation motive leads people to become more outgoing and treat social contact as a benefit. For example, people with an affiliation motive spend more money on products that could be enjoyed together with other people rather than consumed alone (Mead et al., 2011). An affiliation motive can also promote gift-giving, particularly by leading people to purchase gifts that might run counter to their own identities in order to fulfill the desires of the intended recipient (Ward & Broniarczyk, 2011).

People's relationships with products and consumer brands can sometimes mimic the relationships they have with friends. For instance, people often purchase material possessions because they are lonely (Lastovicka & Sirianni, 2011), and they sometimes treat those possessions as though they were people (Epley, Waytz, Akalis, & Cacioppo, 2008). Just like with friends, people are more likely to engage with brands they perceive as sincere (Aaker, Fournier, & Brasel, 2004), and consumers feel the sting of brand transgressions much like they do the slights of friends (Aaker, Fournier, & Brasel, 2004).

Many products and services function to fulfill an affiliation need, including those that directly increase contact with friends such as Facebook and smart phones contracted for unlimited minutes for talking and texting. But an affiliation motive is also likely to have powerful influences on a variety of product categories that can less directly help one to make new friends or maintain existing social relationships. For instance, this motive might alter the

kinds of brands people prefer in their choice of everything from clothing, jewelry, and cosmetics, to consumer electronics, soft drinks, athletic gear, deodorants, and shampoos. When choosing products, an affiliation motive might especially lead people to seek those brands and styles that help them fit in. It would be potentially fruitful to explore the implications for advertising, such as the potential differences of advertising a product during a program that elicits an affiliation motive versus one that elicits a status motive. Whereas the viewers watching the affiliation program might be attracted to products that help them fit in with peers, viewers watching the status program might instead seek products that help them be a step above their peers, which we turn to next.

4. Status

As a group-living species, humans not only desire to affiliate; they also seek to gain status in their groups. Being respected by others has always brought a host of benefits, and this did not start with human beings. Dominant baboons get first crack at food and the best spot at the watering hole, and dominant male chimps get to mate with the most desirable females. The benefits of status continue to apply among modern human beings. People with higher status have greater interpersonal influence (Miller, Collins, & Brief, 1995), more material resources (Cummins, 1998), higher self-esteem (Tesser, 1988), and better health (Marmot, 2004). Wearing a high-status brand-name shirt versus a generic unbranded shirt even increases compliance with a person's requests and the likelihood of being hired for a job (Nelissen & Meijers, 2011).

The status system is triggered by cues of dominance, prestige, or competition, such as accomplishments, rivalries, or highly-regarded products or people. This system can also be activated when people are deprived of status or power (Rucker & Galinsky, 2009). Activation of

the status system attunes people to where they stand in the hierarchy, and increases people's tendency to value associations with high-status people and objects, while cutting off association with those lower-ranked (e.g. Cialdini, et al., 1976; Snyder, Lassegard, & Ford, 1986).

Meanwhile, this system leads people to regard other people's disrespect as especially costly.

A status motive spurs people to behave in ways that will lead them to be respected and admired. As in other animals, one route to achieving status for humans is through dominance – overpowering others and forcing deference. Activating a status motive in fact increases aggressive behavior (Griskevicius, Tybur et al., 2009), and leads people to seek physically larger and more imposing products (Dubois, Rucker, & Galinsky, 2012). However, a more common route human beings use to attain and maintain status is through prestige – freely conferred deference (Henrich & Gil-White, 2001; Cheng et al., in press). Accordingly, a status motive leads people to pay more for luxurious and prestigious goods (Ivanic, Overbeck, & Nunes, 2011; Rucker & Galinsky, 2008), which are to be displayed to others (Berger & Ward, 2010; Han, Nunes, & Dréze, 2010). For example, after an important achievement, people are more motivated to show-off their increased status by seeking products that can be displayed to others (Griskevicius, Shiota, & Nowlis, 2010).

When prestigious goods are unattainable, a status motive can lead people to purchase counterfeit products (Wilcox, Kim, & Sen, 2009). And once status has been obtained, people exhibit behavior designed to preserve their status (Maner, Gailliot, Butz, & Peruche, 2007), such as by prioritizing personal goals over group goals (Maner & Mead, 2011).

The desire for status is not all about selfishness and indulgence. This is because status in a group can be enhanced through self-sacrifice (Hardy & Van Vugt, 2006), leading individuals across cultures to compete for status through prosocial behaviors – a tactic known as competitive

altruism (Roberts, 1998; Van Vugt et al., 2007). Among the indigenous communities of Pacific Northwest America, for example, tribal chiefs compete to see who can give away the most resources, with the most benevolent individual gaining the most status (Cole and Chaikin 1990). Accordingly, activating a status motive can lead people to spend more money on others than on themselves (Rucker, Dubois, & Galinsky, 2011). Likewise, a status motive can lead people to choose inferior, but environmentally-beneficial, “green” products because doing so can enhance people’s prosocial reputations (Griskevicius, Tybur, & Van den Bergh, 2010).

A status motive is involved in a wide range of consumer purchases that include innumerable luxury products and premium brands. But this motive might also have interesting broader implications. For example, activating status might lead people to become less price sensitive in general. Because being cheap is generally associated with lower status, increased concern about status might lead people to be less concerned about price. A status motive might also alter judgment and decision biases. Consider the overconfidence bias, which causes people to overestimate their abilities and positive future outcomes. Recent research suggests that this bias may be adaptive for solving evolutionary challenges related to status (Anderson, Brion, Moore, & Kennedy, in press; Johnson & Fowler, 2011). This suggests that activating a status motive might lead people to become especially overconfident, whereas activating another motive such as self-protection might produce more accurate judgment – or perhaps even reverse this well-documented human bias. Again, considering the influence of fundamental motives on consumer decisions raises a host of yet-to-be-addressed empirical questions, and this is true of status motives.

5. Mate Acquisition

Even if people manage to avoid danger and disease while getting others to like and respect them, it would count for naught in evolutionary terms if they did not manage to find someone willing to help them transport their genes into the next generation. But for any social animal, including *Homo sapiens*, the challenge of mating involves a variety of behaviors that at first glance might appear completely unrelated to mating.

The mate acquisition system is triggered by the presence of real or imagined members of the opposite-sex (for heterosexuals, at least). This motive can be stimulated by sexy or romantic ads, movies, or television shows. When this motive is activated, people are attuned to information about the desirability of others as romantic partners and their own desirability.

In contrast to a self-protection motive that leads people to want to blend in, a mate acquisition motive leads people to want to be noticed. But while both men and women want to stand out to acquire a mate, they often seek to draw attention to themselves in different ways. For men, this motive increases willingness to spend on luxury products (Griskevicius et al., 2007). Men exposed to mating cues pay more attention to status goods (Janssens et al., 2011) and choose more conspicuous and expensive brands (Sundie et al., 2011). Men in this state also become more creative (Griskevicius, Cialdini, & Kenrick, 2006), charitable (Iredale, Van Vugt, & Dunbar, 2008), manipulative (Ackerman, Griskevicius, & Li, 2011), socially dominant (Campbell et al., 2003), heroic (Griskevicius et al., 2007), and independent (Griskevicius, Goldstein, et al., 2006). For example, when asked to indicate whether they prefer Mercedes-Benz or BMW cars, this motive led men to choose the *opposite* brand from what the majority of others prefer, regardless of which brand it was (Griskevicius, Goldstein, et al., 2006). And when

evaluating works of art in a group context, men in this state most valued the art that was least valued by others, standing out by proclaiming hidden beauty that was overlooked by others.

The mate acquisition system also alters men's decision making, leading them to become less loss averse (Li et al., 2012), more risk-seeking (Baker & Maner, 2008; Knutson, Wimmer, Kuhnen, & Winkielman, 2008), and more impulsive (Wilson & Daly, 2004). For example, touching a piece of women's lingerie led men to prefer small but immediate monetary rewards over considerably larger but later gains (Van den Bergh, Dewitte, & Warlop, 2008). Similar results are found when the mate acquisition system is triggered by variations in sex ratio – the relative proportion of males to females in a given social context (Durante et al., 2012). When women are scarce, men are willing to do more to secure a mate, such as by saving less money and being more willing to use credit cards for immediate purchases (Griskevicius et al., 2012). Men seek to spend this additional money on acquiring a mate, paying \$6.01 more for a Valentine's Day gift and \$278 more for an engagement ring when women are scarce.

The motive to acquire a mate also leads women to want to stand out, but instead of showing off their wealth and bravado like men, women become more cooperative (Griskevicius, Goldstein, et al., 2006) and more helpful (Griskevicius et al., 2007). When evaluating artwork, for example, this motive led women to be more swayed by and agree with the other people in the group. Even more prominently, a motive to acquire a mate leads women to advertise their beauty and youth (Durante, Li, & Haselton, 2008; Kenrick & Keefe, 1992; Wiederman, 1993). Women across the world expend a great deal of time, energy, and money choosing clothes, accessories, and shades of make-up that enhance their attractiveness. In fact, while activating a mate acquisition motive doesn't lead women to become brazenly risky like men, there is one telling exception: Women will take more risks if it enhances their appearance (Hill & Durante, 2011).

Women primed with a mate acquisition motive are more willing to take diet pills and tan their bodies to enhance their appearance, even when they know that doing so can cause cancer.

Numerous consumer goods and services are designed to fulfill people's mate acquisition need, including the billion-dollar dating website industry that helps people get a date, or one of the other multi-billion industries that provide snazzy duds, cosmetics, cologne, facials creams, grooming, and gym memberships to make us look good for those dates. But many more products and services are related to mate acquisition in less obvious ways, including soft drinks, hard drinks, cars, fashion, music, art, and charitable behavior. More broadly, this motive might have more general influences on consumer tendencies, such as altering variety-seeking or novelty-seeking. For example, a mate acquisition motive might increase preference for variety and novelty. By contrast, preference for variety and novelty might be decreased by a different mating-related fundamental motive to which we turn to next.

6. Mate Retention

For 95% of all mammals, mating is a short-term affair that ends after copulation (Geary, 2000). But for humans and a few other mammals such as gibbons, enhancing reproductive fitness involved a second mating challenge – retaining that mate. The challenge of keeping a mate is very different from that of finding a mate. A great deal of time, effort, and money go into maintaining relationships, including spending time and money on presents and anniversaries, managing potential conflicts over sharing resources and child care, as well as managing the dangers of other people who might want to steal one's partner away.

The mate retention system involves positive behaviors designed to maintain current relationship bonds as well as behaviors design to manage threats of potential romantic

competitors (Campbell & Ellis, 2005). Mate retention motivation is activated by cues that celebrate or threaten a long-term relationship, such as reminiscing about the relationship, noticing that an anniversary is coming up, or catching a potential rival eyeing your partner. This motive spurs people to behave in ways to ensure the solidarity and functioning of their long-term romantic relationships. For example, it leads people to seek preservation of their current relationships by showing increased love and care for their current partner (Buss & Shackelford, 1997; Saad & Gill, 2003). People motivated to retain their mate also tend to devalue alternative potential romantic partners (Lydon, Fitzsimons, & Naidoo, 2003).

A mate retention motive also leads people to guard their mate from potential rivals (Maner, Gailliot, Rouby, & Miller, 2007). Whereas a mate acquisition motive leads people to be more attentive to attractive members of the *opposite* sex (Maner et al., 2005), a mate retention motive leads people to be more attentive to attractive members of the *same* sex, who represent potential threats to the relationship (Maner, Miller, Rouby, & Gailliot, 2009).

Mate retention has some interesting ramifications for luxury spending. Recall that conspicuous consumption is triggered by a motive to acquire a mate in men, but not in women (Griskevicius et al., 2007; Sundie et al., 2011). Yet women account for more than half of spending on lavish goods in the U.S. (D'Arpizio, 2011). What might be the evolutionary function for women's conspicuous consumption? Some recent evidence suggests that lavish spending in women is triggered by a mate retention motive, which leads women to seek designer handbags, pricey shoes, and other luxury products, as well as prefer larger brand logos that are more visible to other women (Wang & Griskevicius, 2012). These findings suggest that women in relationships might use lavish products to ward off female rivals. In fact, a woman's luxury

possessions signal a stronger bond between her and her romantic partner, thereby dissuading potential rivals from pursuing him.

Many products and services are geared at helping fulfill the need to retain a mate, including the \$70 billion U.S. wedding industry, and the innumerable husband and wife “dates,” flowers and anniversary gifts, and romantic getaways that will follow the wedding. More broadly, whereas most research on consumer choice assumes that decisions are usually made by individuals and are based on an individual’s personal preferences, much less research has considered that many consumer choices are actually shaped by a relationship partner (Simpson, Griskevicius, & Rothman, 2012). For example, many choices involve joint decisions, such as when a couple decides which house, car, or insurance plan to purchase, or where to go for dinner or on vacation. But even decisions made individually can be strongly affected by another person. For example, although a person out shopping alone for clothes will choose what to buy, the decision may be importantly influenced by the preferences of his or her relationship partner.

The fundamental motives framework also raises several interesting questions about the common notion that “sex sells.” Whereas traditional perspectives suggest that sex in advertising mainly functions to draw attention and to create positive associations between a product and a sexy spokesperson, the current framework highlights that sexy ads can also influence preferences and behavior by activating mating-related motives. The current framework also suggests that sex is likely to be much better at selling some things than others. For example, selling discount products using sex might actually lead men to avoid those products. Finally, the notion that there are two separate mating systems – mate acquisition and mate retention – helps explain when sex will sell to men and women. Whereas women are normally turned off by gratuitous sex in advertisements that activate a mate acquisition motive for men, presenting sex in the context of a

long-term relationship can be effective for women, such as when a sexy man is shown giving an expensive watch to that special woman in his life (Dahl, Sengupta, & Vohs, 2009).

7. Kin Care

The ultimate reason parents bond with one another is because it is good for the offspring. Studies of traditional societies, similar to those in which humans evolved, show that children without both parents are less likely to survive; and if they do survive, they don't fare as well as those with two investing parents (Geary, 2000; Hill & Hurtado, 1996). In the modern world, people continue to expend immense amounts of time, energy, and financial resources to care for family and raise their children. In the U.S., for example, it costs an average of \$205,960 to \$475,680 to raise just one child – and that figure does not include college tuition (Lino, 2010).

The kin care system is activated around family members, especially by children who are vulnerable or in need (Glocker et al., 2009; Sprengelmeyer et al., 2009). The system can also be triggered by cues of similarity, living together, common goals, and even fictive kinship terminology such as “brotherhood,” “sisterhood,” or “our company is one big family” (Lieberman, Tooby, & Cosmides, 2007; Park, Schaller, & Van Vugt, 2008).

The kin care system is not what leads us to have children (the mate acquisition system takes care of that by motivating us to have sex). Instead, a kin care motive spurs people to behave in ways to ensure that individuals in need receive proper care and attention. The kin care system facilitates nurturing behavior (Glocker et al., 2009; Sherman, Haidt, & Coan, 2009), motivating a willingness to sacrifice oneself to help others, especially if those others are one's relatives (Burnstein, Crandall, & Kitayama, 1994). It motivates people to provide those in need with social support (Kivett, 1985), physical protection (Daly & Wilson, 1998), and financial

support (Smith, Kish, & Crawford, 1987). For example, in experiments where a person plays an economic game with a stranger while only seeing the stranger's photo, the player is more trusting of the stranger with money when the stranger's photo has been morphed with the player's (Debruine, 2002). Because cues of physical or attitudinal similarity trigger associations of genetic relatedness (Park & Schaller, 2005), giving money to the other person morphed with your own image is, from the perspective of evolutionary inclusive fitness, like benefitting a long lost relative.

Many products and services are geared at helping to fulfill the need for kin care, including diapers, baby bottles, sippie cups, toddler clothes, toys, and babysitters, followed by choices of bigger clothes, bigger toys, summer camps, bicycles, and then decisions about college tuition, perhaps contributions to a child's wedding and honeymoon, and then the various product choices made in buying gifts for grandchildren. Thus far, little research has examined the influence of a kin care motive on consumer-related decisions. Given the universal importance of family throughout our evolutionary history, it is likely that activating kin care will produce many unique effects on consumer preferences and decision making process.

CONCLUSION AND ROADMAP FOR FUTURE RESEARCH

The fundamental motives framework highlights that people everywhere have the same ultimate motives. From Afghanistan to Zimbabwe, all humans have an evolutionary need to evade physical harm, avoid disease, make friends, attain status, acquire a mate, keep that mate, and care for family. These deep-seated ancestral motives continue to shape consumer preferences and decision making, albeit not always in obvious or conscious ways. A core implication of the framework is that the same person might make different – and sometimes entirely inconsistent –

choices depending on which fundamental motive is currently active. Although this framework has been empirically fruitful in generating many novel hypotheses about basic psychological processes and social cognition, the overwhelming majority of empirical implications for consumer behavior and decision-making have yet to be tested. Future research is poised to investigate the many interesting ways in which activating one motive versus another leads to different preferences, different choices, and different judgment and decision biases.

This current paper focused on how evolutionary priorities can vary depending on the situation. But evolutionary priorities also vary in predictable and functional ways depending on the person, including the person's age and life stage, biological sex, and individual differences in life history strategy (Kenrick et al., 2010a). Regarding age, different motivational systems come online at different life stages, and specific motives are likely to be more easily activated during one life stage than another. The self-protection and disease avoidance systems come online early in life, but children become concerned with making friends only much later, which is when the affiliation comes online. The inflow of testosterone during puberty marks the emergence of the mate acquisition and status systems, which can also suppress the self-protection and disease avoidance systems that were highly active in childhood. And mate retention and kin care systems only come online fully after a person attracts a mate worth keeping and begins to care for offspring.

Whereas the vast majority of consumer research has focused on young adults, often relying on college-aged samples, the fundamental motives framework provides a theoretical foundation for examining how, why, and when consumer behavior and decision making change across the lifespan. Besides the more obvious changes in product needs across the lifespan, an interesting possibility is that individuals at different life-history stages may be differentially

sensitive to specific fundamental motives. For example, concerns about affiliation, status, and mate acquisition might be most easily activated and exert the most powerful effects for teenagers and young adults, whereas the same motives might be more difficult to activate and exert weaker effects on children and on older adults. By contrast, self-protection and disease avoidance motives may be weaker for teenagers and young adults, who are in the business of expanding their affiliative and mate acquisition networks, and more likely to seek out dangerous situations. For instance, appeals to safety and health might actually increase *unsafe* and *unhealthy* behavior in teenagers, particularly in males, in line with the various findings we reviewed earlier. By contrast, such appeals are likely to be powerful for older individuals, who might be more concerned about staying alive and healthy to raise their offspring.

Scant consumer research has also considered how men's and women's consumption differs beyond broad generalities. Here too the fundamental motives framework provides a theoretical foundation for systematically examining how, why, and when men and women should differ – and should be similar – in their consumer behavior and decision making. For example, whereas males and females have solved some evolutionary problems such as disease avoidance in similar ways, they have solved other problems, such as mate acquisition, in very different ways. As we described, mate acquisition motives are likely to inspire consumption of appearance-related products in females, but a broader range of consumption choices in males, in whom mating motives inspire conspicuous consumption and various other forms of display (Durante et al., 2008; 2011; Sundie et al., 2011).

Evolutionary consideration of age and sex suggests that people's preferences and choices should vary in predictable and functional ways, such as males discounting the future more than females, and both men and women discounting the future more in young adulthood. However,

individuals differ in other important ways, as witnessed by some young men not discounting the future much at all. An evolutionary perspective suggests that many such important individual differences are related to what's known as a life history strategy, which is like a biological personality profile (Griskevicius, Ackerman, et al., in press). All organisms, including humans, differ in the extent to which they follow faster versus slower life history strategies, which are related to important differences in mating, parenting, and economic behavior. Whereas fast strategists tend to be short-term opportunists and take immediate benefits with little regard for long-term consequences, slow strategists tend to be long-term planners who delay immediate gratification to increase future payoffs (Griskevicius et al., 2011). An interesting implication is that activating a specific fundamental motive may produce different responses for individuals following fast versus slow strategies. For example, a mate acquisition motive might lead most people to generally seek luxury products. But whereas fast strategists might consume luxury products conspicuously, seeking loud brands and readily visible goods such as bright sports cars, slow strategists might consume luxury products inconspicuously, seeking quiet brands and not drawing too much general attention through goods such as a white luxury sedan. Overall, future research is poised to examine how, why, and when fundamental motives might interact with important individual differences.

While an evolutionary perspective highlights the importance of ultimate motives, it is important to note that it does *not* suggest that proximate motives are irrelevant or uninformative. Rather, it highlights that there are two critically distinct and complementary levels of analysis, each of which can fruitfully inform the study of the other. Consider promotion and prevention motivation, which are two commonly studied proximate motivations that have generated much interesting consumer research (Aaker & Lee, 2001; Pham & Chang, 2010; Zhou & Pham, 2004).

From an evolutionary perspective, the critical question is what evolutionary problem(s) does promotion or prevention help solve – that is, promote *what* and prevent *what*? This is an important question because the behaviors to prevent physical danger are different from those to prevent infection, which are still different from those for preventing losing a friendship or preventing the loss of status. Likewise, promoting safety, health, friendship, and status also involve different behaviors (Kenrick & Shiota, 2008). A natural question is whether each evolutionary system might have a promotion version and a prevention version. For example, future research might examine the resulting differences from a motive to promote the gain of friendship versus a motive to prevent the loss of friendship. Future research is also needed to examine the consequences of promoting versus preventing all different types evolutionary benefits, such as friendship, status, mates, health, family, and safety, while also investigating the interplay between ultimate and proximate motives more broadly.

Finally, an evolutionary approach is not incompatible with cultural influences. Culture and evolution are not independent influences on behavior. Instead, cultural norms and evolved psychological mechanisms interact in several ways (Kenrick, Nieuweboer, & Buunk, 2010; Norenzayan & Heine, 2010). Sometimes, cultural norms simply reflect underlying evolved biases, as in the tendency for young boys to be more interested in toys and games involving competition and aggression. At other times, cultural practices reflect biologically relevant local constraints (White et al., in press). For example, people in areas where disease threats are prominent tend to place more emphasis on physical attractiveness in mates, which reflects good parasite resistance (Gangestad, Haselton, & Buss, 2006). People living in disease-ridden environments are also less gregarious and extraverted, and less inclined to interact with members of other groups – tendencies could serve to reduce the spread of contagious diseases (Schaller &

Murray, 2008). Of course, much more research is needed to determine the exact nature of interactions between cultural inputs and evolves psychological mechanism, as well as their implications for consumer behavior.

We believe that people's decisions about how to allocate their limited resources shines a spotlight on the fundamental human motivations. Not only can a deeper understanding of the situational, cultural, and individual variations in fundamental motives expand the horizons of consumer behavior, but understanding consumer behavior will be central to our understanding of the role of fundamental motives in human nature.

References

- Aaker, J. & Lee, A. (2001). I seek pleasures, we avoid pains: The role of self regulatory goals in information processing of persuasion, *Journal of Consumer Research*, 28, 33-49.
- Aaker, J., Fournier, S. & Brasel, S. A. (2004). When Good Brands Do Bad. *Journal of Consumer Research*, 31, 1-16.
- Abelson, R. (2011). Health insurance costs rising sharply this year, study shows. New York Times, September 27, page A1.
- Ackerman, J. M., Shapiro, J. R., Neuberg, S. L., Kenrick, D. K., Becker, D. V., Griskevicius, V., et al. (2006). They all look the same to me (unless they're angry): From out-group homogeneity to out-group heterogeneity. *Psychological Science*, 17, 836-840.
- Ackerman, J.M., & Kenrick, D.T. (2008). The costs of benefits: Help-refusals highlight key trade-offs of social life. *Personality & Social Psychology Review*, 12, 2, 118-14.
- Ackerman, J. M., Becker, D.V., Mortensen, C.R., Sasaki, T., Neuberg, S.L., & Kenrick, D.T. (2009). A pox on the mind: Disjunction of attention and memory in the processing of physical disfigurement. *Journal of Experimental Social Psychology*, 45, 478-485.
- Alcock, J. (2009). *Animal Behavior: An Evolutionary Approach* (9th edition). Sinauer Associates Inc. Sunderland, MA.
- Anderson, C., Brion, S., Moore, D. M., & Kennedy, J. A. (in press). A status-enhancement account of overconfidence. *Journal of Personality and Social Psychology*.
- Anderson, U.S., Perea, E.F., Becker, D.V., Ackerman, J.M., Shapiro, J.R., Neuberg, S.L., & Kenrick, D.T. (2010). I only have eyes for you: Ovulation redirects attention (but not memory) to attractive men. *Journal of Experimental Social Psychology*, 46, 804-808.
- Baker, M., & Maner, J. K. (2008). Risk-Taking as a Situationally Sensitive Male Mating Strategy. *Evolution and Human Behavior*, 29, 391-395.
- Barrett, H. C. (2012). A hierarchical model of the evolution of human brain specializations. *Proceedings of the national Academy of Sciences*, 109, 10733-10740.
- Barrett, H. C., & Kurzban, R. (2006). Modularity in cognition: Framing the debate. *Psychological Review*, 113, 628-647.
- Baumeister, R. R., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497-529.
- Becker, D. V., Kenrick, D. T., Neuberg, S. L., Blackwell, K. C., & Smith, D. (2007). The confounded nature of angry men and happy women. *Journal of Personality and Social Psychology*, 92, 179-190.
- Becker, D.V., Anderson, U.S., Neuberg, S.L., Maner, J.K., Shapiro, J.R., Ackerman, J.M., Schaller, M., & Kenrick, D.T. (2010). More memory bang for the attentional buck: Self-protection goals enhance encoding efficiency for potentially threatening males. *Social Psychological and Personality Science*, 1, 182-189.
- Berger, Jonah and Morgan K. Ward (2010) "Subtle Signals of Inconspicuous Consumption," *Journal of Consumer Research*, 37 (4), 555-69.
- 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 decision rules for altruism: Weighing the cues for inclusive fitness as a function of the biological importance of the decision. *Journal of Personality and Social Psychology*, 67, 773-789.
- Buss, D. M. (2005). *Handbook of Evolutionary Psychology*. Wiley, New York.

- Buss, D. M., & Shackelford, T. K. (1997). From vigilance to violence: Mate retention tactics in married couples. *Journal of Personality and Social Psychology*, 72, 346-361.
- Campbell, L., & Ellis, B.J. (2005). Commitment, love, and mate retention. In D.M. Buss (Ed.), *The handbook of evolutionary psychology* (pp. 419-442). Hoboken, NJ, US: John Wiley & Sons, Inc.
- Campbell, L., Simpson, J.A., Stewart, M., & Manning, J.G. (2003). Putting personality in social context: Extraversion, emergent leadership, and the availability of rewards. *Personality and Social Psychology Bulletin*, 29, 1547-1559.
- Cantú, S. M., Beall, A. T., Griskevicius, V., Simpson, J. A., & Schaller, M. When are women especially attracted to attractive men? Mate preferences in a pathogen prevalent ecology. *Manuscript submitted for publication*.
- Cheng, J. T., Tracy, J. L., Foulsham, T., & Kingstone, A., & Henrich, J. (in press). Two ways to the top: Evidence that dominance and prestige and distinct yet viable avenues to social rank and influence. *Journal of Personality and Social Psychology*.
- Cialdini, R. B., Borden, R., Thorne, A., Walker, M., Freeman, S., & Sloane, L. T. (1976). Basking in reflected glory: Three (football) field studies. *Journal of Personality and Social Psychology*, 34, 366-375
- Cole, D., & Chaikin, I. (1990). *An Iron Hand upon the People: The Law against the Potlatch on the Northwest Coast*. Vancouver: Douglas & McIntyre; Seattle: University of Washington Press
- Confer, J. C., Easton, J. A., Fleischman, D. S., Goetz, C. D., Lewis, D. M., Perilloux, C., & Buss, D. M. (2010). Evolutionary psychology: Controversies, questions, prospects, and limitations. *American Psychologist*, 65, 110-126.
- Cummins, R. A. (1998). The second approximation to an international standard for life satisfaction. *Social Indicators Research*, 43, 307-334.
- Daly, M., & Wilson, M. (1988). *Homicide*. New York: Aldine de Gruyter.
- D'Arpizio, C. (2011). Spring 2011 update: Luxury goods worldwide market study. *Bain and Company Press Release*. Retrieved from: http://www.bain.com/bainweb/about/press_release_detail.asp?id=28459&menu_url=for_the_media.asp.
- Daly, M., & Wilson, M. (1988). *Homicide*. New York: Aldine de Gruyter.
- Dahl, D.W., Sengupta, J., & Vohs, K.D. (2009). Sex in Advertising: Gender Differences and the Role of Relationship Commitment. *Journal of Consumer Research*, 36, 215-231.
- Dobson, A. P., & Carter, E. R. (1996). Infectious diseases and human population history. *Bioscience*, 46, 115-126.
- DeBruine, L. M. (2002). Facial resemblance enhances trust. *Proceedings of the Royal Society of London B*, 269 (1498): 1307-1312
- DuBois, David, Derek D Rucker and Adam D. Galinsky. 2012. Super Size Me: Product Size as a Signal of Status. *Journal of Consumer Research*. 38(6): 1047-1062.
- Durante, K. M., Griskevicius, V., Hill, S. E., Perilloux, C., & Li, N. P. (2011). Ovulation, female competition, and product choice: Hormonal influences on consumer behavior. *Journal of Consumer Research*, 37, 921-934.
- Durante, Kristina M., Norman P. Li, and Martie G. Haselton (2008), "Changes in Women's Choice of Dress across the Ovulatory Cycle: Naturalistic and Laboratory Task-Based Evidence," *Personality and Social Psychology Bulletin*, 34, 1451-1460.

- Durante, K. M., Griskevicius, V., Simpson, J. A., Cantu, S. M., & Tybur, J. M. (2012). Sex ratio and women's career choice: Does a scarcity of men lead women to choose briefcase over baby? *Journal of Personality & Social Psychology*
- Epley, N., Waytz, A., Akalis, S., & Cacioppo, J. T. (2008). When we need a human: Motivational determinants of anthropomorphism. *Social Cognition, 26*, 143-155
- Ermer, E., Cosmides, L., & Tooby, J. (2008) Relative status regulates risky decision making about resources in men: evidence for the co-evolution of motivation and cognition. *Evolution and Human Behavior 29*, 106–118.
- Fiske, A. P. (1992). The Four Elementary Forms of Sociality: Framework for a Unified Theory of Social Relations. *Psychological Review, 99*, 689-723,
- Fleischman, D. S., Webster, G. D., Judah, G., de Barra, M., Aunger, R., & Curtis, V. A. (2011). Sensor recorded changes in rates of hand washing with soap in response to the media reports of the H1N1 pandemic in Britain. *British Medical Journal Open, 1*.
- Gangestad, S.W., and Buss, D.M. (1993). Pathogen prevalence and human mate preferences. *Ethology and Sociobiology, 14*, 89-96.
- Gangestad, S. W., Haselton, M. G., & Buss, D. M. (2006). Evolutionary foundations of cultural variation: Evoked culture and mate preferences. *Psychological Inquiry, 17*, 75-95.
- Gangestad, S.W., & Thornhill, R. (2008). Human oestrus. *Proceedings of the Royal Society B, 275*, 991-1000.
- Geary, D.C. (2000). Evolution and the proximate expression of human paternal investment. *Psychological Bulletin, 126*, 55–77.
- Glocker ML, Langleben DD, Ruparel K, Loughhead JW, Gur RC, et al. (2009). Baby schema in infant faces induces cuteness perception and motivation for caretaking in adults. *Ethology 115*: 257-263.
- Griskevicius, V., Cialdini, R.B., & Kenrick, D.T. (2006). Peacocks, Picasso, and parental investment: The effects of romantic motives on creativity. *Journal of Personality & Social Psychology, 91*, 63-76.
- Griskevicius, V., Goldstein, N. J., Mortensen, C. R., Cialdini, R. B. & Kenrick, D. T. (2006). Going along versus going alone: When fundamental motives facilitate strategic (non)conformity. *Journal of Personality and Social Psychology, 91*, 281–294.
- Griskevicius, V., Tybur, J. M., Sundie, J. M., Cialdini, R. B., Miller, G. F. & Kenrick, D. T. (2007). Blatant benevolence and conspicuous consumption: When romantic motives elicit costly displays. *Journal of Personality and Social Psychology, 93*, 85–102.
- Griskevicius, V., Goldstein, N. J., Mortensen, C. R., Sundie, J. M., Cialdini, R. B., & Kenrick, D. T. (2009). Fear and loving in Las Vegas: Evolution, emotion, and persuasion. *Journal of Marketing Research, 46*, 385-395.
- Griskevicius, V., Tybur, J. M., Gangestad, S. W., Perea, E. F., Shapiro, J. R., & Kenrick, D. T. (2009). Aggress to impress: Hostility as an evolved context-dependent strategy. *Journal of Personality and Social Psychology, 96*, 980-994.
- Griskevicius, V., Tybur, J. M., & Van den Bergh, B. (2010). Going green to be seen: Status, reputation, and conspicuous conservation. *Journal of Personality and Social Psychology, 98*, 392-404.
- Griskevicius, V., Shiota, M. N., & Nowlis, S. M. (2010). The many shades of rose-colored glasses: An evolutionary approach to the influence of different positive emotions. *Journal of Consumer Research, 37*, 238-250.

- Griskevicius, V., Tybur, J. M., Delton, A. W., & Robertson, T. E. (2011). The influence of mortality and socioeconomic status on risk and delayed rewards: A life history theory approach. *Journal of Personality and Social Psychology, 100*, 1015-1026.
- Griskevicius, V., Tybur, J. M., Ackerman, J. A., Delton, A. W., Robertson, T. E., & White, A. E. (2012). The financial consequences of too many men: Sex ratio effects on saving, borrowing, and spending. *Journal of Personality and Social Psychology, 102*, 69-80
- Griskevicius, V., Ackerman, J. A., Cantu, S. M., Delton, A. W., & Robertson, T. E., Simpson, J. A., Thomson, M. E., & Tybur, J. M. (in press). When the economy falters do people spend or save? Responses to resource scarcity depend on childhood environments. *Psychological Science*.
- Hamamura, T. & Park, J.H. (2010). Regional differences in pathogen prevalence and defensive reactions to the “swine flu” outbreak among East Asians and Westerners. *Evolutionary psychology, 8*. 506-515
- Han, Young Jee, Joseph C. Nunes, and Xavier Drèze (2010), “Signaling Status with Luxury Goods: The Impact of Brand Prominence,” *Journal of Marketing, 74*, 14-30.
- Hardy, C. L. & Van Vugt, M. (2006). Nice guys finish first: The competitive altruism hypothesis. *Personality and Social Psychology Bulletin, 32*, 1402.
- Haselton, M. G. & Nettle, D. (2006). The paranoid optimist: An integrative evolutionary model of cognitive biases. *Personality and Social Psychology Review, 10*, 47-66.
- Henrich, J. & Gil-White F.J. (2001). The evolution of prestige: freely conferred status as a mechanism for enhancing the benefits of cultural transmission. *Evolution and Human Behavior, 22*, 165–196.
- Hill, Sarah E. and Kristina M. Durante, (2011), "Courtship, Competition, and the Pursuit of Attractiveness: Mating Goals Facilitate Health-Related Risk-Taking and Strategic Risk Suppression in Women," *Personality and Social Psychology Bulletin, 37*, 383-394.
- Hill, K. & Hurtado, A. M. (1996). *Ache life history: The ecology and demography of a foraging people*. Hawthorne, NY: Aldine de Gruyter.
- Huang, J. Y., & Ackerman, J.M. (2012). Preferences for previously-owned products: The roles of contagion threat and protection. *Manuscript submitted for publication*.
- Huang, J.Y., Sedlovskaya, A., Ackerman, J.M., & Bargh, J.A. (2011). Immunizing against prejudice: Effects of disease protection on attitudes toward out-groups. *Psychological Science, 22*, 1550-1556.
- Iredale, W., Van Vugt, M., & Dunbar, R. I. M. (2008). Showing off in Humans: Male Generosity as a Mating Signal. *Evolutionary Psychology, 6*(3), 386-392.
- Ivanic, A., Overbeck, J. R., & Nunes, J. (2011). Status, race, and money. *Psychological Science, 22*, 1557-66.
- Johnson, D.D.P., & Fowler, J. H. (2011). "The Evolution of Overconfidence" *Nature, 477*, 317–320.
- Jost, J. T., & Hunyady, O. (2005). Antecedents and consequences of system-justifying ideologies. *Current Directions in Psychological Science, 14*, 260–265.
- Kahneman, Daniel and Amos Tversky (1979), Prospect Theory: An Analysis of Decision Under Risk, *Econometrica, 47*, 263-91.
- Kenrick, D.T. & Cohen, A.B. (2012). Evolutionary social psychology. In A. Kruglanski & W. Stroebe (eds.) *Handbook of the History of Social Psychology*. Pp. 101-123. New York: Psychology Press.
- Kenrick, D. T., & Keefe, R. C. (1992). Age preferences in mates reflect sex differences in human reproductive strategies. *Behavioral & Brain Sciences, 15*, 75-133.

- Kenrick, D.T., & Griskevicius, V. (in press). *Deep rationality: The hidden wisdom behind our seemingly senseless decisions*. New York: Basic Books.
- Kenrick, D. T., Griskevicius, V., Neuberg, S. L., & Schaller, M. (2010). Renovating the Pyramid of Needs: Contemporary Extensions Built Upon Ancient Foundations. *Perspectives on Psychological Science*, 5, 292-314.
- Kenrick, D. T., Li, N. L., & Butner, J. (2003). Dynamical evolutionary psychology: Individual decision rules and emergent social norms. *Psychological Review*, 110, 3-28.
- Kenrick, D.T., Griskevicius, V., Sundie, J.M., Li, N.P., Li, Y.J. & Neuberg, S.L. (2009). Deep rationality: The evolutionary economics of decision-making. *Social Cognition*, 27, 764-785.
- Kenrick, D. T., Neuberg, S. L., Griskevicius, V., Schaller, M., & Becker, D. V. (2010). Goal-driven cognition and functional behavior: The fundamental motives framework. *Current Directions in Psychological Science*, 19, 63-67.
- Kenrick, D.T., Nieuweboer, S., & Buunk, A.P. (2010). Universal mechanisms and cultural diversity: Replacing the blank slate with a coloring book. Pp. 257-271 in M. Schaller, A. Norenzayan, S. Heine, T. Yamagishi, & T. Kameda (eds.) *Evolution, culture, and the human mind*. New York: Psychology Press.
- Kenrick, D.T., & Shiota, M.N. (2008). Approach and Avoidance Motivation(s): An Evolutionary Perspective. Pp. 273-288 in A. J. Elliot (Ed.), *Handbook of Approach and Avoidance Motivation*. New York: Psychology Press.
- Kivett, V. R. (1985). Consanguinity and Kin Level: Their Relative Importance to the Helping Network of Older Adults. *Journal of Gerontology*, 40, 228–234.
- Knutson, B., Wimmer, G. E., Kuhnen, C. M., Winkielman, P. (2008). Nucleus accumbens activation mediates the influence of reward cues on financial risk taking. *NeuroReport*, 19, 509-513.
- Kugihara, N. (2005). Effects of physical threat and collective identity on prosocial behaviors in an emergency. In J. P. Morgan (Ed.), *Psychology of aggression* (pp. 45-67). Hauppauge, NY: Nova Science.
- Janicki, M. G., & Krebs, D. L. (1998). Evolutionary approaches to culture. In C. Crawford & D. L. Krebs (Eds.), *Handbook of evolutionary psychology: Ideas, Issues, and applications* (pp. 163-207). Mahwah NJ: Lawrence Erlbaum Associates.
- John L. Lastovicka and Nancy J. Sirianni (2011). Madly, Truly, Deeply: Consumers in the Throes of Material Possession Love. *Journal of Consumer Research*, 37, 323-342.
- Lerner, J. S. & Keltner, D. (2001). Fear, anger, and risk. *Journal of Personality and Social Psychology*, 81, 146-159.
- Li, Y. J., Kenrick, D. T., Griskevicius, V., & Neuberg, S. L. (2012). Economic decision biases and fundamental motivations: How mating and self-protection alter loss aversion. *Journal of Personality and Social Psychology*, 102, 550-561.
- Li, Y.J, A. E. White, Ackerman, J. M., S. L. Neuberg, D. T. Kenrick (2012). We Eat What We Are: Disease Concerns Shift Preferences for (Un)Familiar Foods. *Under review*.
- Lieberman, D., Tooby, J., & Cosmides, L. (2007). The architecture of human kin detection. *Nature*, 445, 727–731.
- Lino, M. (2010). *Expenditures on children by families, 2009* (Miscellaneous Publication No. 1528–2009). Retrieved from <http://www.cnpp.usda.gov/Publications/CRC/crc2009.pdf>

- Lydon, J. E., Fitzsimons, G. M., & Naidoo, L. (2003). Devaluation versus enhancement of attractive alternatives: A critical test using the calibration paradigm. *Personality and Social Psychology Bulletin*, 29, 349-359.
- Maner, J. K., Kenrick, D. T., Neuberg, S. L., Becker, D. V., Robertson, T., Hofer, B., et al. (2005). Functional projection: How fundamental social motives can bias interpersonal perception. *Journal of Personality and Social Psychology*, 88, 63-78.
- Maner, J. K., Gailliot, M. T., Rouby, D. A., & Miller, S. L. (2007). Can't take my eyes off you: Attentional adhesion to mates and rivals. *Journal of Personality and Social Psychology*, 93, 389-401.
- Maner, J. K., Gailliot, M. T., Butz, D., & Peruche, B. M. (2007). Power, risk, and the status quo: Does power promote riskier or more conservative decision-making? *Personality and Social Psychology Bulletin*, 33, 451-462.
- Maner, Jon K., C. Nathan DeWall, Roy F. Baumeister, and Mark Schaller (2007), "Does Social Exclusion Motivate Interpersonal Reconnection? Resolving the "Porcupine Problem." *Journal of Personality and Social Psychology*, 92, 42-55.
- Maner, J. K., Miller, S. L., Rouby, D. A., & Gailliot, M. T. (2009). Intrasexual vigilance: The implicit cognition of romantic rivalry. *Journal of Personality and Social Psychology*, 97, 74-87.
- Maner, J. K., & Mead, N (2012). The essential tension between leadership and power: When leaders sacrifice group goals for the sake of self-interest. *Journal of Personality and Social Psychology*.
- Maner, J. K., Miller, S. L., Moss, J. H., Leo, J. L., & Plant, A. E. (2012). Motivates social categorization: Fundamental motives enhance people's sensitivity to basic social categories. *Journal of Personality and Social Psychology*, 103, 70-83.
- Marmot, M. (2004). *Status Syndrome: How Your Social Standing Directly Affects Your Health and Life Expectancy*. Bloomsbury, London,
- Mead, N. L., Baumeister, R. F., Stillman, T. F., Rawn, C. D., & Vohs, K. D. (2011). Social exclusion causes people to spend and consume in the service of affiliation. *Journal of Consumer Research*.
- Miller, G. F. (2009). *Spent: Sex, evolution, and consumer behavior*. New York: Penguin/Putnam
- Miller, G. F., Tybur, J. M., & Jordan, B. D. (2007). Ovulatory cycle effects on tip earnings by lap-dancers: Economic evidence for human estrus? *Evolution and Human Behavior*, 28, 375-381.
- Miller, S. L., & Maner, J. K. (2011). Sick body, vigilant mind: The biological immune system activates the behavioral immune system. *Psychological Science*, 22, 1467-1471.
- Miller, A. G., Collins, B. E., & Brief, D. E. (1995). Perspectives on obedience to authority: The legacy of the Milgram experiments. *Journal of Social Issues*, 51, 1-19.
- Morales, Andrea C. and Gavan J. Fitzsimons (2007). Product Contagion: Changing Consumer Evaluations Through Physical Contact with "Disgusting" Products. *Journal of Marketing Research*, 44, 272-283.
- Mortensen, C. R., Becker, D. V., Ackerman, J. M., Neuberg, S. L., & Kenrick, D. T. (2010). Infection breeds reticence: The effects of disease salience on self-perceptions of personality and behavioral avoidance tendencies. *Psychological Science*, 21, 440-447.
- Navarrete, C.D., Fessler, D.M.T., & Eng, S.J. (2007) Elevated ethnocentrism in the first trimester of pregnancy. *Evolution and Human Behavior* 28(1):60-65.

- Nelissen, R.M.A., & Meijers, M.H.C. (2012). Social benefits of luxury brands as costly signals of wealth and status. *Evolution and Human Behavior*.
- Neuberg, S. L., Kenrick, D. T., & Schaller, M. (2010). Evolutionary social psychology. In S. T. Fiske, D. Gilbert, & G. Lindzey (Eds.), *Handbook of Social Psychology* (5th ed., pp. 761–796). New York: John Wiley & Sons.
- Neuberg, S.L., Kenrick, D.T., & Schaller, M. (2011). Human threat management systems: Self-protection and disease avoidance. *Neuroscience & Biobehavioral Reviews*, 35, 1042-1051.
- Nisbett, R., & T. Wilson (1977). Telling More than we can Know: Verbal reports on mental processes. *Psychological Review*, 84, 231-259.
- Norenzayan, A., & Heine, S.J. (2005). Psychological universals: What are they and how can we know? *Psychological Bulletin*, 131, 763-784.
- Ohman, A. & Mineka, S. (2001). Fears, phobias, and preparedness. Toward an evolved module of fear and fear learning. *Psychological Review*, 108, 483-522.
- Olson, D.R., Simonson, L., Edelson, P.J., & Morse, S.S. (2005). Epidemiological evidence of an early wave of the 1918 influenza pandemic in New York City, *Proceedings of the National Academy of Sciences*, 102, 11059-11063.
- Park, J. H., & Schaller, M. (2005). Does attitude similarity serve as a heuristic cue for kinship? Evidence of an implicit cognitive association. *Evolution & Human Behavior*, 26, 158-170.
- Park, J. H., Schaller, M., & Van Vugt, M. (2008). Psychology of human kin recognition: heuristic cues, erroneous inferences, and their implications. *Review of General Psychology*, 12, 215-235.
- Pham, M. T., & Chang, H. (2010). Regulatory Focus, Regulatory Fit, and the Search and Consideration of Choice Alternatives. *Journal of Consumer Research*, 37, 626-640.
- Pinker, S. (2011). *The better angels of our nature: The decline of violence in history and its causes*. London: Penguin Books.
- Kelleher, J. (2012, Jan. 5) “FBI data shows spike in U.S. firearm purchases in 2011” Chicago: Reuters. <http://www.reuters.com/article/2012/01/05/us-usa-firearms-backgroundchecks-idUSTRE80407P20120105>
- Roberts, G. (1998). Competitive altruism: From reciprocity to the handicap principle. *Proceedings of the Royal Society, London, B*, 265, 427-31.
- Rucker, D.D., & Galinsky, A.D. (2008). Desire to acquire: Powerlessness and compensatory consumption. *Journal of Consumer Research*, 35, 257-267.
- Rucker, Derek D and Adam D. Galinsky. 2009. Conspicuous Consumption versus Utilitarian Ideals: How Different Levels of Power Shape Consumer Consumption. *Journal of Experimental Social Psychology*. 45: 549-555.
- Rucker, Derek D, David DuBois and Adam D. Galinsky. 2011. Generous Paupers and Stingy Princes: Power Drives Consumer Spending on Self and Others. *Journal of Consumer Research*. 37, 1015-1029.
- Saad, G. (2007). *The evolutionary bases of consumption*. Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Saad, G. (2013). Evolutionary consumption. *Journal of Consumer Psychology*.
- Saad, G., & Gill, T. (2003). An Evolutionary Psychology Perspective on Gift Giving Among Young Adults. *Psychology & Marketing*, 20, 765-784.
- Saad, G., & Stenstrom, E. (2012). Calories, beauty, and ovulation: The effects of the menstrual cycle on food and appearance-related consumption. *Journal of Consumer Psychology*, 22, 102-113.

- Schaller, M., & Park, J. H. (2011). The behavioral immune system (and why it matters). *Current Directions in Psychological Science*, 20, 99-103.
- Schaller, M., Park, J. H., & Mueller, A. (2003). Fear of the dark: Interactive effects of beliefs about danger and ambient darkness on ethnic stereotypes. *Personality and Social Psychology Bulletin*, 29, 637-649.
- Schaller, M., Miller, G. E., Gervais, W. M., Yager, S., & Chen, E. (2010). Mere visual perception of other people's disease symptoms facilitates a more aggressive immune response. *Psychological Science*, 21, 649-652.
- Schaller, M., & Murray, D. M., (2008). Pathogens, personality, and culture: Disease prevalence predicts worldwide variability in sociosexuality, extraversion, and openness to experience. *Journal of Personality and Social Psychology*, 93, 212-221.
- Sherman GD, Haidt J, Coan JA (2009). Viewing cute images increases behavioral carefulness. *Emotion* 9: 282-286.
- Sherry, D. F. & Schacter, D. L. (1987). The evolution of multiple memory systems. *Psychological Review*, 94, 439-454.
- Simpson, J. A., Griskevicius, V., & Rothman, A. (2012). Consumer decisions in relationships. *Journal of Consumer Psychology*.
- Smith M., Kish B., Crawford C. (1987). Inheritance of wealth as human kin investment. *Ethology and Sociobiology*, 8, 171-182.
- Snyder, C. R., Lassegard, M., & Ford, C. E. (1986). Distancing after group success and failure: Basking in reflected glory and cutting off reflected failure. *Journal of Personality and Social Psychology*, 51, 382-388.
- Sprengelmeyer R, Perrett DI, Fagan EC, Cornwell RE, Lobmaier JS, et al. (2009). The cutest little baby face: a hormonal link to sensitivity to cuteness in infant faces. *Psychological Science*, 20: 149-154.
- Sundie, J. M., Kenrick, D. T., Griskevicius, V., Tybur, J. M., Vohs, K. D., & Beal, D.J. (2011). Peacocks, Porsches, and Thorstein Veblen: Conspicuous consumption as a sexual signaling system. *Journal of Personality and Social Psychology*, 100, 664-680.
- Sundie, J.M., Kenrick, D.T., Griskevicius, V., Tybur, J., Vohs, K., & Beal, D.J. (2011). Peacocks, Porsches, and Thorsten Veblen: Conspicuous consumption as a sexual signaling system. *Journal of Personality & Social Psychology*, 100, 664-680.
- Tesser, A. (1988). Toward a self-evaluation maintenance model of social behavior. In L.L. Berkowitz (Ed.), *Advances in experimental social psychology*, 21 (pp. 181-228). San Diego: Academic Press.
- Thaler, R. H., Tversky, A., Kahneman, D., & Schwartz A. (1997). The effect of myopia and loss aversion of risk taking: An experimental test. *Quarterly Journal of Economics*, 112.
- Tinbergen, N. (1963). On the aims and methods of ethology. *Zeitschrift für Tierpsychologie*, 20,410-433.
- Tooby, J., & Cosmides, L. (1992). The psychological foundations of culture. In J. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind: Evolutionary psychology and the generation of culture* (pp.19-136). New York: Oxford University Press.
- Tooby, J., and Cosmides, L. (2005). Conceptual foundations of evolutionary psychology. In D. Buss (Ed.), *Handbook of evolutionary psychology* (pp. 5- 67). Hoboken, NJ: Wiley.
- Tversky, A. and Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, 221, 453-458.

- Tybur, J. M., Lieberman, D. L., & Griskevicius, V. G. (2009). Microbes, mating, and morality: Individual differences in three functional domains of disgust. *Journal of Personality and Social Psychology, 29*, 103-122.
- Tybur, J. M., Bryan, A. D., Magnan, R. E., & Caldwell Hooper, A. E. (2011). Smells like safe sex: Olfactory pathogen primes increase intentions to use condoms. *Psychological Science, 22*, 478-480.
- Underhill, P. (2000). *Why we buy: The science of shopping*. New York: Simon & Schuster.
- U.S. Dept. of Justice Crime in the United States, (2011). Uniform Crime Reports. Federal Bureau of Investigation. Washington, D.C.
- Van Vugt, M., Roberts, G., & Hardy, C. (2007). Competitive altruism: Development of reputation-based cooperation in groups. In R. Dunbar & L. Barrett, *Handbook of Evolutionary Psychology*. Oxford: Oxford University Press, pp. 531-540.
- Van Vugt, M., De Cremer, D., & Janssen, D. P. (2007). Gender Differences in Cooperation and Competition: The Male-Warrior Hypothesis. *Psychological Science, 18*, 19-23.
- Van den Bergh, B., Dewitte, S., & Warlop, L. (2008). Bikinis instigate generalized impatience in intertemporal choice. *Journal of Consumer Research, 35*, 85-97.
- White, A.E., Kenrick, D.T., Li, Y.J., Mortensen, C.R., Neuberg, S.L., & Cohen, A.B. (2012). Threats of violence amplify agreeableness at national, individual, and situational levels. *Journal of Personality & Social Psychology*
- Wiederman, M. W. (1993). Evolved gender differences in mate preferences: Evidence from personal advertisements. *Ethology and Sociobiology, 14*, 331-352.
- Wilson, M., & Daly, M. (2004). Do pretty women inspire men to discount the future? *Proceedings of the Royal Society, B 271, Suppl. 4*, 177-179.
- Wang, X. T. (1996). Domain-specific rationality in human choices: Violations of utility axioms and social contexts. *Cognition, 60*, 31-63.
- Wang, Y., & Griskevicius, V. (2012). Back off my man: Women's conspicuous consumption as a mate guarding strategy. *Manuscript submitted for publication*.
- Ward, Morgan K. and Susan M. Broniarczyk (2011), "It's Not Me, It's You: How Gift Giving Creates Giver Identity Threat as a Function of Social Closeness," *Journal of Consumer Research, 38* (June), 164-181.
- Wilcox, K., Kim, H., & Sen, S. (2009). Why do consumers buy counterfeit luxury brands? *Journal of Marketing Research, 46*, 247-259.
- Zhou, Rongrong and Michel Tuan Pham (2004). Promotion and Prevention across Mental Accounts: When Financial Products Dictate Consumers' Investment Goals. *Journal of Consumer Research, 31*, 125-135.

TABLE: FUNDAMENTAL MOTIVES, THEIR TRIGGERS, AND BEHAVIORAL TENDENCIES

Evolutionary Need	Key Theories or Ideas	Cues Triggering System	Examples of Behavioral Tendencies
Self-Protection <i>Evade physical danger to remain safe</i>	Phobic Preparedness Social Dominance theory Functional Projection	Possibility of physical danger: <ul style="list-style-type: none"> • Angry faces, outgroup males • Darkness, loud noises • Interacting with threatening person 	Increased aversion to losses Increased tendency to conform Decreased risk seeking Avoidance of outgroup men
Disease Avoidance <i>Avoid infections to stay healthy</i>	Behavioral Immune System Disgust Adaptations	Potential presence of pathogens: <ul style="list-style-type: none"> • Coughing, sneezing, foul smells • Dirtiness, deformity, foreignness • Interacting with sick person 	Become more introverted Become more xenophobic Seek “clean” and familiar products Avoid used products
Affiliation <i>Form and maintain cooperative alliances</i>	Reciprocal Altruism Social Contract Theory Cheater Detection	Friendship threat or opportunity: <ul style="list-style-type: none"> • Social rejection, loneliness • Concerns about fairness • Interacting with friends, coworkers 	Seek products to connect with others Increased susceptibility to word-of-mouth Seek online reviews for what others think
Status <i>Gain and maintain respect and prestige</i>	Intra-Sexual Selection Costly Signaling Dominance vs. Prestige	Status threat or opportunity: <ul style="list-style-type: none"> • Competition, success • Prestigious people or objects • Interacting with boss or underlings 	Seek products that signal power or prestige Seek exclusive and up-to-date features Increased prosocial choices Increased aggression and dominance
Mate Acquisition <i>Acquire a desirable romantic partner</i>	Inter-Sexual Selection Parental Investment Strategic Pluralism	Desirable members of opposite sex: <ul style="list-style-type: none"> • Sexy images, products • Romantic stories • Interacting with potential date 	Increased male conspicuous consumption Male nonconformity and creativity Decreased loss aversion among males Increased male impulsivity and risk taking Increased public altruism by females
Mate Retention <i>Foster long-term mating bond</i>	Attachment Theory Strategic Interference Th. Jealousy Adaptations	Relationship threat or celebration: <ul style="list-style-type: none"> • Anniversary, reminisce good times • Interloper, wandering eye • Interacting with spouse/partner 	Seek gifts to foster committed relationship Joint purchases Women’s attention to other women’s attractiveness Men’s attention to other men’s status
Kin Care <i>Invest in and care for family and kin</i>	Kin Selection/Inclusive Fitness Parent-Offspring Conflict	Family or vulnerable others: <ul style="list-style-type: none"> • Babies and children • Suffering family members • Interacting with family members 	Increased trust of others Increased nurturance Increased giving

